George Mason University

The nation's capital is 20 miles from George Mason.

George Mason University's 600 acre campus, situated between the nation's capital and the Blue Ridge Mountains, offers students a Walden-like spot in which to immerse themselves in tough academics.

-Time Magazine identifies George Mason as a “fast rising and ambitious institution”; the Wall Street Journal sees it as “a giant growing just outside Washington, D.C.”; the New York Times education editor Edward Fiske selected it as “A Best Buy in Higher Education.”

What are the special characteristics that made top publications focus on George Mason? Simply put, it is the education that results from a remarkable combination of faculty, location, and planning.

George Mason is building a world-class faculty. It includes nationally and internationally recognized economists, published novelists, and leading researchers in information technology. Many professors have career experience in government and business, bringing an unusual breadth of information to their classes.

More than 900 teacher/scholars contribute to George Mason’s academic reputation. They are recipients of Guggenheim, National Endowment for the Humanities, and Ingram Merrill Fellowships; Institute of Electrical and Electronics Engineers Centennial Medals; PEN/Faulkner nominees; and American Association for the Advancement of Science Fellows. Class sizes are moderate, ensuring personal attention for students both during and after class.

Situated on the outskirts of the nation’s capital, just 30 minutes from downtown Washington, D.C., the University is in the midst of an intellectual, political and cultural gold mine. Resources like the Library of Congress, the National Institutes of Health, the Smithsonian Institution, and the National Gallery of Fine Art give students almost unlimited research opportunities. Many GMU faculty members are affiliated with such institutions, and students benefit from these wider research contacts.

In Northern Virginia, George Mason is part of one of the nation’s most dynamic regions. Burgeoning high-tech industrial development, like that of California’s Silicon Valley and Boston’s Route 128, means a growing population, a wide variety of research and job opportunities, and chances for practical experience that make a George Mason degree highly marketable.

George Mason offers a quality education at an economical price. We invite you to visit the campus, investigate programs, and talk with the faculty. We look forward to seeing you.
Mission and History

Through the years, the University's mission and goals have fostered in all degree programs a substantial core from the liberal arts and sciences, while actively encouraging innovation and responsiveness to community needs. The University today stands as an example of well-designed and well-directed higher education.

"George Mason University will provide superior, traditional education enabling students to develop critical and analytical modes of thought and to make rigorous, honorable decisions," said the 1980 Board of Visitor's mission statement. "The University seeks to prepare students to interpret the complex questions facing them and society. It further seeks to meet the needs of students by providing the opportunity for innovative educational methods and programs; and it will enhance these programs with undergraduate, graduate, and professional courses of study that are cross-disciplinary.

"The University will strive to be a resource of the Commonwealth serving government and private enterprise, and to be the intellectual and cultural focus of Northern Virginia."

The History of George Mason University
The University was named for George Mason of Gunston Hall in Fairfax County. During the American Revolution, this Northern Virginian drafted the Virginia Declaration of Rights and later convinced his countrymen to adopt a Bill of Rights to the United States Constitution. Written guarantees spelling out the rights of free citizens are George Mason's greatest legacy.

What is now George Mason University was first established in 1957 as an extension center of the University of Virginia. Two years later, the city of Fairfax donated 147 acres to the school, which was named George Mason College, a branch of UVA. In 1964, the new campus welcomed 365 students to the four original buildings on the Fairfax site. In 1966, the Virginia General Assembly authorized the College to become a four-year, degree-granting institution and gave it a long-range mandate to expand into a major regional university. The General Assembly later enacted legislation separating George Mason from UVA, and on April 7, 1972, the Governor signed into law the historic legislation making George Mason an independent institution with University status.
George Mason University
Programs of Study

The Library of Congress in nearby Washington, D.C., provides extensive research opportunities for students.

The graduate experience demands that students inquire searchingly and apply themselves fully in their scholastic activities.

This experience should be long enough to allow time for reflection, absorption, and the emergence of intellectual independence and self-confidence.

Graduate and Professional Degrees

See Reference Section for further information.

Accounting M.S.
Applied Physics M.S.
Biology M.S.
Business Administration M.B.A.
Computer and Electronics Engineering M.S.
Computer Science M.S.
Conflict Management M.S.
Counseling M.Ed.
Creative Writing M.F.A.
Economics M.A., Ph.D.
Education D.A.Ed.
Education Administration and Supervision M.Ed.
Elementary Education M.Ed.
English M.A.
Environmental Biology and Public Policy Ph.D.
Foreign Languages M.A.
Geographic and Cartographic Sciences M.S.
Health Education M.Ed.
History M.A.
Information Systems M.S.
Information Technology Ph.D.
Interdisciplinary Study M.A.I.S.
Law J.D.
Mathematics M.S.
Music M.A.
Nursing M.S.N., D.N.Sc.
Operations Research and Management Sciences M.S.
Physical Education M.S.
Psychology M.A., Psy.D.
Public Administration M.P.A., D.P.A.
Reading M.Ed.
Secondary Education M.Ed.
Sociology M.A.
Special Education M.Ed.
Systems Engineering M.S.

Certificate Programs

Gerontology
Information Management and Expert Systems
International Nursing
Nursing Administration
Nursing Education
Teaching of English as a Second Language
The Metro subway system allows easy access to Northern Virginia and downtown Washington.

Graduate education is not simply an extension of undergraduate education; it means advanced, intensive, and purposeful study.

Graduate study was initiated at George Mason in 1970 with the goal of providing opportunities for students to participate in intensive and individualized programs of study under the direction of a strong faculty. To promote this goal, the Graduate School encourages research, inquiry, and scholarship at the highest levels from both students and faculty.

The Graduate School offers 31 master's programs, 7 doctoral programs, and 6 certificate programs. Nearly all graduate courses are offered in the late afternoon and early evening. In fall 1986, approximately 3,000 admitted graduate students were enrolled at George Mason, and more than 1,500 postbaccalaureate students were taking courses through Extended Studies Enrollment.

Organization
The Graduate Faculty, operating under bylaws adopted in 1975, is the governing body for all academic policies and procedures of the Graduate School. The Graduate Faculty approves all new graduate programs, authorizes all graduate course work, policies, and degrees conferred by the University, and sets standards for admission to and graduation from graduate programs.

The Graduate Council is the executive and policymaking body of the Graduate Faculty. It consists of one graduate faculty member elected from each department offering graduate work, three at-large members elected from the Graduate Faculty, and the Graduate School Dean. It meets approximately once a month to conduct business for the Graduate Faculty.

The Graduate Council has three standing committees: the Academic Policies and Procedures Committee, the Curriculum Committee, and the Graduate Student Affairs Committee.

Administration
Charles K. Rowley, Acting Dean
James W. Fonseca, Associate Dean

Graduate Council Members 1986-87
Alice C. Andrews
Walter Beam
Barry K. Beyer
Thomasina S. Borkman
Phillip G. Buchanan
Jack R. Censer
Terry A. Comito
Catherine E. Connelly
W. Mark Crain
Peggy J. Crawford
Stephen L. Davis
Martin J. De Nys
Jacqueline A. Dienemann
Esther N. Elstun
James W. Fonseca
Barbara K. Given
Eric N. Goplerud
M. Edward Goretzky
Mary S. Hammond
Thomas H. Hill
Kyung Y. Jo
Kenneth A. Kovach
B. Joseph Lieb
Bruce B. Manchester
James A. Metcalf
James D. Palmer
James P. Pfeiffer
Robert L. Pugh
Charles K. Rowley, Acting Dean
Karanbir S. Sarkaria
Stephen B. Seidman
Jay C. Shaffer
Edgar Sibley
H. E. Stephanou
Edward J. Wegman

Purpose of Graduate Study
Graduate education is not simply an extension of undergraduate education. Graduate education means advanced, intensive, and purposeful study. Accordingly, for graduate education to be valid and creditable, the graduate experience should demand that students inquiresearchingly and apply themselves fully in their scholarly activities.

Graduate course work should be at a level that directly reflects and builds upon the knowledge and intellectual
A new humanities building is under construction on George Mason’s Main Campus.

Graduate study at George Mason University involves a commitment to meeting requirements and standards that regularly exceed those at the undergraduate level.

maturity a student acquires during the undergraduate years. The graduate experience should be of such duration that there is time for reflection, absorption, and the emergence of intellectual independence and scholarly self-confidence.

Students should have close and frequent contact with experienced scholar-teachers, and teaching resources and educational environments should be sufficient to promote advanced learning and meet graduate-level educational objectives. Provisions should exist within the Graduate School for regular evaluation of student performance to an extent that both students and their graduate teachers can be secure in the worth of their intellectual accomplishments.

Graduate study at the University involves a commitment to understanding and activity unlike that ordinarily called for in undergraduate degree programs. Graduate students, both full and part time, are expected to meet requirements and standards of study that regularly exceed those expected in undergraduate courses or programs. With the graduate faculty members determining standards for learning, graduate students are asked to join them in seeking excellence in advanced study.

Graduate Programs
Graduate School requirements applicable to all degrees are given in the first sections of the catalog. Specific graduate degree programs and their requirements are discussed in detail in the Degree Programs section, where they are listed in alphabetical order.

A number of departments without graduate degree programs offer graduate-level courses for elective credit and for personal or professional enrichment.

Graduate Courses
Graduate course descriptions in this catalog appear with their respective programs. Graduate courses are numbered 500 and above. Courses numbered 500 to 799 are master's-level courses and those numbered 800 to 999 are doctoral-level courses. The graduate course numbering system is discussed in detail in the Reference section. Note: graduate courses have been renumbered in all departments in either 1980-81 or 1981-82.
The Catalog
Detailed in this catalog are the programs and degrees offered by the Graduate School. All information, including statements of tuition and fees and admission and graduate requirements, is subject to change without notice.

For further information regarding any of the programs listed in this catalog or for applications, please write or call the Office of Admissions, 117 Finley Building, George Mason University, 4400 University Drive, Fairfax, Virginia 22030-4444, phone (703) 323-2100.
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Fall Semester 1987

Sunday, March 1.
Last day for filing D.N.Sc. admissions applications for fall 1987.

Wednesday, April 1.
Last day for filing Graduate School Fellowship Applications for doctoral students.

Wednesday, April 1.
Last day for filing Ph.D. Economics, Ph.D. Biology, and D.P.A. admissions applications for fall 1987.

Friday, May 1.
Last day for filing master’s and Ph.D. Information Technology admissions applications for fall 1987.

Friday, May 1.
Last day for filing Graduate School Fellowship Applications for master’s students.

Friday, July 3.
Independence Day observed; University closed.

Monday, July 13.
Start counseling and registration for fall Extended Studies enrollees. Call for appointment on or after July 6.

Friday, July 17.
Last day for mail-in/hand-in registration for fall. Registration in person continues by priority groups.

Friday, July 24.
Summer master’s theses and doctoral dissertations due in Office of the Graduate Dean.

Thursday, August 6.
Tuition and fees due for early registered students (payment with late fee will be accepted until August 13).

Monday, August 17.
Fall registrations canceled for early registered students who have not made arrangements for payment with Cashier ($20 administrative fee).

Wednesday, August 19, through Thursday, August 27.
Registration and adjustment. (For times and priorities see Schedule of Classes.)

Monday, August 31.
First day of classes.

Monday, September 7.
Labor Day; University closed.

Tuesday, September 8.
Last day for a full tuition refund (less $20 fee).

Tuesday, September 8.
Second deferred tuition payment due.

Tuesday, September 15.
Last day for schedule adjustment for fall classes.

Tuesday, September 15.
Last day for a partial tuition refund—second week.

Tuesday, September 22.
Last day for partial tuition refund—third and final week.

Monday, September 28.
Completed graduate degree and certificate applications and fees due in Graduate School office for winter graduation. Degree and certificate applications may be obtained at Office of the Registrar after September 8.

Thursday, October 1.
Last day for filing Ph.D. Economics admissions applications for spring 1988.

Tuesday, October 6.
Third deferred tuition payment due.

Sunday, October 11, through Tuesday, October 13.
Recess (Note: Monday classes and laboratories meet on Wednesday this week only).

Wednesday, October 14.
Monday classes and laboratories meet on Wednesday at Monday scheduled times and places: Wednesday scheduled classes and laboratories do not meet this week.

Tuesday, October 27.
Spring Semester Schedule of Classes (registration calendar) published. Mail-in/hand-in registration commences for designated categories of students the day after schedules are distributed. For times and priorities, see Schedule of Classes.

Sunday, November 1.
Last day for filing master’s, Ph.D. Biology, Ph.D. Information Technology, and D.P.A. Public Administration admissions applications for spring 1988.

Saturday, November 14.
Last day for financial aid applications for spring 1988.

Monday, November 16.
Winter master’s theses due in Office of the Graduate Dean.
Monday, November 16.
Start counseling for spring Extended Studies enrollees. Call for an appointment on or after November 2.

Thursday, November 26 through Sunday, November 29.
Thanksgiving recess; University closed.

Friday, December 4.
Last day for mail-in/hand-in registration for spring 1988. Registration in person continues by priority groups.

Saturday, December 12.
Last day of classes.

Monday, December 14.
Tuition and fees due for early registered students. Payment with late fee will be accepted by mail if received by January 7 (but University offices will be closed December 24-January 3).

Monday, December 14, through Monday, December 21.
Examinations (for times, see Schedule of Classes).

Thursday, December 17.
Early registration ends.

Spring Semester 1988

Monday, January 11.
Spring registrations canceled for early registered students who have not made arrangements for payment with cashier (canceled students who do not reregister for spring are assessed a $20 administrative fee).

Wednesday, January 13, through Thursday, January 21.
Registration and schedule adjustment (for times and priorities see Schedule of Classes).

Monday, January 25.
First day of classes.

Monday, February 1.
Last day for a full tuition refund (less $20 fee).

Monday, February 1.
Last day for filing D.A.Ed. admissions applications for fall 1988.

Tuesday, February 2.
Last recommended date for filing the Financial Aid Form (FAF) for fall 1988.

Monday, February 8.
Last day for partial tuition refund—second week.

Monday, February 8.
Last day for schedule adjustment for spring classes.

Wednesday, February 10.
Second deferred tuition payment due.

Monday, February 15.
Last day for a partial tuition refund—third and final week.

Sunday, February 15.
Last day for filing Psy.D. admissions applications for fall 1988.

Sunday, February 28.
Completed graduate degree and certificate applications and fees due in Graduate School office for spring graduation. Degree and certificate applications may be obtained at Office of the Registrar after February 8.

Tuesday, March 1.
Last day for filing master's admissions applications for summer session and D.N.Sc. admissions applications for fall 1988.

Sunday, March 6.
Last day for filing the Financial Aid Form (FAF) for transfer students for fall 1988.
Wednesday, March 9.
Third deferred tuition payment due.

Sunday, March 13, through Sunday, March 20.
Midsemester recess.

Monday, March 14.
Summer session registration begins.

Friday, March 25.
Fall Semester Schedule of Classes (registration calendar) distributed.

Monday, March 28.
Completed graduate degree and certificate applications and fees due in Graduate School office for summer graduation. Degree and certificate applications may be obtained at Office of the Registrar after March 8.

Tuesday, March 29, through Friday, July 15.
Mail-in/hand-in registration for designated categories of students. For times and priorities, see Schedule of Classes.

Friday, April 1.
Last day for financial aid applications for summer 1988.

Friday, April 1.
Last day for filing D.P.A. Public Administration, Ph.D. Biology, Ph.D. Economics admissions applications for fall 1988.

Friday, April 1.
Last day for filing Graduate School Fellowship applications for doctoral students.

Friday, April 1.
Last day for filing the Financial Aid Form (FAF) for returning upperclassmen for fall 1988.

Friday, April 15.
Spring master’s theses and doctoral dissertations due in Office of the Graduate Dean.

Sunday, May 1.
Last day for filing master’s and Ph.D. Information Technology admissions applications for fall 1988.

Sunday, May 1.
Last day for filing Graduate School Fellowship Applications for master’s students.

Saturday, May 7.
Last day of classes.

Monday, May 9 through Monday, May 16.
Examinations (for times and snow day make-up, see Schedule of Classes).

Saturday, May 21.
Spring commencement.

Monday, May 30.
Memorial Day observed; University closed.

Tuesday, May 31.
Summer session begins.

Summer Session

Summer session consists of several terms, ranging in length from five to eight weeks, during the period May 31 through August 6. Classes are offered during both day and evening hours. For details, consult the summer session catalog, which is available in early March.
Graduate Policies
Admission

For an applicant who wishes to obtain a graduate degree, the general University admission requirements are:

1. A baccalaureate degree or equivalent from an accredited institution of higher education
2. A 2.75 GPA (on a 4.00 scale) or better in the last 60 hours of undergraduate study
3. Undergraduate preparation for the chosen field of graduate study
4. Test scores and letters of recommendation as required by each program.

Departmental admission requirements for a degree student are listed in the catalog under the relevant discipline.

A degree-seeking applicant with a baccalaureate degree who has not met all other admission requirements may be offered provisional admission if there is sufficient evidence to suggest a capacity to pursue graduate work. A student in provisional status must have as initial objectives the removal of any deficiencies and advancement to degree status.

An applicant who is not interested in pursuing a graduate degree program but who wishes to take one or more graduate courses should request nondegree status in the Graduate School. Although the primary mission of the Graduate School is to conduct programs of instruction leading to graduate degrees, a qualified student who has no immediate degree objectives is welcome to the extent that available University and Graduate School resources allow. An applicant requesting nondegree status must submit a transcript showing that a baccalaureate degree has been earned at an accredited college or university.

Submission of Application

Requests for information about graduate admission, the application for admission and the necessary forms should be addressed to the Admissions Office, Graduate Study, 117 Finley Building, George Mason University, 4400 University Drive, Fairfax, VA 22030, telephone (703) 323-2100. An applicant seeking admission to the Graduate School must submit the following:

1. An application form
2. Two official copies of transcripts from each institution attended, including George Mason University (undergraduate or Extended Studies enrollment), which must be received directly from the institution by the deadline date
3. A $15 application fee (nonrefundable)
4. A Virginia Domicile Classification form
5. Records of examinations (GRE, GMAT, etc.) mailed directly from ETS as required by certain departments (see admission requirements of appropriate program)
6. Letters of recommendation as required by departments (see admission requirements of appropriate program)
7. A notarized Affidavit of Support Form for Foreign Students (J-1 and F-1 visas)
8. A student from a non-English-speaking country must complete the Test of English as a Foreign Language (TOEFL) and attain a score of 550, or higher if required by an academic department. A TOEFL score of at least 600 is required of teaching and research assistants.

Application Deadlines

Master's Programs

<table>
<thead>
<tr>
<th>Semester</th>
<th>Deadline</th>
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<tbody>
<tr>
<td>Fall</td>
<td>May 1</td>
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<tr>
<td>Spring</td>
<td>November 1</td>
</tr>
<tr>
<td>Summer</td>
<td>March 1</td>
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</tbody>
</table>

(Only selected programs offer summer admission; see program for details.)

Doctoral Programs

<table>
<thead>
<tr>
<th>Program</th>
<th>Fall</th>
<th>Spring</th>
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<tbody>
<tr>
<td>Biology</td>
<td>April 1</td>
<td>November 1</td>
</tr>
<tr>
<td>Economics</td>
<td>April 1</td>
<td>October 1</td>
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<tr>
<td>Education</td>
<td>February 1</td>
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<tr>
<td>Information Technology</td>
<td>May 1</td>
<td>November 1</td>
</tr>
<tr>
<td>Nursing</td>
<td>March 1</td>
<td></td>
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</tbody>
</table>


Graduate Admission Examinations
(GRE and GMAT)

Although a number of graduate programs do not require the Graduate Record Examination (GRE), almost all will use such test scores as an additional measurement of an applicant’s qualifications. The GRE may be taken in either or both of two forms: (1) the General Test, and (2) the Subject Test. Some departments require official scores for both the General and the Subject Test. During 1987-88, the GRE will be administered locally and nationally on the following tentative dates:
- October 10, 1987
- February 6, 1988
- April 9, 1988
- June 4, 1988 (General only)

The Graduate Management Admission Test (GMAT) is required of all applicants seeking an M.B.A., M.S. in Accounting, or M.S. in Information Systems. During 1987-88, the GMAT will be administered locally and nationally on the following tentative dates:
- October 17, 1987
- January 23, 1988
- March 19, 1988
- June 18, 1988

Academic Testing in the Office of Admissions administers all academic examinations for the University, including the GRE and the GMAT. Information concerning examinations, test applications and dates may be obtained from Academic Testing, Room 117 Finley, (703) 323-2525. Applicants also may write directly to GRE, Box 955; or GMAT, Box 966; Princeton, NJ 08540. A local telephone number in the Washington, D.C., area for the Educational Testing Service is (202) 659-0616.

Graduate School Foreign Language Tests

Certain graduate programs require students who have not already completed 12 hours of undergraduate credit in a foreign language to satisfy a foreign language requirement. This may be accomplished by taking the appropriate courses or demonstrating the equivalent proficiency by passing an examination. Information concerning the Graduate School Foreign Language Tests (GSFLT) may be obtained from Academic Testing.

Admission of International Students

International students who wish to apply to the University should apply directly to the Admissions Office, 117 Finley. They must meet each of the following conditions:

1. Students must meet all requirements and regulations of the University and their school or department.
2. Students must present with their application for admission official documents certifying their previous educational training and attainments. Graduate student applicants’ documents should show the award of either a bachelor’s degree, or equivalent, or a graduate degree. Personal student papers, photostats, or attested copies are not accepted for evaluation purposes.
3. Students must have completed the Test of English as a Foreign Language (TOEFL) and normally attained a score of 550, or higher. A TOEFL score of at least 600 is required of teaching and research assistants. Foreign student applicants with undergraduate degrees from accredited universities in which the language of instruction for the program was English are exempted from this requirement. Information concerning the time and place of the TOEFL can be obtained from Academic Testing, (703) 323-2525, or from: TOEFL, Educational Testing Service, Princeton, NJ 08549.
4. After an applicant has received and sent a written acceptance of an offer of admission, the I-20 will be provided, upon request, to students requiring an F-1 student visa. International students must enter the United States on a valid student or other visa. Visitor or transit visas are not valid for enrollment at the University. Students sponsored by the U.S. government or their home government will be required to enter the U.S. on an Exchange Visitor’s Visa (J-1).
5. The U.S. Department of Justice, Immigration and Naturalization Service regulations governing nonimmigrant F-1 students require that international students in this category pursue a full course of study (nine credits for graduate students) while maintaining nonimmigrant student status. Students on J-1 or F-1 visas are required to secure an affidavit of support proving that they have a sufficient amount of money to support themselves for the duration of their study. All students holding a J-1 visa or an F-1 visa are required to carry medical insurance either on their own or through the Office of International Programs insurance program. International students must meet and conform to all current regulations of the U.S. Immigration and Naturalization Service.

Admission Procedures

Admission of Graduate Degree Holders

An applicant holding one or more graduate degrees may earn an additional graduate degree in another discipline. For admission to a second graduate degree program, the applicant should submit an application, transcripts, and other documents as required by the second degree program.

Course credits used to satisfy the degree requirements for the first graduate degree may not be used to satisfy the degree requirements for the second graduate degree at the University.
Offer of Admission to the Graduate School

A written offer of admission is made by the Dean of the Graduate School to an applicant who has been accepted. The offer specifies the effective date of admission, the category of admission offered, and the name of the faculty adviser assigned to the applicant. This offer of admission is good for two semesters, provided the applicant does not take course work elsewhere without prior written permission of the Graduate School. The offer of admission must be accepted by enrolling within two semesters. An individual whose offer of admission has lapsed must submit a new application and fee to be reconsidered for admission at a later date.

Reactivation of Deferred Applications

Applicants are notified when action on an application has been deferred pending completion of prerequisite courses before graduate study in a chosen field can begin. Such an applicant is encouraged to notify the Admissions office in writing as soon as the prerequisites have been met. It is the responsibility of the applicant to furnish official transcripts confirming that the prerequisite courses have been satisfactorily completed even if they were completed at the University. No admission decision can be made until these grades are received.

Records Maintenance and Disposal

All graduate admission documents, including academic records sent from other institutions, become part of the official University file and can neither be returned nor duplicated for any purpose. A student should maintain copies of official credentials for other personal requirements.

Admission credentials are retained for 24 months only and subsequently destroyed for applicants who (1) do not register for courses within the time period for which the offer of admission is valid, or (2) have been denied admission, or (3) do not respond to requests for additional information, or (4) fail to submit complete applications with respect to the receipt of all official transcripts and test results.

Readmission to the Graduate School

A graduate student whose study at the University is interrupted for any reason for a period of two semesters or more (exclusive of summer sessions) must apply for readmission. Readmission forms are available through the Admissions office, 117 Finley. The student is responsible for requesting that the Registrar's office forward to the Admissions office a recent transcript of all work completed at George Mason University. Since the department chair and the dean of the Graduate School must approve all readmissions, students are encouraged to complete the forms and return them to the Admissions office no later than one month prior to the anticipated date of registration. A $15 nonrefundable fee must accompany the readmission form. If such readmission is approved, the student is subject to the academic regulations and requirements in effect at the time of registration after readmission. A student who is readmitted may not count the six-year time limit as beginning on the date of readmission. All degree requirements must be completed within six years from the date of initial registration as an admitted (degree or provisional) graduate student.

Change in Field of Graduate Study

Admission to graduate study is contingent upon a recommendation by the department in which the student proposes to concentrate. Therefore, a student is not free to change graduate programs at will. A student who wishes to change from one program to another in a new field of study must submit a new application and fee for admission. Previous acceptance into one graduate program does not guarantee acceptance into another.

Termination of Admission to Graduate Study

A student may submit an application to more than one graduate program, but may be admitted to only one graduate program at one time. Accepting an offer of admission to a second graduate program automatically terminates admission to the first program. Admission also terminates when time limits have been exceeded or when other conditions for the continuation of admission have not been met.

Extended Studies Enrollment

Administered by the Division of Continuing Education, the Extended Studies enrollment procedure allows persons who may not meet regular graduate admissions criteria, or who have no immediate degree objectives to request enrollment in courses for which they are qualified without seeking admission to the University. Extended Studies enrollees are restricted to undergraduate and 500- and 600-level graduate courses. Credits earned by students as Extended Studies enrollees are recorded on regular University transcripts. Extended Studies enrollees who wish to apply for graduate admission to the University may do so at any time by following the regular graduate admission procedures.

If a student applies for admission to the Graduate School and is accepted into a degree program, a maximum of 12 hours of graduate credit earned through Extended Studies enrollment may be applied toward a master's degree program with approval of the graduate dean. The student is responsible for having transcripts of credits earned through Extended Studies enrollment sent to the Graduate School. After admission to the Graduate School and during initial registration as a degree student, the student is responsible for initiating such a request on a Transfer of Credit/Application of Extended Studies Credit Form to apply Extended Studies credit toward degree requirements. If the student also has transferable credit from another institution, the amount of applicable credit earned through Extended Studies Enrollment is reduced accordingly.

Guest Matriculant

A graduate student admitted to another graduate school may be given permission to register on a temporary basis as a guest matriculant. This
admission as a visiting student is for one semester. A guest matriculant must have been officially admitted as a graduate student at another recognized university and certified by his or her dean as being in good standing. An application form for requesting guest matriculant status may be obtained from the Graduate School Admissions office.

Graduate Study During Summer Session

Applicants wishing to begin graduate work in summer must complete a Graduate School application for admission before submitting a summer session enrollment request form. There is a $15 nonrefundable charge for the application for admission.

Qualified students may also take graduate summer courses through the Division of Continuing Education’s Extended Studies enrollment program.

Students who wish to complete graduation requirements during summer session enrollment should understand that the University does not necessarily offer all required courses in any particular summer session.

Senior Citizens Enrollment

The Division of Continuing Education coordinates enrollment under the Senior Citizens Higher Education Act of 1974, as amended and as applicable to the University. Under the terms of this act, eligible Virginia residents over 60 years of age with a taxable income of less than $7,500 are entitled to enroll in courses offered for academic credit on a space-available basis without payment of tuition and fees.

In addition, the Act provides for audit of course(s) offered for academic credit and also for enrollment in noncredit course(s) without payment of tuition and fees on a space-available basis, regardless of the taxable income level. Tuition, however, may be charged for those courses which are designed exclusively for senior citizen groups. No senior citizen may change registration status in any given semester once he or she has initially registered for classes.

Permission to Register as a Graduate Student

Registration in the Graduate School is permitted only after the student has been notified of admission by the dean of the Graduate School. During course registration, admitted students are given preference over nonadmitted students if the number of applicants exceeds the enrollment limits. Dual registration (e.g., as a graduate student and as an Extended Studies Enrollee) is not permitted.

The graduate student is responsible for being properly registered and aware of all regulations and procedures required by a program of study. Regulations and degree requirements are not waived nor are exceptions granted because of ignorance of University, Graduate School, or departmental regulations.

Academic Advising for Graduate Students

At the time of admission to graduate study, the student is assigned a faculty adviser by the department responsible for the student’s program of study. Registration for newly admitted graduate students, as well as continuing students, begins with a visit to the student’s academic adviser. There the student can obtain information about specific courses and degree requirements and develop an individual program of study. Progress in an approved program of study is a shared personal responsibility of the student and the adviser. The graduate student is responsible for compliance with the rules and procedures of the Graduate School and all applicable departmental requirements which govern the individual program of study. The student should consult with the adviser before registration each semester.

Schedule of Classes and Course Approval Form

In developing a program of study with the adviser, the graduate student will need to consult the Schedule of Classes, distributed in advance of each registration period by the Registrar’s office. It provides information about the times and locations of classes, the names of course instructors, the final examination schedule, and procedures for paying tuition and fees. Dropping or adding a course and procedures for making other changes in registration are also outlined in the schedule.

The Schedule of Classes is mailed by the Graduate School to admitted graduate students. If for some reason a newly admitted student does not receive the Schedule of Classes in the mail, it is available in the faculty adviser’s office. Continuing students will
find schedules in their departments, at the information desk in the Student Union, at the information desk in Finley Building, and at the Registrar’s Office. No course listed in the Schedule of Classes will be offered for which there is insufficient enrollment. The University reserves the right to change the class schedule and to adjust individual section enrollments as necessary.

The Schedule of Classes also contains the Course Approval Form to be used at the time of registration. For each registration the student, consulting with the adviser, prepares a schedule of courses appropriate to satisfying degree requirements and individual needs. This schedule is then entered on the Course Approval Form. For newly admitted graduate students, the schedule of courses must be approved by the faculty adviser prior to registration.

Registration Procedures and Information

The Schedule of Classes contains instructions for registering. Any graduate student who fails to appear within the period specified for registration will not be permitted to register unless the delay can be explained to the satisfaction of the department chair.

As part of registration, each student is issued an official University identification card. It must be presented when obtaining a library card and may be required for admission to University events or when using University facilities after normal operating hours. It is not transferable and must be validated at registration each semester.

Each student is required to notify the Office of the Registrar and the Graduate School of any change of home address, telephone number, or change of legal name.

Student Information

Before or during each registration period, all students are asked to provide directory and other types of information used in preparing a student’s education record and numerous statistical reports. Such information is collected and disseminated in compliance with the Family Educational Rights and Privacy Act of 1974, as amended, which provides that the University maintain the confidentiality of student education records and establish the right of students to inspect and challenge the data maintained in those records. Personally identifiable data from a student’s education record may only be released to persons described in the Act, including “school officials with a legitimate educational interest.”

The University may release directory information to any outside party at its discretion except when a student requests in writing that some or all directory information be withheld.

Category I of directory information includes student’s dates of attendance; major(s); full- or part-time status; awards received.

Category II of directory information includes student’s address; telephone number(s); date and place of birth; participation in recognized activities and sports; weight and height (normally given only for athletics); most recent previous institution attended; and other similar information.

Students desiring to withhold directory information from the public should request such withholding in writing to the registrar at the time of registration for a semester or summer session. Since such withholding may prohibit the registrar from providing confirmation of enrollment to prospective employers or even residence address to the student’s own family, students who are considering such a request should consult the registrar.

Students may inspect their education records and obtain more information about the Privacy Act at the Office of the Registrar and may obtain copies of most parts of their records for a nominal fee. Those desiring to do so should schedule an appointment with the registrar.

Academic Load

Graduate students are urged to register each semester for only that number of hours which they can successfully complete. A normal full-time academic load is 12 semester hours. The minimum full-time academic load is nine hours per semester during the regular academic year. During the summer, a normal full-time academic load is nine semester hours for the entire session. Permission of the department chair is required to exceed the normal load.

Graduate students are expected to attend all of the class periods of courses for which they are registered and to meet all course requirements set by graduate faculty as scheduled for a class or seminar.

Graduate Course Enrollment by Undergraduates

A student may seek to take a 500-level graduate course either for reserve graduate credit or for undergraduate credit. A maximum of six hours may be earned for reserve graduate credit. Courses numbered 600 and above are closed to undergraduates.

Approval to register for reserve graduate credit (earned credit held in reserve to apply later toward a graduate degree) is normally given only to George Mason seniors within 15 hours of completion of undergraduate study. In addition, this privilege is normally extended only to seniors who have completed a minimum of 12 semester hours at the University, have a cumulative grade point average of 3.00 or better, have successfully completed all prerequisite courses and have a major in the department offering the courses. Permission must be obtained in writing prior to registration. Forms are available in the Graduate School Admissions Office. It is the student’s responsibility to obtain all signatures required and to submit a current transcript with the request.

Approval for reserve graduate credit does not imply approval for admission into a graduate program at the University or that credit so earned will be accepted at another graduate school. Credit for the same course is not given toward both graduate and undergraduate degrees.
Graduate School policy permits undergraduates to enroll in graduate courses numbered 500 to 599 and apply the credit earned toward an undergraduate degree. For details of requirements and procedures see Graduate Course Enrollment by Undergraduates in the Undergraduate Policies and Procedures section of the undergraduate catalog.

**Adding and Dropping Courses**

To add or drop a course during the schedule adjustment period, a graduate student must complete a Schedule Change Request Form and submit it at the registration site, Module C. Forms may be obtained from the department, Office of the Registrar, or the registration site.

The last day for adding or dropping a course is two calendar weeks after and including the first day of classes.

**Withdrawal from a Semester**

A graduate student who is enrolled in one or more courses is considered in attendance until formally withdrawn by submitting an official withdrawal form. A graduate student who drops all courses in any semester must submit an official withdrawal form.

Upon approval by the Graduate Dean, a graduate student may withdraw from a semester after the drop period without academic penalty, but only for nonacademic reasons which prevent completion of the courses. A graduate student who stops attending a semester after the drop period without the Dean’s approval receives F’s in all courses.

Upon withdrawal, the following notation is made on the student’s permanent record: “Withdrew voluntarily for nonacademic reasons on (date) in the _ week of a _ week semester.” A list of the student’s courses follows, together with W grades.

A graduate student withdrawing before the final examinations in any semester or summer session forfeits credit for work done in that term.

The Graduate School may impose enforced withdrawal as a penalty for any fault which prevents the graduate student from fulfilling the purposes of enrollment.

**Repeating a Course**

A graduate student who has passed a course with a grade of B or better is not permitted to repeat the course. A graduate student may repeat a course in which a grade of C or below has been earned. Permission for repeating the course must be obtained from the department offering the course. Each department establishes procedures for granting permission for repeating a course.

When a course is repeated, all hours attempted count toward probation or dismissal; the transcript shows both the original and repeat grades; and only one grade per course may be presented on the degree application.

**Auditing a Course**

Auditing a course requires the permission of the department chair in which the course is offered. A previously audited course may be taken for credit at a later date. A graduate student may also audit a course previously taken and passed. A graduate student may not change from credit to audit status after the schedule adjustment period. The usual tuition and fees apply to audit status.

**Final Examinations Policy for Graduate Courses**

Written examinations are held at the end of each semester. No changes may be made in the announced examination schedule unless approved in writing by the department chair offering the course.

In certain graduate courses the assessment of student performance may be more closely related to written and/or oral papers; and because of the more intensive and continuous demands which should be placed upon students, it would appear appropriate to provide a degree of flexibility in connection with graduate examinations. Therefore, after consulting the department chair, the individual faculty member may exercise judgment regarding the use of a formal examination at the end of the course.

Absence from examination is not excused except for sickness on the day of the examination, or for other cause approved by the Graduate Dean. If such absence is unexcused or the examination is not taken within ten days, the grade on the course is entered as F. A student whose absence from an examination is excused may take a special examination within the 10-day period on a date to be arranged between the student and the instructor in charge of the examination. A request to take an examination late should be made on a Student Request Form and submitted by the graduate professor to the Graduate School office.

**Grading System**

The grading system for graduate credit is A, B (satisfactory), C, F (unsatisfactory). Theses and dissertations may be assigned a letter grade or S (satisfactory), NC (no credit), or IP (in progress). The mark of IN (Incomplete) may be given when all course requirements have been completed except for assigned papers or reports which the student has been compelled to postpone for reasons beyond the student’s control. Regulations concerning Incomplete marks may be found under Change of Grade below.

Grade points for each semester hour are assigned on a scale of 4 for A, 3 for B, 2 for C, and 0 for F. A grade point score is computed by multiplying the value of the letter grade by the number of credits for the course. As an example, a student receiving an A in a three-semester-hour course earns 12 grade points. Dividing the number of grade points earned by the number of semester hours attempted gives the GPA. (Note: The marks of S, NC, and IP have no grade points associated with them and hours with such marks are not included in GPA computations. NC and IP have no negative impact on a student’s record.)

A grade point average does not appear on the transcripts of graduate students.

Each faculty member is responsible for preparing course examinations and determining grades.
Policies concerning the weight given to examinations in computing final grades and the kinds of examinations used may differ according to the preferences of individual instructors.

Grade reports are sent to the student and to the adviser each semester in which the student is registered, including those in which the student withdraws. The report includes all courses for that semester and the grades received, the cumulative hours of satisfactory grades, and the cumulative hours of unsatisfactory grades.

Change of Grade

Final grades in courses for graduate credit may be changed only on the basis of the following two circumstances and procedures.

Change from Incomplete and In Progress to Letter Grade. For cause beyond reasonable control, a student may be unable to complete the course work on schedule. In such cases, the instructor may assign a temporary grade of Incomplete (IN). If the student fails to complete all requirements in time for the instructor to assign a regular grade by the last day of classes of the next semester (exclusive of summer session), the mark of IN is changed to the Registrar to F.

It is the student's responsibility to submit the work to the instructor with sufficient time for its evaluation.

While the mark of IN remains on the transcript, it is treated as an unsatisfactory grade and may contribute to dismissal. A mark of In Progress (IP) is used for courses numbered 999, 998, 799, 798; internship courses; and some other courses until such time as all course work is completed. IP is not treated as an unsatisfactory grade, nor is it subject to the time limit prescribed for IN. Note that IP can be changed to any regular grade, with one exception. When comprehensive seminars or other such registrations are repeated through successive registrations, then only the final registration receives a grade. The previous IPs remain unchanged in such cases.

Change of Final Grade. Once a final grade in a course has been recorded by the Registrar, it can be changed only in cases of computational error or other justifiable cause approved by the Graduate Dean. (Refer to Challenge of Grade procedure below.) All changes of final grades must be initiated, approved, and recorded prior to the last day of classes of the next regular semester (exclusive of summer session).

Challenge of Grade

Although generally the individual faculty member must be the best judge of student performance, there may be instances in which a graduate student believes a grade has been assigned unfairly. In such cases the student should ask the professor to reconsider the grade. If the student is not satisfied, an appeal may be made to the department chair, who initiates procedures established by the department. No challenge of a grade is considered after the end of the drop period of the next regular session (exclusive of summer session).

Academic Dismissal

A graduate student performs satisfactorily during any academic period (semester or summer session) in which the student received satisfactory grades in more than two-thirds of the credit hours undertaken during that period. A graduate student is dismissed upon accumulating 12 hours of unsatisfactory grades in graduate-level courses. The notation of academic dismissal is affixed to a graduate student's official record.

Academic Termination

A provisional graduate student who fails to achieve at least a B, i.e., 3.00 GPA, after completing 12 hours of course work as a provisional student, will be terminated from provisional status. The notation of academic termination is affixed to a graduate student's official record. Provisional students will also be terminated after the accumulation of 12 hours of unsatisfactory undergraduate grades.

Graduate and undergraduate grades are not combined in the calculation of hours toward termination or dismissal. However, nondegree students are terminated after the accumulation of 12 hours of unsatisfactory grades in graduate or undergraduate courses combined.

Change from Provisional to Degree Status

In order for a change from provisional status to be considered, a graduate student must have completed 12 semester hours of graduate course work in provisional status with at least a 3.00 GPA, supplied all admission credentials, and removed all deficiencies as established in the student's letter of admission. Appropriate admission credentials, such as transcripts, letters of recommendation, or test scores needed for consideration for a change of status, must be submitted to the Graduate School office. Written confirmation from the Graduate School dean indicating the change of status will be sent to the student.

Credits earned in the provisional status may be used subsequently in meeting minimum hour and program degree requirements. However, a maximum of 12 graduate credits earned in nondegree status may be applied toward a master's degree. Students admitted in these categories are, therefore, strongly urged to obtain faculty guidance before beginning course work. Credits cannot be applied toward a graduate degree unless they are specifically approved for that purpose.

Change from Nondegree to Degree Status

A student admitted to the Graduate School in nondegree status may request a change to degree-seeking status within the same program by departmental and Graduate School approval on the Graduate School's Student Request form. Note that all admission requirements as normally defined by the student's program for degree status must be met (e.g., official transcripts, letters of recommendation, etc.). If the student intends to use credits earned in nondegree status toward a degree, the credits must be approved on the Graduate School's Transfer of Credit form. Nondegree students are terminated after accumulating 12 hours of unsatisfactory grades.
Transfer of Credit for Work Taken Prior to Admission

With the recommendation of the appropriate program faculty and approval of the Graduate dean, a graduate student may transfer up to six semester hours of graduate credit earned at other accredited institutions prior to acceptance and enrollment in the University Graduate School to be applied toward the requirements for a master’s degree. Up to 12 hours of credit may be transferred within the Cooperative Graduate Engineering Program. Up to 12 semester hours may be applied toward a doctoral degree. In addition, if a student has earned a master’s degree prior to admission to a doctoral program, the number of hours required for the doctoral degree may be reduced. Undergraduate courses taken at other institutions are not transferable for credit to graduate programs within the University. All graduate work offered as transfer credit must be applicable to the degree program the student is pursuing at the University.

Credit is normally considered for transfer, upon the request of the student, at the time of initial registration as a degree student. Transfer of credit requests from provisional students will not be considered until they are advanced to degree status. Written confirmation from the Graduate dean of all credits approved for transfer will be sent to the student.

Criteria for Transferable Credit

Transfer work must meet a standard of recency; generally, credit must have been earned within six years prior to the time of admission.

In all cases of courses accepted for transfer of credit, including those taken within the Consortium for Continuing Higher Education in Northern Virginia and Continuing Education at George Mason, a minimum grade of B must have been earned, and the courses involved must be applicable toward a comparable degree at the institution offering the course. Extension and in-service courses which are not intended by the institution offering the courses to be part of a degree program are not acceptable for transfer to the University. It is the student’s responsibility to furnish evidence that any courses presented for transfer of credit would be applicable to a comparable degree at the institution where the credits were earned. If this information is not on the official transcript, it must be obtained in writing from the appropriate dean at that institution.

The Graduate Dean decides whether work taken elsewhere and presented for transfer credit to a graduate program at the University is acceptable.

Courses at Other Institutions

After enrollment as a degree student and with the prior approval of the department chair and the Graduate dean, a student may, when need exists, earn up to 6 hours of transfer credit applied to the master’s degree or 12 hours applied to the doctoral degree for graduate courses to be taken at another accredited institution. Up to 12 hours of credit may be transferred within the Cooperative Graduate Engineering Program. Permission to take a course elsewhere must be secured from the Graduate dean prior to registering at the other institution. Forms are available in the Graduate School office. The student is responsible for requesting transfer credit for such courses after their completion and for having an official transcript submitted to the Graduate School office for evaluation of possible transfer of credit. Permission is not ordinarily given for a student to take a course elsewhere for transfer credit during the semester in which a student is advanced to candidacy or the semester in which the degree is to be awarded. Also permission does not exempt a graduate student from satisfying the 18-hour minimum for a master’s degree or the 36-hour minimum for a doctoral degree of course work taken at the University. (See Requirements Applicable to All Graduate Degrees.)

Student Requests and Appeals

A graduate student who wishes to request an exception to published academic regulations or to appeal decisions involving the application of academic regulations to a program of study may do so by submitting a petition to the Graduate dean. Such a request should be initiated by a graduate student and must be restricted to those matters directly affecting academic progress. Graduate departments provide a mechanism for grade appeal. Thus all grade appeals should be submitted to the department responsible for the course.

The petition to the Graduate School must include the signature and recommendation of the graduate adviser and the department chair. Student Appeals Forms for such purposes are available from department offices or the Graduate School office. It is the responsibility of the graduate student to present relevant information or documents in support of an appeal. If the request or appeal is to be heard by the Student Appeals Subcommittee, the student will be notified of the time and place of the meeting. It is the decision of the graduate student whether or not to attend the Subcommittee meeting to present written or verbal information. The Subcommittee will make a recommendation to the Graduate dean.

While such meetings are academic and collegial and not legal hearings, a student is welcome to present relevant supporting documents. No appeal can be made of the decision of the Graduate Dean.

Requirements Applicable to All Master’s Degrees

Master’s Degree Requirements

Candidates must satisfy all Graduate School degree requirements and all requirements set by the program faculty of the department in which the master’s program is offered. Specific departmental degree requirements are listed under the respective graduate programs in this catalog.

The following requirements apply to all master’s degrees:

1. A candidate must have earned a minimum of 30 semester hours of graduate credit.
2. Only graduate-level courses may apply toward the degree. A graduate student may apply up to six hours of C grades in graduate-level courses; all other work must be satisfactory.

3. Have completed at least 18 semester hours of graduate-level work at the University after having been admitted to degree or provisional status.

4. Have completed at least 24 semester hours at the University of which:
   a. A maximum of six semester hours may be in master’s thesis research (799) or in master’s project research (798).
   b. A maximum of two courses or six semester hours taken prior to academic year 1982-83 may be upper-level undergraduate courses approved for graduate credit.
   c. No more than 12 semester hours may have been earned through enrollment in nondegree status or through Extended Studies Enrollment prior to acceptance in a degree program.
   d. No more than six semester hours may be transfer credit for course work taken prior to admission with the amount of applicable credit earned in nondegree status or through Extended Studies Enrollment reduced accordingly (exceptions are noted under individual degree programs).
   e. A maximum of six semester hours may be transfer credit taken after admission to the Graduate School.

5. Have completed all courses submitted for the degree within a period of six years from initial registration as a graduate student (with the exception of transfer credit taken prior to admission).

Master’s degree candidates are subject to those degree requirements in force at the time of their initial registration in degree or provisional status following admission. Degree candidates who have been readmitted following voluntary withdrawal for more than one semester are subject to those degree requirements in force at the time of their initial registration following readmission. All degree candidates have the option of graduating under the degree requirements in force at the time the degree is to be awarded.

Residence

Normally, at least 24 semester hours must be completed at the University. A completed master’s degree program must include a minimum of 18 semester hours of course work taken at the University as a degree-seeking student.

Time Limit

A student must complete all degree requirements for the desired master’s degree within six years from the date of initial registration as an admitted (degree or provisional) graduate student. A graduate student who terminates enrollment and subsequently is readmitted to the Graduate School in the same master’s program may not count the six-year time limit as beginning on the date of readmission.

Foreign Language Requirement

Several master’s degree programs require that a master’s student demonstrate a proficiency in one or more foreign languages, as part of the degree requirements established by the program faculty. Such a requirement is listed under the degree requirements for a specific master’s degree in the academic program section of this catalog. Certification of the successful completion of the foreign language requirement should be sent by the academic adviser to the Graduate School office.

Thesis and Nonthesis Options

Requirements regarding a thesis vary with the degree program. A number of master’s programs provide for either a thesis or nonthesis option. The quality of the work expected of the student electing the nonthesis option is identical to that of the thesis option. For further information, consult the section on degree requirements under each degree program.

Master’s Thesis

When a thesis proposal has been approved by the appropriate department, the department chair sends to the graduate dean a copy of the thesis proposal, including the names of the master’s thesis committee members. The student may enroll in the thesis research course (799) at the beginning of the next semester.

The master’s thesis committee is named by the candidate’s department chair, who also designates the major professor as chair of the master’s thesis committee. The committee is appointed after consultation with the candidate and the adviser, and consists of at least three persons, one of whom may be chosen initially, or at a later date, from outside the department.

The major professor of the thesis committee is primarily responsible for directing and guiding the candidate’s research and writing activities. It is the responsibility of the student to keep all committee members informed of the scope, plan, and progress of both the research and the thesis.

Any student wishing to elect the thesis option should obtain from the Graduate School office a copy of Guide for Preparing Graduate Theses, Dissertations, and Projects. The student is permitted to register in the thesis course (799) only after a thesis proposal has been submitted and approved as prescribed in the Guide. Any student not in attendance at the University who is preparing a thesis under the active supervision of a member of the faculty, or who wishes to take an examination, must either maintain continuous registration for at least one hour per semester, or pay the special registration fee from the time the student first enrolls for thesis credit until the student completes the degree.

Thesis Submission

The original and one copy of the thesis with signed cover sheet must be deposited with the graduate dean on or before the date specified in the Academic Calendar.

Degree Application for a Master’s Candidate

Master’s students who expect to complete all degree requirements in the semester must secure a degree
application from the Office of the Registrar and return it completed with departmental signatures to the Graduate School office by the date designated in the Academic Calendar. There is a $15 graduation fee, which is payable at the time the student submits the degree application. Any student who fails to complete degree requirements in that semester for which the degree application was filed must submit a new degree application and another $15 graduation fee by the next appropriate deadline.

Commencement

Commencement exercises provide an opportunity for master's candidates and their families to share in the experience of the conferral of academic degrees. Degree candidates who do not wish to participate in the formal graduation ceremonies should notify the Office of the Registrar at least six weeks prior to the date and time of the ceremony.

Requirements Applicable to All Doctoral Degrees

Degree Requirements

A candidate for a doctoral degree at George Mason University must satisfy all Graduate School degree requirements and all requirements established by the doctoral program faculty. Specific program degree requirements are listed under the appropriate academic programs in this catalog.

In order to meet the degree requirements applicable to all doctoral degrees, a doctoral candidate must:

1. Have acquired beyond the baccalaureate degree a minimum of 72 semester hours of graduate credit

2. Have completed at least 36 semester hours of graduate-level work at George Mason University after having been admitted to doctoral degree status

3. Have completed at least two semesters, not including the summer session, in continuous registration

4. Have filed in the Graduate School office a program of study approved by the doctoral supervisory committee within two years after admission to doctoral degree status of which:
   a. A maximum of 24 semester hours may be in doctoral dissertation research (999) or doctoral project research (998)
   b. No more than 12 semester hours of graduate credit may have been earned through enrollment in nondegree status or through Extended Studies Enrollment prior to admission to doctoral degree status
   c. The number of hours required for a doctoral degree may be reduced if a master's degree has been earned prior to admission
   d. A maximum of 12 semester hours may be transfer credit taken after admission to doctoral degree status

5. Have passed a written doctoral candidacy examination as certified by the doctoral supervisory committee

6. Have passed an oral final doctoral examination as certified by the doctoral supervisory committee and Graduate School representative

7. Have submitted to the Graduate School office and have defended at the time of the final doctoral examination a doctoral dissertation or doctoral project that has been approved by the doctoral supervisory committee, Graduate School representative, and the graduate dean

8. Have completed all degree requirements within five years following the semester of advancement to candidacy

Doctoral students are subject to those degree requirements in force at the time of their initial registration doctoral degree status following admission to the Graduate School. Doctoral students who have been readmitted following voluntary withdrawal for more than one semester are subject to those degree requirements in force at the time of their initial registration following readmission. All doctoral candidates have the option of graduating under the degree requirements in force at the time the doctoral degree is to be awarded.

Residence

All doctoral students are required to spend a minimum of two consecutive semesters, not including the summer session, in continuous registration. The doctoral program of study must include a minimum of 36 semester hours of graduate work taken at George Mason University after admission to a degree-seeking status.

Time Limit

A doctoral student must complete all degree requirements within five years following the semester of advancement to candidacy. A doctoral student who voluntarily terminates enrollment and is subsequently readmitted to the Graduate School in the same doctoral program after advancement to candidacy is still subject to the five-year time limit commencing with advancement to candidacy.

Doctoral Supervisory Committee

At the time a doctoral student is to be considered for advancement to candidacy, normally by the end of the second year of full-time graduate study, the dean of the Graduate School will appoint a doctoral supervisory committee upon recommendation by the department chair. The committee shall consist of a major professor and at least two other members of the graduate faculty, one of whom must be a member of the graduate faculty from outside the doctoral student's department. Additional members may be appointed who are not members of the graduate faculty or who are from outside the University. The major professor shall be the chair of the committee. It is generally the responsibility of the doctoral supervisory committee to approve the program of study, certify the successful completion of the candidacy examination (which may include an oral part in addition to the written part), approve the doctoral dissertation, where required, and certify the successful completion of the final doctoral examination (which may include a written part in
addition to the oral part). In addition, the graduate dean will appoint to the doctoral supervisory committee a Graduate School representative from the graduate faculty who will attend the final doctoral examination.

**Doctoral Research Skill Requirements**

Some doctoral degree programs require, as part of the degree requirements, demonstration of proficiency in a research skill area. These may take the form of a reading knowledge of the research literature in a foreign language, knowledge of a computer language, knowledge of statistical methods, or knowledge of a research tool specific to the discipline. Research skill requirements are included with the degree requirements for the specific doctoral degree. Where required, the certification of successful completion of research skill requirements must be completed for advancement to candidacy. Forms for certification purposes are available in the Graduate School office.

**Program of Study**

Normally, before the end of the second year of graduate study, but no later than consideration for advancement to candidacy, a doctoral student must submit a program of study for approval by the dean of the Graduate School. The program of study must include major courses to be completed, any supporting courses, research skills required, subject areas to be covered by the candidacy examination, and proposed date for candidacy examination. The program of study must be signed by the major professor and all members of the doctoral supervisory committee. Program of Study for the Doctoral Degree forms are available from each program’s doctoral coordinator.

**Advancement to Candidacy**

Advancement to candidacy implies that a doctoral student has demonstrated both a breadth and depth of knowledge in the field of study and is capable of exploring problems on the boundaries of knowledge. A doctoral student should normally be considered for advancement to candidacy by the end of the second year of full-time graduate study. The candidacy examination includes a written part and may include, depending upon the particular doctoral program, an oral part. Where an oral portion is required, some programs consider the written and oral portions as one in determining the passing or failing of the candidacy examination, while in other programs the two parts may be passed or failed separately. Doctoral students should consult the degree requirements for each doctoral program as to the requirements for the oral, if required, the number of times a failed candidacy examination may be repeated, any time limits for repeating, and any time limits by which the candidacy examination must be attempted.

Before a doctoral student may be advanced to candidacy by the dean of the Graduate School, a doctoral student should have completed all doctoral program examinations required by the program faculty, have been certified in all doctoral research skills required, passed the candidacy examination, and be recommended by the doctoral supervisory committee. Report on Candidacy Examination and Recommendation for Advancement to Candidacy forms are available in the Graduate School office.

**Doctoral Dissertation and Non-Dissertation Options**

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

Although by no means less demanding, some of the professional doctoral degree programs do not require the preparation of a dissertation. These professional doctorates provide for other means by which the candidates may demonstrate their intellectual competencies and personal abilities.

**Doctoral Dissertation**

After the appointment of the doctoral supervisory committee by the dean of the Graduate School, a doctoral student should begin discussions with the student’s major professor to define a suitable problem for the dissertation. However, before a doctoral student may enroll for doctoral dissertation research (999), a dissertation proposal must be approved by the doctoral supervisory committee and sent to the dean of the Graduate School for approval. The content and format of the doctoral dissertation proposal may be found in the Guide for Preparing Graduate Theses, Dissertations, and Projects, which is available in the Graduate School office.

The major professor (director) of the doctoral supervisory committee is primarily responsible for directing a doctoral candidate’s research and guiding the preparation of the written dissertation. Format and style for the dissertation are discussed in the Guide for Preparing Graduate Theses, Dissertations and Projects. The Guide also includes information on the number of copies required, binding, and submission of the dissertation for approval by the doctoral supervisory committee and Graduate Dean. All copies of the dissertation must be submitted and fees paid before the doctoral degree will be awarded.

**Dissertation Submission and Fee**

The original and one copy of the dissertation must be deposited with the graduate dean on or before the date specified in the Academic Calendar. Any student not in attendance at the University who is preparing a dissertation under the active supervision of a member of the faculty, or who wishes to take an examination, must either maintain continuous registration for at least one hour per semester or pay the special registration fee from the time the student first enrolls for dissertation credit until the student completes the degree.

**Final Doctoral Examination**

As soon as all degree requirements have been satisfied, including the completion of the doctoral
dissertation where required, a doctoral candidate may arrange with his or her doctoral supervisory committee to petition the dean of the Graduate School to schedule the final doctoral examination.

The final doctoral examination shall include an oral defense of the dissertation, where a dissertation is required by the doctoral program. It should also demonstrate the candidate’s intellectual command and maturity of judgment of those branches of the field of study chosen by the candidate in conjunction with the doctoral supervisory committee. Some doctoral programs may require, in addition to the oral portion of the examination, a written part as listed under the degree requirements for each doctoral program. Depending on the particular program, a passing or failing mark may be assigned to the oral and written portion independently or taken as a single examination.

At the close of the final doctoral examination, the doctoral supervisory committee will make final judgments for approving the doctoral dissertation, which may require some minor changes resulting from the oral defense. The doctoral candidate is responsible for making all required changes promptly, securing the signatures of the major professor and other members of the supervisory committee, and submitting the original and one copy to the Graduate School office for the graduate dean’s approval.

**Doctoral Degree Application**

At the beginning of the semester in which a doctoral candidate expects to finish all degree requirements, including the final doctoral examination, the candidate should submit to the Graduate School office a doctoral degree application with departmental signatures and pay the $15 graduation fee. Copies of the doctoral degree application form can be obtained in the Registrar’s office. The degree application should be submitted by the date designated in the Academic Calendar. If for any reason a doctoral candidate fails to complete all degree requirements in the semester for which the degree application was filed, a new degree application and a $15 graduation fee must be submitted by the next appropriate deadline.

**Commencement Exercises for Doctoral Degree Recipients**

Commencement exercises provide an opportunity for doctoral candidates to receive public recognition for their achievements. For those who have completed doctoral dissertations, the titles will be read at the time of the hooding ceremony. If a doctoral candidate cannot participate in the ceremony, then the candidate should notify the Office of the Registrar at least six weeks before the ceremony begins.
University Facilities and Resources

Libraries and Special Collections

The students, faculty, and staff of George Mason University have access to library facilities on both campuses. The libraries are open for use by the general public; borrowing privileges are extended to those holding valid Library Borrower's Cards. This includes authorized borrowers from member institutions of the Northern Virginia Consortium and the Consortium of Universities of the Washington metropolitan area, various corporate borrowers, and Friends of the Library.

The combined libraries contain 470,000 volumes, acquire approximately 20,000 new books each year, and receive over 4,000 periodicals. Fenwick Library, the central collection on the Main Campus, contains over 280,000 book volumes, 450,000 microforms, and subscribes to 4,100 periodicals. The Law Library at the Metro Campus includes over 200,000 book volumes and subscribes to 700 legal and law-related journals.

Fenwick Library is a leader in the field of applying computerized automation to library functions and services. At the center of this effort is an automated library information system that provides computerized circulation, public catalog, and in-house processing services. In addition, the library provides microcomputer-based access to over 300 data bases of interest to researchers in all fields. A complement to this service is the library's active role in facilitating end-user access to this information by students and faculty—both through training and by providing a laboratory of microcomputer workstations.

Fenwick Library has been a selective depository for U.S. government documents since 1969. Additional government publications and other specialized collections are available in the microforms collection of the library (e.g., ERIC, Human Relations Area File, Library of English Literature, Library of American Civilization). Those items not available at the University may be borrowed through the library's computerized interlibrary loan service. Special services for the disabled include a TDD for hearing-impaired persons and a Kurzweil Reading Machine for the visually impaired.

Fenwick Library offers students a wide range of audiovisual services, including small-group viewing facilities for video cassettes, compact discs, laser discs, 16 mm films, slides, and filmstrips, and listening facilities for audiocassettes and records. Osborne 1 microcomputers are available for loan to faculty, as well as assistance with film borrowing and rental arrangements. The Library Audiovisual Resource Center has a growing collection of media in most formats and is staffed during all regular library hours. Audiovisual equipment may be borrowed for use on campus from distribution sites in both Robinson and Thompson Halls. These offices also offer a variety of technical services, including audio and video recording and photographic slide production.

The Washington metropolitan area represents one of the premier library and information resources in the nation, including the Library of Congress, the National Archives, the Smithsonian Institution, the Folger Shakespeare Library, Dumbarton Oaks, the National Library of Medicine, the National Agricultural Library, and the World Bank. There are also numerous university libraries and specialized collections. Fenwick Library is a member of the Consortium of Universities of the Washington Metropolitan Area, providing direct borrowing privileges at the other participating universities for faculty and degree-program graduate students. Fenwick Library also participates in a data base sharing program with the Fairfax County Public Library System and the MITRE Corporation.

The University Library also houses special collections and archives containing primary resource materials to be used by scholars in their research. More than 50 collections include these source materials for research:

The Federal Theatre Project Collection. Placed on permanent loan from the Library of Congress, this contains the major playscripts, radiodrama scripts, sets, costume designs, and other creative materials produced by the Federal Theatre of the 1930s.

Northern Virginiana. This includes the papers of Congressman William Scott, historical collections from C. Harrison Mann, including rare historical maps, atlases, geographies, and law books relating to Virginia, and other papers of public officials.

Photographic Collections. Prints and negatives, including those of Ollie Atkins, correspondent and photographer for the Saturday Evening Post and official White House Photographer from 1965 to 1974.

Rare Books. Includes first editions and rare historical materials.

The George Mason University Archives.

For further information about Fenwick Library, call 323-2393 or the main reference desk at 323-2393.
University Computing Services

University computing services are the responsibility of the Associate Senior Vice President for Computing and Information Systems (CIS).

University computing facilities are extensive. Academic Computing Services (ACS) operates a Control Data Corporation Cyber 180/830 mainframe computer and DEC VAX 8500, and Pyramid 90x minicomputers. ACS also manages several microcomputer laboratories containing IBM and IBM compatible personal computers. ACS maintains four public terminal clusters, two faculty terminal clusters, and combined graphics and artificial intelligence laboratories. A wealth of both mainframe and microcomputer software is available. Consultant support is also available for students and faculty.

Computer systems at the University are connected by MasonNet, the George Mason local area computer network. This state-of-the-art Sytek broadband communications network enables individuals across campus to access computers located in Thompson Hall; it also permits access to off-campus computers and networks by way of a dial-out capability. Faculty and students may also use ACS computers through telephone dialup.

Special-purpose computer facilities exist for faculty research. This includes the 90x UNIX minicomputer noted above. Access is available to BITNET, USENET, and other national/international computer data networks through the ACS computer systems. The Computer Sciences Department operates one Hewlett-Packard 1000 minicomputer, one Hewlett-Packard 9040A workstation, and a Digital Equipment Corporation (DEC) PDP 11/44. The Electrical and Computer Engineering Department operates a DEC PDP 11/24 minicomputer and microcomputer development system plus special laboratory microcomputers. Other University departments have microcomputers designed for specific purposes.

ACS publishes Presenting Academic Computing Services, a guide that describes academic computing facilities and support. New developments in academic computing support are announced in the ACS bimonthly publication, Academic Computing Services Newsletter. The Newsletter is available to faculty and staff by subscription and is posted in the Thompson computer center for students.

For further information concerning University computer facilities or capabilities, call (703) 323-2941.

Electron Microscopy Laboratory

This facility provides high-resolution transmission and scanning electron microscopic facilities for the University community. The laboratory supports faculty research in such areas as investigations of fine structure of marine bacteria, algal polysaccharide immunocytochemistry, fern ultrastructure, and fine structure of epithelial and muscle cells in animals, and also serves several local agencies. An ultrastructure course offered each year provides graduate and undergraduate instruction for use of the facility.

Holbert L. Harris Theatre

The Holbert L. Harris Theatre, located in Robinson Hall, is George Mason’s Main Campus performance facility for dance, music, and theatre. This 533-seat modified proscenium theatre houses dance events, music concerts, recitals, theatre productions, and major conference events.
Educational Centers

American Society of Cybernetics/The Cybernetics Center

ASC members include social scientists, cyberneticians, mathematicians, computer specialists, and others professionally involved in cybernetics—the analysis of the flow of information in electronic, mechanical, and biological systems. Located in the Decision Sciences Department, the Cybernetics Center is committed to introducing integrative studies in the field by applying cybernetics to practical problems of business, system design, and public policy. The Cybernetics Center also publishes the journal Cybernetics.

Center for the Beginning Teacher Assistance Program (BTAP)

The Northern Virginia Regional Center for the Beginning Teacher Assistance Program (BTAP) is located in the Department of Education at George Mason University. Funded by the State of Virginia, the role of BTAP is twofold: (1) to assist beginning teachers in the classrooms to ensure that they possess certain minimum competencies; and (2) to provide assistance to those teachers in meeting these competencies. Successful completion of BTAP is required for a teacher to receive a five-year renewable Collegiate Professional Certificate.

Center for Bilingual/Multicultural Teacher Preparation

Supported by George Mason’s Education Department, in collaboration with the English and Foreign Languages and Literatures departments, the center helps meet the needs of Northern Virginia school districts by training bilingual/ESL (English as a Second Language) educators fluent in English and either Spanish, Korean, or Vietnamese. Once trained, these teachers aid the cultural adjustment of “language minority” school children with limited English proficiency, with the goal of mainstreaming them into the general student population as quickly as possible.

Center for Conflict Resolution

Affiliated with the Sociology and Anthropology Department, the Center for Conflict Resolution has three objectives: to continue to offer a master of science degree program in conflict management that trains professional conflict intervenors for mediating disputes at all levels of society, interpersonal to international; to demonstrate the potential of conflict management by developing community, state, national, and international programs; and to establish a resource base of knowledge, research, institutions, and individuals adept at specific problem solving.

Center for Economic and Social Education

One of five centers affiliated with the Virginia Council on Economic Education, the Center for Economic and Social Education dispenses information about economics and other social studies to elementary and secondary school teachers and administrators. The Center maintains a lending library and provides educators with consultations, research reports, and in-service courses and programs.

Center for Government, Society, and the Arts

Encouraging research and academic programs that explore the reciprocal relations, past and present, between government, society, and the arts, this center acts as a clearinghouse of information on current programs and studies, and fosters scholarly, artistic, and educational projects. A primary resource is the Institute on the Federal Theatre Project (FTP) and New Deal Culture (see listing).

Center for Health Promotion

Working with area citizens, health professionals, and health-related organizations, the center offers technical advice and assistance on health issues and disease prevention in Northern Virginia. As a regional center for health promotion and education, it also sponsors health and fitness programs for community residents of all ages. The center is affiliated with the Health, Sport, and Leisure Studies Department.

Center for Interactive Educational Technology

The Center for Interactive Educational Technology, housed in the Education Department, features a blend of the old and the new in instructional resources. The Center has a microcomputer laboratory and will soon add a center for the study of videodiscs and robotics. Students are able to evaluate current instructional software or develop their own for particular subjects or classes. An audiovisual production laboratory is available to those interested in more traditional approaches, as well as a K-12 curriculum center that houses both print and nonprint materials.

Center for Interactive Management

The Center for Interactive Management stresses the application of technology to organizational management, with an emphasis on the solution of complex management problems. The top priority is to provide a management service that assists clients in resolving problems that have failed to yield to conventional approaches. In addition, the center conducts research aimed at new and advanced forms of computer-assisted participative management, and integrates field experience into classes, seminars, and training courses.

Center for Middle East Studies

Through its 42-hour undergraduate degree program in Middle East Studies, the center promotes a
Center for Productive Use of Technology

Formerly the Center for Improvement of Productivity, the Center for the Productive Use of Technology promotes a more effective use of information resources by conducting research and providing consultative support in such areas as technology transfer, technical information networking, and knowledge diffusion and utilization. It is located at the Metro Campus.

Center for Real Estate and Land Use Analysis

Affiliated with the Finance Department in the School of Business Administration, the Center for Real Estate and Land Use Analysis supports the SBA's real estate and urban development program. Self-supporting, it promotes faculty research, sponsors seminars, and funds student research and class projects.

Center for Robotics and Control

Affiliated with the Institute for Information Technology, the center promotes research in robotics and control, focusing on efforts which are largely analytical or algorithmic.

Center for the Study of Constitutional Rights

The Center for the Study of Constitutional Rights examines the formation of the Bill of Rights and the ways that landmark document was influenced by George Mason of Gunston Hall. Established in 1981 as the Project for the Study of Human Rights, the center coordinates an annual lecture series, "The Legacy of George Mason," and publishes these lectures through the George Mason University Press. Past lectures have focused on the histories of states and countries that have established bills of rights, the effects of the First Amendment, and natural law and natural rights. The center is sponsored by Gunston Hall, the Fairfax Bar Association, the George Mason School of Law, the Division of Continuing Education, the Virginia Foundation for the Humanities and Public Policy, the Alexandria Bicentennial Center, the Northern Virginia Association of Historians, and the departments of History, Public Affairs, American Studies, and Philosophy and Religious Studies.

Center for the Study of Market Processes

Market process economists strongly emphasize "spontaneous order," the unplanned social order created through voluntary exchange. Based on the theories of the Austrian School of economic thought, the center trains students for careers in academia, government, policy institutions, and business and industry. In addition to publishing a scholarly newsletter, Market Processes, the center's members conduct research on such topics as free banking, antitrust laws, socialist economic policies, and the economics of law. It is affiliated with George Mason's Economics Department.

Center for Study of Public Choice

Based on the "public choice" economic theory developed by executive director James Buchanan and economics professor Gordon Tullock, the center applies scientific economic methods to the "public choice behavior" of voters, party leaders, lobbyists, politicians, and bureaucrats. It also encourages education and research programs in public choice theory, publishes research results, and, where relevant, formulates proposals for basic institutional-reform based on such research. The center is affiliated with the Economics Department.

Character Recognition Center

The Character Recognition Center focuses on the conversion of hand-printed information directly to digital computer input. Such a capability, in a handheld, moderate cost instrument, has potential applications in businesses that now hand-letter forms and records for later computer analysis.

Citizens Applied Research Institute

To stimulate regional interest in research, the Citizens Applied Research Institute works with Northern Virginia government, industry, and civic organizations on projects of mutual interest to or at the request of those organizations. The institute is affiliated with the Department of Public Affairs.

Educational Study Center

A community outreach program, the Educational Study Center offers tutoring and career counseling to children and young adults in Northern Virginia, while training graduate students enrolled in the Education Department's reading, special education, and guidance counseling programs.

English Language Institute

Unique in Northern Virginia, the English Language Institute aids foreign-born members of the community by providing weekly, noncredit instruction in grammar, reading, culture, history, composition, and communication. The institute is administered by the Office of International Programs and Services.

George Mason Institute of Science and Technology

Directed by 45 board members representing the University and the Northern Virginia high-tech industry, the George Mason Institute (GMI) supports student internships, the executive/faculty exchange program, and endowed professorships and research fellowships in engineering and information technology. With donations of more than $1 million in funds and equipment, GMI has helped produce a statewide faculty resource data bank and helped develop high-technology curricula and research projects here at George Mason.

George Mason University Faculty Writing Project (FWP)

A branch of the NVWP, the George Mason University Faculty Writing Project works with University
teachers from many disciplines to improve writing instruction for students across the curriculum. A five-week summer institute trains these faculty members as teacher/consultants who conduct workshops for colleagues. The FWP also publishes a newsletter of successful teaching practices for all George Mason faculty.

**History Research Center**

The History Research Center is a consolidation of several established projects supporting the historical interests of the University and Northern Virginia. These projects include directing the Northern Virginia Association of Historians (NVAH), a regional agency with approximately 400 members and 40 organizational affiliations, and producing its monthly newsletter, The Courier of Historical Events. Affiliated with George Mason's History Department, the center also produces a journal of local history, Northern Virginia Heritage, which has more than 1,000 subscribers, and has helped to establish the George Mason Project for the Study of Human Rights. In recent years, the center has broadened the scope of its project on local oral history and expanded its collection of books and manuscripts on Northern Virginia history and culture.

**Indochina Institute**

Established as an outreach program to the Indochinese community of the metropolitan area, the Indochina Institute encourages research on Indochina and its refugees; serves as a clearinghouse for information and research; organizes and sponsors conferences, lectures, and workshops; and sponsors the publication of research papers. It is affiliated with the Public Affairs Department.

**Institute for Cross-Cultural Understanding**

Promoting an understanding between people of different ethnic and cultural backgrounds is the focus of the Institute for Cross-Cultural Understanding. Affiliated with the Sociology and Anthropology Department, the institute promotes research, scholarly inquiry, and publications. It also conducts educational activities, supports cross-cultural studies, and encourages the practical application of research findings.

**Institute for Humane Studies**

The Institute for Humane Studies, located at Tallwood House at the northeast corner of campus, is a 25-year-old independent, nonprofit organization dedicated to advancing interdisciplinary scholarship in the humane sciences: ethics, history, economics, psychology, sociology, and moral, legal, and political philosophy. The institute's goal is to discover, develop, and support scholars and intellectuals with an appreciation for individual liberty and the classical liberal tradition of natural rights, private property, and free exchange. It accomplishes this through a program of seminars and fellowships for undergraduates, graduate students, and faculty members. It also serves as a clearinghouse of information for its worldwide network of distinguished scholars.

**Institute for Information Technology**

The Institute for Information Technology promotes research at George Mason University by serving as a liaison between the GMU research faculty and private research sponsors in such areas as library automation, applied artificial intelligence, advanced database research, and software engineering management.

**Institute on the Federal Theatre Project and New Deal Culture**

A clearinghouse of information on 1930s culture and politics, the Institute on the Federal Theatre Project and New Deal Culture coordinates exhibits and discussions of the Depression-era Federal Theatre Project, including programs co-presented with the Smithsonian's Air and Space Museum and National Museum of American History. The mainstay of the institute is the FTP archival collection, on permanent loan from the Library of Congress, which contains more than 7,000 original stage production scripts, 2,500 radio scripts, 500 posters, and hundreds of original stage and costume designs and photographs of FTP-sponsored Depression-era theatre productions. In addition, the institute has gathered and organized existing audio tapes on all Works Progress Administration (WPA) arts projects. The institute publishes a newsletter, Federal One, which is mailed to more than 1,000 subscribers.

**Law and Economics Center**

With the goal of furthering the development of law and economics as intellectually related disciplines, the Law and Economics Center (LEC) seeks to demonstrate the applicability of economics scholarship to legal policy and to relate economics to the substance and procedures of law. Located at the George Mason University School of Law in Arlington, the LEC offers residential programs for federal judges and law professors that provide participants with an introduction to economics. Comparable programs introducing academic economists to law are also offered. In addition, the center publishes Lexicon, a quarterly newsletter listing working papers, lecture series, conferences, and other programs, and sponsors a series of interdisciplinary symposia in which current topics in law and economics are explored.

**Metropolitan Area Assessment Center**

Supported by grants from the Virginia Department of Education, the center assesses the administrative skills of prospective school principals. Part of a nationwide program developed by the National Association of Secondary School Principals, the center annually trains 24 individuals to assess the skills of 48 candidates for positions in the Arlington, Alexandria, Falls Church, Fairfax, Prince William, and District of Columbia school systems.

**Northern Virginia Writing Project**

A statewide effort to improve the writing skills of Virginia students, kindergarten through university, the Virginia Writing Project has branches at public universities throughout the commonwealth. During the summer, teachers selected from each writing project area attend an intensive five-week program examining problems in effectively teaching good writing skills. Participants demonstrate successful writing techniques, study research on writing, and
write papers. After the summer institutes, the teachers return to their schools and lead seminars for other teachers in their districts.

Project for the Study of Young Children

Established by faculty members in the College of Education and Human Services, the Project for the Study of Young Children offers a cognitive-developmental program for preschool children and their families. In this environment, George Mason students and faculty members, Fairfax County public school teachers, and the parents of children enrolled in the program can study the educational development of these children. The project promotes collaborative, multidisciplinary research among students and faculty members; provides a program which encourages children's involvement with their environment by focusing on problem solving, discovery-learning, and cognitive skill development; and provides research and development services to Fairfax County public schools, the University community, Northern Virginia, and the state. The project is located at Fairfax High School.

Psychology Clinic

Operated by the clinical faculty of the Psychology Department, the Psychology Clinic offers psychological assessment services to members of the campus community and the Northern Virginia community. It not only serves as a site for faculty research but also provides graduate students with opportunities for direct service experience under professional supervision.

Public Management Institute

The Public Management Institute, a service and research branch of the Public Affairs Department, promotes a more effective exchange among government managers, business organizations, and the academic community by emphasizing the contributions each can make toward improving management in government. Drawing on University resources, the institute provides technical assistance to outside organizations by developing and conducting management education and training programs, organizing and leading conferences and workshops, and undertaking applied research to address current management problems.

Self Care Institute

Affiliated with George Mason's School of Nursing, the Self Care Institute examines the decision processes people use when monitoring their own health care. Founded in 1976 in Northern Virginia, the institute moved to George Mason in 1986 and plans to use its research results to teach consumers how to best use the health care system and teach health care professionals how to gear treatments to their patients' lifestyles.

Writing Research Center

A program of the NVWP, the Writing Research Center supports the work of teachers at all levels from throughout the state who study the writing practices of their students. The center's goals, the same as those of all other NVWP programs, are improved instruction and increased knowledge of the writing process. Schools, colleges, and universities wishing to improve writing instruction through in-service workshops and conferences can arrange for the NVWP to design and coordinate special training programs for their faculties.

Metro Campus Professional and Conference Center

The Metro Campus Professional and Conference Center is located in Arlington on the third floor at the Metro Campus, 3401 North Fairfax Drive, adjacent to the Virginia Square-GMU Metro Station (Orange Line).

Graduate courses for six master's degree programs are regularly scheduled in the Professional Center: Accounting, Business Administration, Economics: Public Policy Track, Engineering and Information Technology, Human Resource Development, and Information Resource Management. A master's degree in Economics: Public Policy Track may be completed in its entirety at Metro Campus. Several liberal arts undergraduate courses are also offered at the Professional Center. Courses are scheduled in three-hour megablocks from 9 a.m. to 9 p.m. weekdays and 9 a.m. to noon Saturdays. More than 3,000 credit and noncredit students are served by the Professional Center.

The 200-seat Conference Center serves an additional 30,000 persons annually who participate in University and community programs and business and professional conferences. Also, the Metro Gallery hosts 12 professional art shows annually and is the site of many community cultural events.

The GMU Information Center on the Kirkwood Drive side of the building provides University publications and information on programs and activities at the Metro Campus and the Main Campus. Catalogs and applications are available. The Information Center telephone number is (703) 841-2604. Hours are from 9 a.m. to 9 p.m. weekdays.

George Mason University Press

Under the guidance and administration of the Graduate School, the George Mason University Press was established in April 1983 to provide a scholarly publishing dimension in the overall mission of the University to create and disseminate knowledge through teaching, research, and publication. Administered by a director under the supervision of a faculty editorial board, the GMU Press welcomes manuscripts in all areas of scholarship and seeks to publish monographs, books, research reports, conference proceedings, symposia, or reference works developed by local faculty and by authors throughout the world of scholarly endeavor. Among its publications, the Press issues the annual series of lectures presented on The Legacy of George Mason. GMU Press books are advertised, exhibited, promoted, and sold worldwide by its exclusive agent, University Publishing Associates.
University Offices and Information

Equal Opportunity/Affirmative Action

George Mason University is an Equal Opportunity/Affirmative Action institution committed to the principle that access to study or employment opportunities afforded by the University, including all benefits and privileges, be accorded to each person—student, faculty, or staff member—on the basis of individual merit and without regard to race, color, religion, national origin, sex, age, or handicaps (except where sex or age is a bona fide occupational qualification). Appropriate procedures have been adopted for the promotion of this in every phase of University operations. Furthermore, affirmative action will be taken to ensure that opportunities afforded by the University are fully available to ethnic minorities, women, and disabled individuals. The University will make every reasonable accommodation to enable handicapped persons to undertake work or study for which they qualify.

The University is also committed to the principles set forth in the Rehabilitation Act of 1973, Section 504, regarding disabled students.

Students, employees, or applicants for admission or employment who believe that they have not been dealt with by this University in accordance with the principles and requirements stated above may address the Office of Affirmative Action, George Mason University, stating the facts that occasioned the complaint, presenting any relevant documents or correspondence, and assisting resolution of the matter. Disabled students or applicants may also contact the Adviser to Disabled Students.

Consortium Membership

George Mason University is the host institution of the Consortium for Continuing Higher Education in Northern Virginia. The other members are Marymount University, Northern Virginia Community College, the University of Virginia, Strayer College, and Virginia Polytechnic Institute and State University. The Consortium’s primary goal is to foster interinstitutional cooperation while broadening the base of learning opportunities for adult students. Specific information is available in the Guide to Higher Education for Adults in Northern Virginia, distributed by the Division of Continuing Education, George Mason University, 4400 University Drive, Fairfax, Virginia 22030.

Office of Alumni Relations

George Mason University Alumni Association. The Office of Alumni Relations has the primary responsibility for initiating and coordinating alumni activities and programs in conjunction with the GMU Alumni Association.

The office, located at 4520 Roberts Road at the Main Campus, is open Monday through Friday from 8:30 a.m. until 5 p.m. The director encourages inquiries on all aspects of alumni relations. The office is interested in serving the needs of the alumni and invites alumni participation in programs supporting the GMU community.

The Office of Alumni Relations maintains address and biographical information on all University graduates. In addition, it assists in the publication of a quarterly University/alumni magazine, which focuses on alumni achievement; academic programs; social opportunities; and special on-campus events and Alumni Association activities such as reunions, homecomings, awards banquets, and receptions. The office also coordinates the efforts of alumni who volunteer to assist University offices: Admissions, Career Services, Public Relations, and Development.

Many alumni invest time, effort, and money in the University. The Alumni Association provides a variety of opportunities for service and support by alumni who want to assist George Mason University in becoming a stronger and more dynamic institution. The Alumni Association is organized under a Board of Directors, which includes representation from various chapters, academic areas, and special-interest groups. Some members of the Board are elected as at-large delegates. The Board concentrates on developing a stronger relationship between the University and the alumni body. This relationship is manifested through alumni/student scholarships and library funds, along with other benefits to alumni, the local community, and the University. Both the staff of the Office of Alumni Relations and the volunteers from the Alumni Association participate in the advancement program of GMU.

Alumni Association Officers for the period 1986-87:

President: Frances Batchelder, M.Ed., '78
President-Elect: Ann C. Trichilo, M.Ed., '76
Vice-President: Frank Doherty, B.A., '85
Secretary: Steffanie Duke, B.A., '82
Treasurer: Ana Marie Boitel-Bucher, B.A., '83

Office of Alumni Relations:

Director: Joseph S. D'Agostino, Ph.D.
Associate Director: Kathleen M. Kelley, B.A., '83

University Development

The Office of University Development is responsible for the University's advancement program. It coordinates advancement activities of the various schools and colleges, runs the University Phonathon, and accepts contributions and grants for the benefit of the University through the George Mason University Foundation.

Public Relations

Public Relations, located in Room 214 of the Finley Building, handles press and publicity for the
University and produces a University magazine featuring articles about the University and its people. This is distributed to legislators, faculty, staff, alumni, and the community. The office also publishes the George Mason Gazette, an internal biweekly newsletter covering items of general interest to University faculty and staff.

Design and Publications

Design and Publications is responsible for the layout, design, editing, and printing of University publications. The department consults daily with University faculty and staff on producing the visual image for the University, which is displayed through brochures, catalogs, class schedules, posters, newsletters, and other printed items. Guidelines for the visual image are contained in the Visual Standards Manual.

Motor Vehicles Policy

The privilege of operating and parking a motor-driven vehicle at George Mason University is extended to all students, subject to the following procedures:

Vehicles must be registered with the Traffic and Parking Office. At the time of registration operators must certify that (a) vehicles have a valid state registration and valid insurance from a recognized insurance company, evidencing coverage for public liability in conformance with the laws of the Commonwealth of Virginia; (b) they have a valid state driver's license; and (c) they understand that they are governed by University Motor Vehicle and Traffic Rules and Regulations, a copy of which is furnished at the time of registration of the vehicle. A state vehicle registration card must be provided at time of registration. Vehicular registration decals may be purchased for the full Academic Year or by the semester/summer session.

The Traffic and Parking Office is located at the rear of the West Building, in T-102, and SUB I, second floor, old Patriot’s Locker.

Fees are as follows (subject to change):
- $50 Full academic year, September 1 through August 31 ($20 for a second vehicle).
- $35 Semester, fall or spring ($20 for a second vehicle).
- $20 Summer session ($20 for a second vehicle).
- $15 Motorbikes

Registered vehicles must display in full view the University’s vehicular registration decal, affixed immediately upon issue as per instructions on reverse side of decal.
Student Support Services
Graduate Catalog 1987-1988

George Mason University provides many support services designed to enhance the college experience and enable students to take full advantage of the University's educational and personal enrichment opportunities.

Student Unions

Most nonacademic activities and services at the University take place or are housed in Student Union I and Student Union II. The coordinators of these services are located in Student Union I. They include the Offices of the Associate Vice President and Dean for Student Services, the Adviser for Students with Disabilities, and the Director of Minority Student Services; the Offices of Student Health Services, Student Activities, Student Unions, Housing Services, Career Services, Cooperative Education, Veterans Services, Financial Aid, the Counseling Center, the Campus Ministry, and the Academic Advising Center. The offices of Student Government, Student Organizations, Student Publications, and the Honor Committee are also located in Student Union I.

Recreational facilities and lounge areas occupy a portion of the Unions. In addition to an arts and crafts center, there are game, television, and music rooms. Banking services are available on the lower level of Student Union I. The bookstore is located on the lower level of Student Union II. In addition to course textbooks and reference materials, the bookstore stocks supplies, health and beauty aids, clothing, and gift items. The bookstore buys used books from students every day the store is open. During the regular academic year hours are Monday–Thursday 8 a.m. to 7:30 p.m.; Friday 8 a.m. to 4 p.m.; Saturday 10 a.m. to 3 p.m. For additional information, contact the bookstore at 323-2696 or 425-3992.

Contract food services are available on all of the University's campuses. On the Main Campus, the lower level of Student Union I houses a cafeteria and a rathskeller. Student Union II has a large cash cafeteria and a separate cafeteria for students on the meal plan. Vending machines are also located in various buildings. The Food Service Manager on the Main Campus can provide information concerning catering.

The Student Unions also have a variety of meeting facilities. Students may schedule meetings or conferences in the Student Unions (or throughout the University) by contacting the Scheduling Clerk in Room 315 of Student Union II (323-2164). Approval is given according to the procedures outlined in the George Mason University Administrative Procedures Manual.

Student Health Service

Personnel in the Student Health Service treat minor illnesses, administer first aid, and dispense nonprescription medications. They also provide referral services to outside health resources, offer information and counseling on matters of hygiene, and assist in the administration of a program of health and accident insurance and a student dental plan. Pregnancy tests, throat cultures, and mono spot tests are performed for a minimal fee. Abortion counseling and referrals are also offered.

During the academic year, the health service emphasizes preventive health care. Programs in 1986-87 included blood pressure checks, Pap testing, and cardiopulmonary resuscitation instruction.

Staffing consists of a director, one full-time nurse, one part-time nurse, and a consulting physician. The Student Health Service is located on the Main Campus in Student Union I, Room 355 (323-2584).

Health Insurance and Dental Plan

All students of George Mason University are eligible, on a voluntary basis, to enroll in the University-endorsed Accident and Sickness Health Insurance Plan and the University-sponsored dental plan made available through DENTICARE of Virginia.

The health insurance policy includes provisions for major medical coverage, outpatient laboratory fees and x-ray coverage, as well as the usual provisions for hospital room and board and surgical expenses. At minimal cost, this policy covers the insured student 12 months per year, 24 hours per day, worldwide, at the University or elsewhere.

For a minimal fee per year, the dental plan provides x-rays, teeth cleaning, and office visits at no charge and various dental procedures such as fillings, crown and bridgework, and root canal therapy at reduced costs.

Health insurance brochures, enrollment applications, and claim forms, as well as dental plan information, may be obtained at the Student Health Service, Student Union I, Room 355 (323-2584).

Services to Disabled Persons

A wide range of services and assistance is available to students with disabilities. Students may contact...
the Adviser to Students with Disabilities at 323-2523 (Voice/TDD) for more information.

Housing

The University has on-campus housing for 1,750 students, with the recent addition of a new 500-bed dormitory-style housing complex. All campus facilities are modern, air-conditioned buildings staffed by members of the professional staff of the Department of Housing and Residential Life.

Commonwealth and Dominion Halls each house 250 residents in double occupancy rooms. Between every two rooms is a private bath that serves up to four persons. The rooms are provided with mirrored wardrobes, chests of drawers, desks with study carrels, study chairs, beds, carpeted floors, and draperies. Each floor has a study lounge. The first-floor level includes a main lounge, two meeting rooms, laundry and vending facilities, and a hall office.

The student apartment complex consists of nine three-story buildings that contain 121 apartments. It provides housing for 500 residents. The apartments are divided into one-, two-, and three-bedroom units that accommodate two, four, or six students, respectively. Each apartment has its own entrance from the outside, and includes a kitchenette, a bathroom, and a carpeted living room. All rooms are carpeted and draperies are provided. Each building is provided with individually controlled heat and air conditioning. The buildings also have two bathrooms, individual study and lounge areas, and laundry facilities.

University Commons is an eight-building complex accommodating 500 students. Each building accommodates between 52 and 78 students in single and double bedrooms. There is a common bathroom on each floor. Each bedroom is furnished with the appropriate number of desks, beds, chairs, wardrobes, and chests of drawers. A central building consists of a study lounge, game room, television lounge, vending and laundry areas, and a mailbox area.

University Park Townhouses is a 36-unit complex located a quarter mile from the Main Campus. Each townhouse consists of two bedrooms, a full kitchen, a dining-living area, and two-and-a-half baths. Four students are assigned to each unit.

Complete information about the University's on-campus housing is available from the Director of Housing and Residential Life, George Mason University, 4400 University Drive, Fairfax, Virginia 22030 (323-2354).55).

Off Campus. For assistance with off-campus housing, students may contact the Housing Office.

Counseling Center Services

The purpose of the Counseling Center is to provide services that enable students to successfully achieve their academic, social, and personal goals. Specifically, the center staff helps students to (1) make realistic and appropriate choices concerning education and work; (2) develop the study skills and habits needed to succeed in the demanding intellectual environment of the University; and (3) acquire interpersonal and coping skills in order to control and manage personal problems and concerns that interfere with learning.

Staffing and Hours. The Counseling Center is staffed by qualified, professional counselors. Services are available at no charge to all University students. The main office is located in Room 364, Student Union I, and is open Monday through Friday from 8:30 a.m. to 5 p.m. Evening hours are available on Tuesday and Wednesday. For information about the following Counseling Center services or assistance, call 323-2165 or the number listed for each service.

Mental Health. Meeting the mental health needs of George Mason University students is the central mission of the Counseling Center. The goal of this service is to help reduce problems and promote the adjustment and success of the student. The objectives of the mental health services are to (1) assist students in managing and coping with personal problems that interfere with learning and educational progress; (2) provide workshops and seminars to help students to (3) provide crisis assistance to students experiencing more severe personal problems; (4) provide consultation to students and parents of students; and (5) provide consultation to faculty and staff. Located in Room 364, Student Union I, 323-2165.

Learning Services. The goal of Learning Services is to provide the learning skills and support needed for students to successfully complete their academic requirements. The service provides workshops and seminars to help students improve their study habits and acquire specific skills such as note taking, organizing a study schedule, improving reading speed and comprehension, and preparing for exams. Students may learn these skills and attitudes in a wide range of structured workshops or through individual consultation with a professional counselor. Tutoring in a wide variety of subjects, including calculus, chemistry, and statistics, is available on a referral basis to enrolled George Mason University students. Located in Room 350, Student Union I, 323-2018.

Self-Assessment. Many students come to the University with undefined goals for their future. Often this is a result of lack of information about self, conflicting influences from family and friends, changing personal values, and uncertainty about potential choices. The role of the self-assessment component of the Counseling Center is to help students review and assess their interests, values, and capabilities in order to gain increased understanding of themselves and to make informed decisions about their educational options and future life-goals. Located in Room 364, Student Union I, 323-2165.

Black Peer Program. Attracting and retaining minority students is a major goal of George Mason University. In addition to traditional methods of
increasing retention, the Counseling Center provides a peer support and monitoring program that directs students to the resources of the Counseling Center and other University offices that will enhance their opportunities for success within the institution. The Black Peer Program utilizes undergraduate peer assistants and a staff counselor to make personal contact with all black students in order to assess the student’s need for a particular service, and to help those students contact and utilize that service. Located in Room 235, Student Union I, 323-2131.

Re-Entry Program. Women and men returning to the University after extended absences from higher education have special needs. Frequently these students have multiple roles (family, spouse, job) which can lead to unusual stress, or they may have ambivalent feelings about their decision to return to university life. Support services for these students have proven valuable. The goal of the Re-Entry program is to provide an information and support network to facilitate successful integration of these students into the academic environment. For more information call 323-2165.

University Consultation/Support Staff. Staff, faculty, and students often consult the Counseling Center staff for problems involving a particular student’s adjustment to university life, his or her learning difficulties, or mental health. The goal of this consultation service is to assist the individual in helping the student who is having difficulty.

Training and Supervision. The Counseling Center seeks to provide training to practicum and intern students in George Mason University graduate programs, to assist in their development as beginning mental health professionals, and to expand the range and depth of services offered by the center.

Referral. The Counseling Center maintains a wide range of information and resources for students, faculty, and staff seeking referral to community mental health professionals and other social service agencies. Located in Room 364, Student Union I, 323-2165.

Accreditation. The University Counseling Center is accredited by the International Association of Counseling Services, the accrediting body established by the American Association of Counseling and Development.

Confidentiality and Client Welfare. The University Counseling Center subscribes to the Ethical Standards and Guidelines of the American Psychological Association and the American Association for Counseling and Development. All professional counseling services provided to students are held in confidence and no information is released without the student’s written consent.

Career Services

The Office of Career Services provides career counseling, career information, experiential learning, and job placement to students and alumni. The office, located in Room 348 in Student Union I, is open Monday through Friday from 8:30 a.m. until 5 p.m. and on Tuesday and Wednesday evenings. For information call 323-2476. The following major services are offered:

Career Counseling. Through individual counseling and workshops, students embark on a career decision making process. This process encompasses students’ needs, interests, values, abilities, and skills. The counseling explores a range of occupations before a student chooses a career plan. The plan is then implemented with a set goal and both are reevaluated periodically.

Career Seminars and Workshops. These include Career Indentification, Choosing/Changing Majors, Mid-Life Career Planning, Applying to Graduate/Professional School, Job Hunting Strategies, Resume Writing, and Interviewing Skills. Check the Career Services brochure for the listing of workshop days and times. Evening programs are available.

Career Reference Library. This specialized library contains information on career fields and undergraduate majors, graduate and professional school catalogs, government employment information, and job directories. Along with many other self-directed activities, a computerized career guidance program is available to assist in career exploration.

Cooperative Education. Cooperative Education is a program that provides qualified students with professional-level, progressively responsible, paid work experience in positions related to their majors. Two calendar plans are available: the preferred traditional plan, in which students alternate periods of full-time work with periods of full-time study, and the parallel plan, in which students attend school full time and work part time. Positions are open to both undergraduate and graduate students in all disciplines. Participation is recognized by the University through notation of the work assignments on academic transcripts. Orientation sessions are scheduled weekly to provide more complete information.

Internships. Career Services acts as a clearinghouse for information on internship opportunities. Internships can provide students with project-oriented experiences relevant to their academic and career interests. Students may be referred to internship options in specific academic departments or to general internship information in the Career Reference Library.

Part-Time/Summer Jobs. Job notices are posted on bulletin boards directly outside the Office of Career Services. Students seeking career-related, part-time or summer employment may register in Room 348, Student Union I.

On-Campus Interviews. During the fall and spring semesters, employers conduct interviews on campus for full-time career positions with their organizations. Graduating students and alumni can participate by first attending an orientation session, completing a registration form, and submitting it with a copy of their resume to the Office of Career Services. A schedule of employers is available at the beginning of each semester.

Job Leads. Graduating students and alumni can register to receive weekly bulletins of full-time job
vacancies. Job notices are also filed in the Career Reference Library and posted on a job bulletin board.

Credential File. Graduating students and alumni may establish credential files containing references, resumes, and course listings to be furnished to prospective employers and graduate schools at the request of the student.

Veterans Services

The Veterans Coordinator in the University’s Office of Veterans Services assists veterans, service personnel, dependents, and survivors in obtaining authorized educational benefits. The office helps veterans adjust to university life. Located in Student Union I, the office is open Monday through Friday from 8:30 a.m. to 5 p.m., and two days a week until 7 p.m. during regular semesters. (Late days vary. Check with the office at 323-2381.) For further information on benefits, see Veterans Affairs section in Financial Information chapter.

Minority Student Services

Minority Student Services is an administrative office that provides coordination for the University, with respect to its planning and programming, for ethnic minority students. The office coordinates those student services that are actually housed within their respective administrative units and assists the general University by providing continuity to services for minority students. Assisting students to understand their academic needs and then to find the appropriate way to meet them is an important function of the office. Minority Student Services is located in Room 352 of Student Union I (323-2383).

Office of International Programs and Services

The Office of International Programs and Services (OIPS) is responsible for encouraging and coordinating the internationalization of the University. It advises international students and helps them appreciate the American culture. In addition, it helps American students expand their education beyond the nation’s boundaries and assists faculty members in adding global content to their professional careers.

OIPS working units provide assistance in the following areas:

1. International Student Services advises prospective and enrolled international students and assists them with cultural integration.

2. English Language Institute intensively trains qualified international students in English.

3. Overseas Study Programs, together with academic departments, develops and administers study-abroad and exchange programs for GMU students.

4. International University Affiliations, in coordination with academic departments, develops faculty and graduate student exchange programs.

5. International Education Contract Programs designs and submits competitive proposals for international education contract programs.

6. OIPS represents international students at GMU before the U.S. Immigration and Naturalization Service, the State Department, government agencies in international education, and foreign embassies.

7. It links international students with the local community through program activities and holiday hosting.

8. It disseminates information via newsletters and other publications of importance to international students and their American counterparts.
Student Activities

Student Activities

Student participation helps shape the character and the quality of the students and the University. Thus, George Mason encourages people to express their talents and interests through participation in student government, student publications, and through membership in academic, Greek, international, special interest, law, cultural, religious, and athletic organizations.

While involvement in such activities is a desirable adjunct to classroom learning, participation must be complemented by academic progress. For this reason, only students in good academic standing are eligible to hold elective or appointive office in any organization or activity associated with the University, to participate in any athletic or other activity representing the University on either an intercollegiate or club level, or to serve as a working staff member of any student organization. It is the individual student’s responsibility to notify an organization when becoming ineligible.

Performing Arts Activities

George Mason offers students the opportunity to participate in many arts events throughout the school year. The George Mason University Dance Company presents two annual concerts and all students are encouraged to audition. Guest choreographers and performers are also an integral part of the dance program.

Theatre events include four major productions, as well as several student-directed, one-act, and experimental plays. Students may also attend playwriting classes and work with theatre majors on presentations of their own works. Auditions for theatre events are open to all George Mason students and are held each semester. Students interested in technical theatre can work in a variety of production crews, including light and sound, costumes, and publicity. Information concerning auditions, crew work, and performance dates may be obtained from the Department of Performing Arts (425-3900).

Students interested in music may audition to perform in the following: Collegiate Chorus, University Chorale, Gloriana Singers, Symphonic Chorus, Symphony Orchestra, Symphonic Band, Jazz Ensemble, Show Choir, Pep Band, and various chamber ensembles. All members of the University community are invited to attend concerts and recitals given by the Department of Performing Arts.

Student Organizations

Approximately 130 on-campus student organizations provide opportunities for students to exercise and develop their talents and complement the University’s curricular programs. The organizations span a wide range of interests, including politics, forensics, drama, music, journalism, academic, service, recreation, business, social life, religion and fellowship. Membership in student organizations is open to any registered George Mason University student and can open vistas to new friendships, informal contact with faculty and staff, learning opportunities, and leadership experience.

Recognized student organizations are also members of larger umbrella organizations. These clusters of organizations facilitate coordinated development of campus activities, interaction with other student organizations, and fee funding for student organizations. They also provide a University mailing address, access to file and storage space, duplicating services, and a channel of communication with the University administration regarding support services for student organizations.

The Student Activities Office also maintains updated information on names and phone numbers of contact persons in each organization. The Student Organization Manual, a “how-to” resource handbook for student leaders, can be obtained there. The office staff also consults with students or student organizations that are planning programs for students; assists new clubs in attracting members and receiving recognition; and offers leadership training through workshops, retreats, and credit course formats to organization members and to students not affiliated with a club.
Student Regulations

Conduct

The University respects and protects the individual dignity, integrity, and reputation of its students. Students are required to comply with those conventions and regulations of University life that are necessary to maintain order, protect individuals and property, and fulfill the purposes and responsibilities of a University.

Students enrolling in the University assume an obligation to conduct themselves in a manner compatible with the University's function as an educational institution. The Code of Virginia (Section 23-9:2) confers upon the University the responsibility for maintaining order within the University and the right to exclude those who are disruptive.

The Office of the Associate Vice President and Dean for Student Services is administratively responsible for supervising student conduct on campus. A system of courts administers nonacademic discipline. In addition to these courts, the student Honor Committee, described below, is responsible for adjudicating violations of the Honor Code that relate to academic matters. Questions regarding student conduct should be directed to the Office of the Associate Vice President and Dean for Student Services, located in Room 302 of Student Union I (323-2522).

Honor System and Code

George Mason University shares in the tradition of an Honor System that has existed in Virginia since 1842. The Honor Code is an integral part of University life. On their application for admission, students sign a statement agreeing to conform to and uphold the Honor Code. Therefore, it is the responsibility of the students to understand the provisions of the code. In the spirit of the code, a student's word is a declaration of good faith acceptable as truth in all academic matters. Therefore, attempted cheating, plagiarism, lying, and stealing (of academic work and related materials) constitute Honor Code violations. To maintain an academic community according to these standards, students and faculty must report all alleged violations of the Honor Code to the Honor Committee. Any student who has knowledge of, but does not report, an Honor Code violation may be accused of lying under the Honor Code.

The Honor Committee is independent of the Student Government and the University administration. It is made up of students selected by the student body and has the primary duty of espousing the values of the Honor Code. Its secondary function is to sit as a hearing committee on all alleged violations of the code.

At the beginning of each semester faculty members have the responsibility of explaining to their classes their policy regarding the Honor Code. They must also explain the extent to which aid, if any, is permitted on academic work.

The Honor Code appears in the Reference Section at the back of this catalog. Any questions regarding the Honor Code should be referred to the Honor Committee office located in Room 250 of Student Union I (323-2195).

Drug and Alcohol Policy

The abuse of drugs and alcohol by members of the George Mason community is incompatible with the goals of the University. By providing educational programs to create an awareness of drug and alcohol related problems, the University attempts to prepare individuals to act responsibly regarding this issue. Those in need of assistance in dealing with such problems are encouraged to seek the confidential services of the University's counseling center or the student health service.

Drugs. The University prohibits the possession and use of illegal drugs on campus. Illegal possession, sale, use, or distribution of controlled substances, including marijuana, violates both federal and state laws. Individuals involved in the sale, use, or distribution of controlled substances are subject to arrest and/or University disciplinary action.

Alcohol. The use of alcoholic beverages on campus is at the discretion of the University, subject to state alcoholic beverage regulations. Unless the University has specifically sanctioned the location and conditions of alcohol use, the possession and consumption of alcoholic beverages on campus and its facilities are prohibited. Individuals who are found to be in violation of University regulations or State laws are subject to University disciplinary action.
Financial Information

Tuition and Fees

Tuition, room, meal plans, and other applicable fees for early registered students are due and payable at the Cashier's office on or before August 13, 1987, for the fall semester, and December 14, 1987, for the spring semester (regardless of postmark). Failure to receive a bill does not waive the requirement for payment when due.

Early registered students who cannot attend classes during the semester for which they are registered should cancel their registration by written notice to the Office of the Registrar as outlined under "Undergraduate Policies and Procedures." Payment of tuition from early registered students will be accepted until August 13, 1987, for the fall semester and until January 7, 1988, for the spring semester, with late payment resulting in an additional charge of $10. If payment has not been received by these dates, registration will be cancelled for the applicable semester. In this instance, it is necessary to reregister or incur a $20 administrative fee. These students may attempt to build a new schedule on a space-available basis.

Tuition and fees for courses added after the cancellation date must be paid on the same day classes are charged a $20 administrative fee.

Methods of Payment

By act of registration, students accept the responsibility for the charges of the entire semester, regardless of the payment method used. In the absence of arrangements for an alternative method of payment, payment in full must be received at the Cashier's Office on or before the due date.

Credit Cards. Payment may be made by VISA, MasterCard, or Choice. These payments may be made in person by presenting your card at the Cashier's office or by returning a copy of your bill with the appropriate information filled in. In either case, you are requested to provide the Cashier's office with a daytime telephone number in case of processing difficulties.

Installment Payment Plan. A monthly installment payment plan is offered through the Academic Management Services (AMS) of Pawtucket, Rhode Island, for the 1987-88 academic year.

This plan allows a student to pay all or part of his or her annual tuition in 10 equal monthly installments without interest charges. Participation is on an annual basis and is renewable each year at an annual cost of $45. The enrollment fee also covers the cost of a Life Benefit Insurance plan, which guarantees payment of the balance of the budgeted amount, in the event of the death of the parent who is contractually responsible for the payments.

Students should contact AMS at their toll-free number (800) 556-8884 for further information.

<table>
<thead>
<tr>
<th></th>
<th>In-State Students</th>
<th>Out-of-State Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Fee</td>
<td>$15</td>
<td>$15</td>
</tr>
<tr>
<td>Tuition and Fees, full-time (12 through 17 semester hours) per semester</td>
<td>$912*</td>
<td>$1,824*</td>
</tr>
<tr>
<td>Tuition and fees, part-time (11 semester hours or less) per semester, per hour</td>
<td>76</td>
<td>152</td>
</tr>
<tr>
<td>Laboratory Breakage Deposit</td>
<td>5b</td>
<td>5b</td>
</tr>
<tr>
<td>Graduation Fee</td>
<td>15c</td>
<td>15c</td>
</tr>
<tr>
<td>Special Registration Fee</td>
<td>15</td>
<td>15c</td>
</tr>
<tr>
<td>Private (music)</td>
<td>t</td>
<td>t</td>
</tr>
</tbody>
</table>

How To Figure Semester Tuition and Fees Costs

<table>
<thead>
<tr>
<th>Credit Hours</th>
<th>In-State Students</th>
<th>Out-of-State Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$76</td>
<td>$152</td>
</tr>
<tr>
<td>2</td>
<td>152</td>
<td>304</td>
</tr>
<tr>
<td>3</td>
<td>228</td>
<td>456</td>
</tr>
</tbody>
</table>

*For each hour over 17, add $76 for in-state and $152 for out-of-state.

bChemistry only. Same laboratory card may be used for both semesters.

cSee Application for Degree.

$140 for 14 one-half-hour lessons; $280 for 14 one-hour lessons. Fee is nonrefundable after 60 calendar days. Refund prior to completion of 30 days is $100 ($200 if taking one-hour lessons); between 31 and 60 days, refund is $60 ($120 if taking one-hour lessons). Students are billed for private music instruction after the semester begins.
Deferred Payment Plan

A deferred payment plan is available for students whose tuition and fees for the semester exceed $456. Students using a deferred payment plan must return a signed copy of the deferred payment promissory note to the Student Accounts Office by no later than August 17, 1987, for the fall semester and January 11, 1988, for the spring semester. There is a $20 administrative fee for this service. Students must pay at least one-half of the total fees or $456 (whichever is greater) as the initial payment, with the remaining payable in two equal installments. Bills for installment payments are not prepared.

Students are responsible for ensuring payment of installments on or before the published due dates.


Payments must be received in the Cashier's office on or before the due date.

Checks

Checks in payment of tuition, fees, fines, or other obligations to the University should be made payable to George Mason University. Second-party checks are not acceptable.

A check returned to the University by a bank results in a $10 penalty fee for the payor. Further, students who fail to make good such checks within five calendar days following notification by the Cashier's office are placed on financial suspension without further notice.

Financial Suspension

All academic credit is withheld for students who are not in good financial standing with the University. This means that no transcripts of record are issued, no diplomas are released, and no registrations for a subsequent semester or term are permitted until outstanding obligations, including the reinstatement fee, have been paid in full. In those instances where the outstanding financial obligation that caused the financial suspension is in excess of $50, a reinstatement fee of $25 is imposed.

Failure to Meet Financial Obligations

Late Fee. Failure to make any payment on or before the due date results in a late charge of $10.

Other Actions

Students failing to meet a financial obligation to the University are placed on financial suspension. In addition, failure to meet financial obligations to the University may result in placement of the delinquent account with a collection agency, withholding from subsequent tax returns, and other collection procedures as mandated by the Commonwealth. The student is responsible for any additional costs incurred in the collection of delinquent accounts. Fines owed to libraries of institutions and participating public libraries of the Consortium for Continuing Higher Education in Northern Virginia similarly affect students' status.

Reinstatement Fee. Students placed on financial suspension because of outstanding obligations in excess of $50 may not return to good financial standing with the University until all outstanding obligations—including late charges plus a $25 reinstatement fee—have been paid.

Refunds

If students withdraw from the University before the beginning of the semester or during the first week of classes, their tuition and fees, less an administrative charge of $20, are refunded. Assessed penalties are nonrefundable.

The following dates are used to compute refunds:

<table>
<thead>
<tr>
<th>Semester</th>
<th>Date</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 1987</td>
<td>September 8, 1987</td>
<td>Last day of week 1</td>
</tr>
<tr>
<td></td>
<td>September 15, 1987</td>
<td>Last day of week 2</td>
</tr>
<tr>
<td></td>
<td>September 22, 1987</td>
<td>Last day of week 3</td>
</tr>
<tr>
<td>Spring 1988</td>
<td>February 1, 1988</td>
<td>Last day of week 1</td>
</tr>
<tr>
<td></td>
<td>February 8, 1988</td>
<td>Last day of week 2</td>
</tr>
<tr>
<td></td>
<td>February 15, 1988</td>
<td>Last day of week 3</td>
</tr>
</tbody>
</table>

Tuition and fees are refunded on a graduated scale for subsequent voluntary drops and withdrawals during the second and third weeks. The calculation of the amount of refund is based on the date of the drop or withdrawal as certified by the Registrar. Hours dropped after the third week must be paid for in full. The refund scale is shown below and is posted in detail on the bulletin board at the Cashier's office. It is the student's responsibility to be familiar with the refund scale; also, the refund process is initiated by the student, who submits a request to the Cashier's office.

Refund Scale (Per Tuition Hour)

<table>
<thead>
<tr>
<th>Week</th>
<th>In-State</th>
<th>Out-of-State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>$76.00</td>
<td>$152.00</td>
</tr>
<tr>
<td>(100%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 2</td>
<td>$50.70</td>
<td>101.40</td>
</tr>
<tr>
<td>(66.7%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 3</td>
<td>$25.40</td>
<td>$50.70</td>
</tr>
<tr>
<td>(33.3%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Refund scale for rooms and meal plans

<table>
<thead>
<tr>
<th>Week 1</th>
<th>Total fees minus $100</th>
<th>Total fees minus $50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 2</td>
<td>66.7% of total fees</td>
<td>66.7% of total fees</td>
</tr>
<tr>
<td>Week 3</td>
<td>33.3% of total fees</td>
<td>33.3% of total fees</td>
</tr>
</tbody>
</table>

For each hour over 17, add $76 for in-state and $152 for out-of-state.
Off-Campus Courses

Students enrolling in off-campus courses are assessed tuition and fees at the same rates as those established for on-campus courses.

Other Required Fees

Deposits. By the end of the second week of classes, students enrolled in a chemistry laboratory course must purchase from the Cashier one laboratory card priced at $5, which covers breakage or loss of equipment. As such loss occurs, the card is “punched” for the cost of the item in question. Unused portions of the card, which have been validated by the Chemistry Department, are redeemed upon presentation to the Cashier no later than May 31, 1988.

Transcript Fee. A fee of $2 is charged for the first copy of each transcript of record requested by students, and $1 for each additional copy ordered at the same time. Payment must accompany the request.

Motor Vehicle Registration Fees. Students who park their vehicles on University property must register them with the Traffic and Parking Office and pay a $50 fee for a parking decal. (See Motor Vehicles Policy.)

Eligibility for In-State Tuition

To be eligible for in-state tuition charges, a person must have been domiciled in Virginia for a period of at least one year prior to the semester for which a reduced rate is sought. A person becomes domiciled in Virginia when legally capable of establishing a domicile and present in Virginia with the unqualified intention of remaining in the state permanently.

Domicile, however, is primarily a question of intent and the burden of proof of domicile is upon the student seeking the benefit of reduced tuition.

Change of Domicile Classification

Students requesting a change of classification from out-of-state to in-state must file the required form before the first day of the semester for which in-state status is sought. Forms are available in the Admissions office, Room 117 Finley.

Penalties

A student who provides false information or refuses or conceals information for the purpose of achieving in-state status, or who fails to notify the University of a change of facts which might affect reclassification from in-state to out-of-state status, shall be required to pay retroactively any tuition fees that would normally have been charged and shall be subject to appropriate disciplinary action.

Financial Assistance

Office of Financial Aid

The Office of Financial Aid provides a variety of services to help students finance their education. These services include financial counseling, referral and information resources, and financial assistance. Student financial assistance consists of grants, loans, and employment. Awards are based on financial need. Located in Student Union I, Room 354, the office is open Monday through Friday from 9 a.m. until 4:30 p.m., and Tuesday until 7 p.m. For further information, call (703) 323-2176.

To apply for financial aid, each year new and currently enrolled students must obtain a copy of the George Mason University Financial Aid Application and return the completed form to the Financial Aid office. In addition, students must complete a Financial Aid Form and forward it to the College Scholarship Service in Princeton, New Jersey, four weeks prior to the application deadline. The application deadlines for consideration of federal and most of the state funds are as follows:

- 1988-89 Academic Year
  - First Year Graduate Students: March 1, 1988
  - Returning Students: May 1, 1988
  - Summer 1988: April 1, 1988

Applications received after the deadline are evaluated according to the availability of funds.

The University administers federal, state, and other aid programs as outlined below.

Federal Programs

The National Direct Student Loan Program. Long-term, 5 percent interest loans from the federally sponsored National Direct Student Loan Program are available to qualified students. Repayment begins six months after graduation and may be deferred for students entering graduate school, the Peace Corps, Vista, or military service, and may be deferred for three years for those temporarily disabled. Students must be enrolled at least half time in order to qualify. Half time is defined as six credit hours for both undergraduate and graduate students.

Guaranteed Student Loan Program. Students must demonstrate need and be enrolled in a degree program half time in order to qualify. While most loans are made by commercial lenders, some states are also lenders. The state lending agency for Virginia is the Virginia Education Loan Authority.

Students may borrow up to $2,625 as freshmen and sophomores and $4,000 for upper-level
undergraduate study, with cumulative limits of $17,250 for undergraduate study. The government pays the 8 percent interest until the repayment period begins, six months after the student leaves school. Interest remains 8 percent through the fourth year of repayment and increases to 10 percent beginning the fifth year of repayment. Applications can be obtained from the Financial Aid office or most commercial banks in Virginia or the student's home state.

PLUS Loan Program. PLUS is an additional form of financial aid to be used in conjunction with the Guaranteed Student Loan (GSL) program. PLUS loans may also be available to those students who, for certain reasons, are ineligible for the GSL program. This program can assist middle-income families and others who are not able to meet the costs of education through grants, scholarships, GSLs, and other financial aid programs. All parents of dependent undergraduates and graduate students are eligible to apply. There is no income ceiling for the program; therefore, anyone may participate. Specific and detailed information may be obtained by contacting the Financial Aid office.

Virginia Programs for State Residents

State Nursing Scholarships. The Bureau of Public Health Nursing provides limited scholarships to Virginia residents. These scholarships are based on need, and applications are made directly to the Bureau of Public Health Nursing and are available to graduates and undergraduates. The application deadline for students previously enrolled in a nursing program is March 1, and for new students entering a nursing program the deadline is June 1. Applications are available in the Financial Aid office.

Graduate Assistance

Graduate School Fellowships. George Mason University annually awards a limited number of University fellowships that are funded by the Commonwealth of Virginia and can be awarded in any department. The awards, based on merit, are intended to encourage and assist superior students in pursuing graduate studies in the minimum time possible. All recipients must enroll in full-time study. For further information and an application, please contact the graduate dean's office, (703) 323-2124.

Applications, available in the Graduate School office, must be submitted to the Graduate School for major department review. Prospective graduate students must also have filed an application for admission to the Graduate School.

Other Fellowships. Direct fellowship awards are available from a number of foundations. Students may obtain information concerning these fellowships from the Graduate School.

Woodrow Wilson Foundation. The Woodrow Wilson Foundation provides funds for graduate fellowships to students planning college teaching careers in a liberal arts field. Although lack of funds curtailed grants in recent years, seniors interested in applying for such grants as they become available must be nominated by one of their professors in October. Consult the departmental adviser or the local Woodrow Wilson campus representative for further information.

Zonta Scholarship. The Zonta Club of Fairfax offers a scholarship to a woman admitted to the Graduate School for study leading to a profession. The field of study and the amount of award varies. Consult the graduate dean's office for information and an application.

Graduate Assistantships. The Graduate School offers a number of graduate teaching and research assistantships in departments with graduate programs. Assistantships are awarded on a nonneed basis. A student holding an assistantship must be in degree status and must take a minimum of six semester hours of graduate credit each semester. Stipends ranged from $4,500 to $10,000 for the 1986-87 academic year. Application for a graduate assistantship should be made to the chair of the department involved. For further information and an application, please contact the graduate dean's office, (703) 323-2124.

Virginia Graduate Scholarships. Graduate students classified as Virginia residents may receive a Graduate Scholarship to cover tuition and fees. They must be enrolled full time, be formally admitted to the Graduate School, maintain a 3.00 cumulative grade point average, and demonstrate financial need.

In-Service Training Program for Teachers. Candidates for graduate degrees may establish eligibility to receive state funds for graduate study closely related to their field of work through one of the State's Division Superintendents of Schools. Candidates may use the funds to enroll at the University in previously approved courses.

Emergency Loan Program

Mary E. Ferguson Emergency Loan Program. Currently enrolled students may borrow funds for legitimate emergencies excluding tuition, fees, books, and supplies. Emergency loans must be repaid within 15 days; overdue payment results in a late charge of $5 for each 15 days past due. Failure to repay the loan within 15 days, without requesting an extension for a reasonable excuse, will result in financial suspension. Students financially suspended for nonpayment of an emergency loan are ineligible for any future emergency loans.

Veterans Services

Veterans Educational Benefits

Students eligible for Veterans Educational Benefits while attending the University must contact the Office of Veterans Services. The following actions are required:

1. Veterans and active services duty personnel who have never received benefits must apply on Form 22-1990. The application should be turned in to the Veterans Services office on campus with a certified copy of the student's DD-214 (if applicable).

2. Students who have received benefits from another school or who are changing either their type of
program or course objectives must fill out form 22-1995—Request for Change of Program or Place of Training.

3. Students must request the veterans’ counselor to send an enrollment certificate to the Veterans Administration Regional Office each school year (each semester, if the students are under half time, on active duty, or in Continuing Education). Students must apply separately for a summer session. Students in Continuing Education will only be certified for two semesters while their GMU applications are pending.

4. Students are responsible for notifying the Veterans Services office on campus of any change in status. Such changes include:
   a. Adding or dropping courses
   b. Change in marital status
   c. Addition of a dependent
   d. Change of address (notify VARO immediately)
   e. Withdrawal from school (notify immediately)

Forms for making these changes are available at the Office of Veterans Services in Room 355 of Student Union I.

5. VA payments are made on the following basis:

<table>
<thead>
<tr>
<th>Status</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full time</td>
<td>9 or more hours</td>
</tr>
<tr>
<td>3/4 time</td>
<td>6, 7, 8 hours</td>
</tr>
<tr>
<td>1/2 time</td>
<td>4, 5 hours</td>
</tr>
<tr>
<td>less than 1/2, more than</td>
<td>3 hours</td>
</tr>
<tr>
<td>1/4</td>
<td>less than 3 hours</td>
</tr>
</tbody>
</table>

Students on active duty and those taking fewer than four graduate hours are paid either tuition and fees or the rate set for the training time, whichever is less. The Veterans Administration will not pay for an audit course.

On July 1, 1985, Public Law 98-525 established a new GI Bill (Chapter 30). Details may be obtained from the Veterans Services office on campus.

**Tutorial Services for Veterans.** The VA will pay $84 per month, not to exceed $1,008 per year, for needed tutorial services. For further information contact the Veterans Services office on campus.

**Virginia War Orphans Education Program.** The Virginia War Orphans Program provides educational assistance to children of qualified veterans. To be eligible an applicant must meet the following requirements:

1. The applicant must be between the ages of 16 and 25.

2. The applicant’s parent must have served in the armed forces of the United States and must: (a) be totally disabled due to an injury or disease incurred in a time of armed conflict; or (b) have died as a result of injury or disease incurred in a time of armed conflict; or (c) be listed as a prisoner of war or missing in action.

3. The applicant’s parent must have been a resident of the Commonwealth of Virginia at the time of entry into active military duty, or must have been a resident of the state for at least 10 consecutive years immediately prior to the date of application.

4. The applicant must provide written verification of acceptance as a student in a state-supported postsecondary school.

Eligible individuals are entitled to a maximum of 48 months of tuition-free education at a state supported educational institution. For more information contact the Office of Veterans Services.

**Foundations and Associations**

**George Mason University Foundation, Inc.**

John T. Hazel, Jr., President
Elizabeth C. Dahlin, Director and Assistant Secretary
Otis D. Coston, Jr., Treasurer

The George Mason University Foundation, Inc., is an autonomous organization designed to enrich programs of the University. Private funds augment programs provided by state funds. Contributions to the Foundation are used to enhance the library and to build student scholarships and community cultural and intellectual programs at the University. The Foundation qualifies under Internal Revenue Code 501(c)(3) as a nonprofit corporation.

**Patriot Club**

Associate Director of Development for Athletics
Alan K. Srebnick, Executive Director

The Patriot Club is formed for educational, charitable, and social purposes. All contributions to the Club are deposited in the George Mason University Foundation, Inc., for financial support of student athletic scholarships, helping to make George Mason University athletic teams competitive in intercollegiate competition. Activities of this athletic booster organization are administered in accordance with the latest National Collegiate Athletic Association regulations, policies, and procedures.
Degree Programs
Accounting

Faculty

Bagranoff, Nancy A., M.S., Syracuse University, 1976; Assistant Professor
Buchanan, Phillip G., Ph.D., Temple University, 1982; Assistant Professor
Cao, Le T., D.B.A., University of Southern California, 1975; Assistant Professor
Coffinberger, Richard L., J.D., Wake Forest University, 1974; Associate Professor
Floyd, Herbert F., M.B.A., Syracuse University, 1973; Associate Professor
Hicks, Margaret, D.B.A., University of Maryland, 1982; Assistant Professor
Kraft, Gerald J., M.B.A., Creighton University, 1971; Instructor
Lynn, Susan A., D.B.A., University of Maryland, 1982; Assistant Professor
Mariano, Frank A., M.B.A., Pennsylvania State University, 1981; Instructor
Millspaugh, Peter, J.D., American University, 1968; Associate Professor
Rymer, Victoria S., Ph.D., University of Maryland, 1983; Assistant Professor
Samuels, Linda B., J.D., University of Virginia, 1975; Associate Professor
Tucker, Michael J., Ph.D., University of Houston, 1980; J.D., New York University, 1974; Associate Professor

Accounting, M.S.

The Master of Science in Accounting degree, administered by the Department of Accounting and Business Legal Studies, is designed to provide the student with an additional university-level accounting program which, when combined with an undergraduate accounting degree, meets the five-year, 150-hour program supported by the accounting profession, state accountancy regulators, and educators.

Admission Requirements

In general, a degree applicant should meet the following minimum admission requirements:

1. A bachelor's degree from an accredited institution (no application is processed until official transcripts are received from all colleges and universities attended).
2. A grade-point average of 2.75 on a 4.00 scale for the last 60 semester hours of upper-level course work leading to an undergraduate degree. A student may be admitted to the program while completing the required undergraduate course work.
3. Three letters of recommendation from professors or other persons directly knowledgeable of the applicant's professional and academic competence and potential as a graduate student.
4. A satisfactory score (normally 500 or higher) on the Graduate Management Admissions Test (GMAT). The GMAT must have been taken within seven years of applying for admission.
5. Admission to the M.S. degree program is on a competitive basis. The admissions decision is based principally on grades in prior academic course work and performance on the GMAT. These criteria are applied flexibly to ensure that individuals with unusual qualifications are not denied admission. Course work taken as a GMU Extended Studies enrollee does not per se qualify an applicant for admittance into the M.S. program. Please refer to the credit transfer and residence requirements applicable to all master's degrees previously described in this catalog.

Admission in Nondegree Status

Applicants whose credentials are not complete may apply for admission in nondegree status for one semester. Students in this status may take up to six credits in their first semester which will be counted toward the M.S. in Accounting degree. Nondegree students enjoy all the benefits of fully admitted students including catalog protection, registration priority, and an adviser from the full-time graduate faculty.

To apply for nondegree status, applicants must file a completed Graduate School application and a copy of their undergraduate transcripts with the Office of Admissions.

Degree Requirements

The M.S. program involves between 30 and 54 semester hours of graduate course work and also may require up to 24 hours of additional undergraduate credit. The exact number of credit
hours for an individual is based on an evaluation by
the department faculty at the time of admission.

M.S. in Accounting Core (15 hours). Each candidate
must complete the following M.S. in Accounting
core courses unless, in the opinion of the
department faculty, the candidate has had previous
comparable graduate-level course work that would
justify substitution of other graduate accounting
courses.

ACCT 712 Accounting Systems
ACCT 713 Managerial Accounting Theory
ACCT 732 Financial Accounting Theory
ACCT 653 Fundamentals of Federal Income Taxation
ACCT 782 Advanced Auditing Theory and Practice

Graduate Electives (15 hours). Each candidate must
complete satisfactorily at least 15 hours of graduate
course work which is not repetitive of previous
academic work. Candidates must elect either the
general accounting or taxation specialization as
described below.

General Accounting Specialization. Twelve hours
must be taken from the courses shown below and
must include three hours in Accounting, three hours
in Financial Management, three hours in Decision
Science, and three hours in Information Resource
Management. The remaining three hours must be
from 600-level or higher graduate courses.

Accounting:
ACCT 733 Corporate Financial Reporting
ACCT 754 Tax Research
ACCT 755 Corporate Federal Income Taxation I
ACCT 756 Corporate Federal Income Taxation II
ACCT 757 Partnership Taxation
ACCT 758 Federal Estate and Gift Taxation
ACCT 772 Fund Accounting
ACCT 782 International Accounting
ACCT 792 Seminar in Accounting
ACCT 798 Independent Study and Directed Readings

Financial Management:
FNAN 611 Cases in Financial Administration
FNAN 712 Security Analysis
FNAN 713 Portfolio Analysis
FNAN 714 Long-term Financial Management
FNAN 772 Managerial Economics

Decision Science:
DESC 611 Quantitative Analysis in Business and
Operations Management
DESC 742 Management Science

Information Resource Management:
Information Resource Management Courses at the
700 level as shown in this catalog.

Taxation Specialization
Twelve hours of taxation courses including ACCT
754 must be taken from the listing below. The
remaining 3 hours must be taken from 600-level or
higher graduate courses.

ACCT 754 Tax Research
ACCT 755 Corporate Federal Income Taxation I
ACCT 756 Corporate Federal Income Taxation II
ACCT 757 Partnership Taxation
ACCT 758 Federal Estate and Gift Taxation

Accounting Courses for Students Without an
Undergraduate Accounting Degree (24 hours).

ACCT 201 Financial Accounting*
ACCT 202 Managerial Accounting**

ACCT 311 Cost Accounting
ACCT 331 Intermediate Accounting I
ACCT 332 Intermediate Accounting II
ACCT 351 Federal Taxation
ACCT 461 Auditing

BULE 301 The Legal Environment of Business

*ACCT 610 may be substituted.
**ACCT 611 may be substituted.

Graduate Courses Required for Students Without an
Undergraduate Business Degree (24 hours).

BULE 610 Law and the Business Environment
DESC 610 Statistical Foundation for Business
Decision Making
FNAN 602 Managerial Economics
FNAN 610 Financial Management
IRM 610 Computer Systems for Management
MGMT 610 Management Theory and Practice
MGMT 697 Organizational Policy and Strategic
Management

MKTG 610 Marketing Concepts and Processes

Accounting Courses (ACCT)

610 Accounting and Reporting (3:3:0). Prereq graduate
standing. All aspects of accounting from the basic concept
of a transaction through financial statements and their
interpretation.

611 Managerial Accounting (3:3:0). Prereq ACCT 610 or
equiv and graduate standing. Topics incl profit planning,
relevent costing, budgeting, measurement of performance
and product costing.

Prereq 24 credits of graduate and/or undergraduate
accounting courses. An in-depth study of the theoretical and
practical aspects of the federal personal income tax.
Emphasis on a conceptual foundation and the basic
technical details of gross income, deductions, credits, and
property transactions.

Accounting systems design and integration with other
information systems.

713 Managerial Accounting Theory (3:3:0). Prereq ACCT
611. Controllership function in public or private
organizations, particularly in regard to development of
policy and evaluation of performance.

752 Federal Taxation and Business Planning (3:3:0).
Prereq ACCT 611. Topics incl organizations, acquisitions,
mergers, spinoffs and other divestitures, from viewpoint of profit
planning, cash flow, and tax defferment. Emphasis on tax
problems of corporations. This course is not available to
M.S. in Accounting students.

754 Tax Research (3:3:0). Prereq 24 credits of graduate and/or
undergraduate accounting courses. Study of the process
which is necessary to effectively research a tax problem,
to arrive at a defensible solution, and to effectively
communicate that solution. Emphasis will be on the
exposure of students to the tools of tax research: Internal
Revenue Code, Treasury Regulations, and various
administrative and judicial sources of the tax law.
Degree Programs

755 Corporate Federal Income Taxation I (3:3:0). Prereq ACCT 653 and ACCT 754. Concepts and principles that relate to federal income taxation of corporations and their shareholders. Emphasis will be placed upon research of fact situations. Coverage includes organizing and capitalizing a corporation, nonliquidating and liquidating distributions, penalty taxes, collapsible corporations, and determinants of the income tax base of corporations.


757 Partnership Taxation (3:3:0). Prereq ACCT 653 and ACCT 754. Major aspects of taxation affecting partners and partnerships. Emphasis will be placed on tax planning as well as detailed study of the Internal Revenue Code, Treasury Regulations and case law governing these areas.

758 Federal Estate and Gift Taxation (3:3:0). Prereq ACCT 653 and ACCT 754. Concepts and principles that relate to federal estate and gift taxation and the federal income taxation of estates, trusts and beneficiaries. Emphasis will be placed upon estate tax planning as well as detailed study of the Internal Revenue Code, Treasury Regulations and case law governing these areas.


792 Seminar in Accounting (3:3:0). Prereq 24 hr in the grad prog. Study of selected areas in accounting theory, practice, and methodology and the influence of selected aspects of other disciplines upon the development of accounting concepts.

796 Independent Study and Directed Readings (3:0:0). Prereq Foundation and core courses. By special arrangement with professor and approval of the accounting chair.

799 Thesis (6:0:0). Prereq 30 hr of grad course work beyond the foundation.

Biology

Faculty

Adamkewicz, S. Laura, Ph.D., University of Virginia, 1968; Assistant Professor

Andyrovitch, George E., Ph.D., University of Maryland, 1968; Associate Professor

Birchard, Geoffrey F., Ph.D., Dartmouth Medical School, 1985; Assistant Professor

Bradley, Ted R., Ph.D., University of North Carolina, 1968; Associate Professor

Brown, Luther, Ph.D., Ohio State University, 1978; Associate Professor

deFur, Peter L., Ph.D., University of Calgary, 1980; Assistant Professor

Emsley, Michael G., Ph.D., University of London, 1964; Professor

Ernst, Carl H., Ph.D., University of Kentucky, 1969; Professor

Gretz, Michael R., Ph.D., Arizona State University, 1981; Assistant Professor

Hart, Jayne T., Ph.D., University of Wisconsin, 1969; Professor

Heliotis, Francis D., Ph.D., University of Wisconsin, 1985; Assistant Professor

Johnston, David W., Ph.D., University of California, 1954; Professor

Jonas, Robert B., Ph.D., University of North Carolina, 1981; Assistant Professor

Jones, R. Christian, Ph.D., University of Wisconsin, 1980; Associate Professor

Kaplan, Ruth A., Ph.D., University of Wisconsin, 1970; Associate Professor

Kelso, Donald P., Ph.D., University of Hawaii, 1970; Associate Professor

Lawrey, James D., Ph.D., Ohio State University, 1977; Associate Professor

Oates, Karen K., Ph.D., George Washington University, 1985; Assistant Professor

Rockwood, Larry L., Ph.D., University of Chicago, 1972; Associate Professor (Chair)
Royt, Paulette A., Ph.D., University of Maryland, 1974; Associate Professor
Shaffer, Jay C., Ph.D., Cornell University, 1967; Professor
Sherald, Allen F., Ph.D., University of Virginia, 1973; Associate Professor
Skog, Judith E., Ph.D., Cornell University, 1972; Associate Professor
Stanley, Melissa S., Ph.D., University of Utah, 1965; Professor
Taub, Stephan R., Ph.D., Indiana University, 1960; Professor
Torzilli, Albert P., Ph.D., University of Georgia, 1976; Associate Professor
Wilson, John W., Ph.D., University of Chicago, 1972; Associate Professor
Wyngaard, Grace A., Ph.D., University of Maryland, 1982; Research Assistant Professor

Biology, M.S.

The Master of Science program in Biology is designed to provide advanced training for recent college graduates, professionals in teaching, technical, and other biology-related fields, and research-oriented individuals.

Admission Requirements

An applicant for the M.S. program is expected to have a bachelor's degree in biology or its equivalent with a grade point average of 3.00 or better in biology courses, and must submit scores on the Graduate Record General and Subject Biology Examinations, and three letters of recommendation.

To be accepted as a degree student, an applicant's scores on the verbal and quantitative general test should total 1,100 or greater, and should be in the 50th percentile or better on the subject biology portion, with no raw subscore less than 60 (40th percentile).

Degree Requirements

A student must complete at least 30 semester hours, including two hours of seminar, one of which must be Biology 690: Introduction to Graduate Studies in Biology. Initially, a student is assigned an academic adviser. The student must form a three-member graduate committee within the first 15 hours of course work. At the conclusion of the program, the student must successfully complete an oral and written comprehensive examination or defend a thesis. Students who complete a thesis will present their research in a public seminar. The basic requirements for each specialization are detailed below.

1. Organismal Biology: An organized set of course work is developed after consultation with an academic adviser. Traditional programs of study such as botany, vertebrate zoology, developmental biology, animal behavior, genetics, or physiology may be included in this specialization.

2. Environmental Biology: A student electing this specialization must take Biology 640 and 641: Environmental Biology I and II, and must complete at least one semester of Biology 642: Seminar in Environmental Biology. The remaining hours will be selected from a list of environmentally oriented courses in consultation with the academic adviser. The student is encouraged to take one or two courses outside of the department subject to approval by the graduate committee.

3. Systematic, Evolutionary, and Population Biology: The student must complete a program of study selected from a list of courses emphasizing evolutionary and systematic biology. These courses must be approved by the academic adviser and will include one course from each of three areas: evolution, populations, and experimental biology.

4. Molecular, Microbial, and Cellular Biology: The student must complete three hours of seminar in addition to Biology 690. In consultation with the academic adviser, the student may enroll in Biology 691: Current Topics in Biology and/or Biology 695: Seminar in Molecular, Microbial, and Cellular Biology. All further course work is selected after consultation with the academic adviser.

5. Interpretive Biology: This specialization is designed for individuals currently or recently employed in interpreting biology to the public, including teachers, park naturalists, and science writers. Three to nine hours are chosen from BIOL 504, 601, 602, 605, or approved graduate courses in other departments. The remaining 21 to 27 hours will be graduate-level biology courses and must include two hours of seminar. All courses must be approved by the student's graduate committee.

Environmental Biology-Public Policy, Ph.D.

The objective of the Ph.D. program in environmental biology-public policy is to offer training in the traditional research-oriented disciplines of ecology and environmental biology as well as in public affairs, business administration and economics. Graduates will possess research, technical and administrative skills that should enable them to deal effectively with pure and applied environmental research, policy issues, environmental legislation, and implementation of environmental law.

Prospective students who are already employed as environmental biologists by government, industry, or consulting firms would have the opportunity to upgrade and broaden their skills. Recent bachelor's or master's degree recipients would gain practical experience and important contacts during the internship phase of their training.

Admission Requirements

An applicant should have a bachelor's degree in biology or the equivalent, with an overall grade point average of at least 2.75 (on a scale of 4.00) in
the last 60 hours of undergraduate work and a 3.00 average in all biology courses. A student who applies for graduate work but who lacks a bachelor's degree or master's degree in biology must complete a program of undergraduate course work as designated by the doctoral coordinator acting in consultation with the doctoral committee in the Department of Biology. The application deadline for admission in the fall semester is April 1 and for the spring semester, November 1.

All applicants for degree status must submit:

1. Scores on the Graduate Record Examination, including the Subject Test in Biology as stated above
2. Three letters of recommendation
3. Official transcripts from each college or university attended
4. A recent resume.
5. An interview with the doctoral coordinator is encouraged.

Degree Requirements

Because graduate courses in the Department of Biology are offered in the late afternoon or evening hours, course work for the Ph.D. degree may be completed on a part-time basis. The Ph.D. in environmental biology-public policy requires 78 semester hours of study beyond the bachelor's degree, 30 of which may be from master's-level work or its equivalent. At least 48 hours of work must be completed at George Mason University. The following requirements must be satisfied:

1. A minimum of 22 hours of graduate course work in biology, computer science, and statistics. These 22 hours will include at least two courses in each of the following areas: quantitative ecology, aquatic or terrestrial ecology, and applied ecology: a minimum of two semesters (four semester hours) of doctoral-level environmental biology seminars (BIOL 990, 991) are also required;
2. One or two graduate-level courses each from a selected list of courses in two areas of economics, business administration and public affairs for a total of 15 semester hours. Each student is responsible for acquiring specific prerequisites or obtaining permission from the instructor to enroll in these graduate-level courses;
3. An internship. Up to 12 semester hours may be earned by fulfilling the internship requirement; the internship may be with an approved industry, government agency, consulting firm, or a professional scientific organization. Internships will be negotiated or waived on a case-by-case basis by the Biology Department with the student; the student's committee, after assessing the strengths and interests of the student and identifying available organizations or scientific mentors, will determine the location, duration and other terms of the internship.
4. A course in environmental law;
5. A Ph.D. dissertation; a maximum of 24 semester hours may be earned.

Sequence of Study

Upon admission to the program, a plan of course work will be developed by the student and his or her committee. As soon as possible, the student should establish a supervisory committee, consisting of a major professor and at least two environmental biologists in the department. When course work has been completed, a second phase of the program will be entered, namely advancement to candidacy. The student will be advanced to candidacy upon (1) enlarging the supervisory committee to include two other members, one of whom must be from one of the nonbiology departments participating in the doctoral program; (2) successful completion of a written (and optional oral) qualifying examination; and (3) submission of an acceptable dissertation proposal.

Residency, Candidacy, and Other Requirements

A student must advance to candidacy (complete the qualifying examination) within five years of initial registration. Once advanced to candidacy, however, a student is expected to be in continuous residence on a full-time basis. The minimum period of full-time residency is one year. The dissertation and final examination must be completed within six years after advancing to candidacy.

Biology Courses (BIOL)

504 Virginia Natural History for Teachers (4:3:3). Prereq Pol. The interrelations of plants, wildlife, soil, and waters of local environments with emphasis on the teaching of their proper use and conservation. May be applied to the M.S. in Biology in the Interpretive Track only and then within a six-hour maximum if combined wit BIOL 605.
520 Systematics in Complex Angiosperm Families (3:1:6). Prereq BIOL 344 or 534 or Pol. Morphology and speciation of the more complex families such as Poaceae, Cyperaceae, and Asteraceae. Lab emphasizes identification of specimens and acquaintance with taxonomic literature.
526 Paleocology (4:3:3). Prereq Pol. Study of origin and evolution of interrelationships between components of the earth's major ecosystems.
527 (727) Current Problems in Evolutionary Theory (3:3:0). Prereq Course in evolution or Pol. Course on contemporary evolutionary thought.
529 Vertebrate Paleontology (4:2:6). Prereq Course in vertebrate zoology or comparative anatomy or invertebrate paleontology, or Pol. Study of evolutionary patterns of vertebrates. Emphasis on major adaptive radiations.
533 Selected Topics in Plant Biology (3:3:0) or (3:2:3). Prereq 8 hr in 100-level BIOL, upper-division course in botany and Pol. Topic depends upon the specialty of the instructor. May be repeated only with PoC.

535 Paleobotany (4:3:3). Prereq Plant morphology or anatomy or vertebrate or invertebrate paleontology. Evolution of fossil plants, their origin, history, and extinction, incl the various selective pressures responsible for these events. Lab presents techniques to elucidate fossil plant structure. Three Sat field trips. Fall.

536 Ichthyology (4:3:3). Prereq 8 hr in BIOL or Pol. Study of the systematics, evolution, physiology, ecology and behavior of fishes.

537 Ornithology (4:2:6). Prereq Course in ecology or Pol. Study of the evolution, systematics, physiology, ecology and behavior of birds, emphasizing field work. Spring of odd-numbered yrs.

538 Mammalogy (4:2:6). Prereq Course in ecology or Pol. Study of the evolution, systematics, physiology, ecology and behavior of mammals, emphasizing field work. Fall of odd-numbered yrs.

539 Herpetology (4:2:6). Prereq Course in ecology or Pol. Study of the evolution, systematics, physiology, ecology and behavior of amphibians and reptiles, emphasizing field work. Spring of even-numbered yrs.

543 Tropical Ecosystems (4:3:3). Prereq Course in ecology or Pol. Terrestrial, aquatic and marine ecosystems in the tropics emphasizing plant communities and plant-animal interactions, and the role of man in the tropics. Field trip to the tropics included as part of lab. Spring.

546 Estuarine and Coastal Ecology (4:3:3). Prereq Course in ecology and Pol. Emphasizes marine biology of estuarine and coastal habitats of the Chesapeake Bay region and factors affecting distribution and abundance of organisms. Lab provides training in field measurement of physical and chemical parameters and collection and identification of local organisms. Extended field trips made to mid-Atlantic sites. Summer.

547 Terrestrial Plant Ecology (4:3:3). Prereq Course in ecology. Consideration of community organization, development, productivity and mineral cycling, interactions between plants and competitors, herbivores and various environmental factors, especially light, water and soil. Field and lab emphasize data collection and statistical analysis.

553 Advanced Topics in Immunology (3:3:0). Prereq BIOL 452 or Pol. A comprehensive study of immunologic mechanisms as they pertain to immunologic diseases and transplantation.

556 Microbial Physiology and Metabolism (3:3:0). Prereq BIOL 301 or Pol. A comprehensive study of microorganisms covering aspects of growth, nutrition, transport, autotrophic and heterotrophic metabolism, regulation, and differentiation.

557 Experiments in Microbiology (2:0:6). Prereq BIOL 556 or Pol. Students perform a select group of experiments that illustrate techniques used in the study of microbial taxonomy, genetics, physiology, and metabolism.

560 Biological Ultrastructure (4:2:6). Prereq BIOL 301, CHEM 313-314 and Pol. Intro to techniques involved in electron microscopy and to the interpretation of electron micrographs of plants and animals.

561 Comparative Animal Physiology (3:3:0). Prereq BIOL 326 and biochemistry or Pol. Detailed study of selected physiological systems of invertebrates and vertebrates, emphasizing current research.

563 Virology (3:3:0). Prereq BIOL 301 and 311 or Pol. Fundamental concepts of the nature of viruses, virus classification, cultivation and biochemistry. Bacteriophage and animal viruses emphasized. Fall.

564 Techniques in Virology (2:1:3). Co- or Prereq BIOL 563 or Pol. Emphasis on propagation of animal viruses in embryonated eggs and cell culture, titration of animal viruses and bacteriophage, serological techniques used in virology and biochemical and biophysical characterization of viruses.

567 Molecular Genetics (3:3:0). Prereq BIOL 311 or Pol. Study of molecular structure of genetic material and control of gene expression in viruses, procaryotes, and eucaryotes.

572 Human Genetics (3:3:0). Prereq General genetics or Pol. Study of the inheritance of man, emphasizing current problems, incl genetic control of metabolic diseases, effects of radiation and chemical agents in the environment, and directed genetic change. Fall, odd-numbered yrs.

573 Developmental Genetics (3:3:0). Prereq General genetics or Pol. Study of genetic approaches to the problem of eukaryotic development emphasizing current research on the regulation of gene enzyme systems. Fall, even-numbered yrs.

574 Population Genetics (3:3:0). Prereq General genetics or Pol. Study of the genetic structure and dynamics of populations, both real and ideal. Spring, even-numbered yrs.

575 Selected Topics in Genetics (3:3:0). Prereq General genetics or Pol. Different topics in different years. Topics include molecular, developmental, physiological, and classical genetics emphasizing current problems and research. May be repeated once with PoC. Spring, odd-numbered yrs.

601 Advanced General Biology: Classical Principles and Modern Views I (3:3:0). Prereq 24 hr in life sciences or Pol. Intensive review of the fundamental concepts relating to cellular biology and to the structure and function of plants and animals. Available for cr toward M.S. with specialization in interpretive biology only.

602 Advanced General Biology: Classical Principles and Modern Views II (3:3:0). Prereq 24 hr in life sciences or Pol. Intensive review of the fundamental concepts relating to genetics, development, evolution, behavior and ecology. Available for cr toward M.S. with specialization in interpretive biology only.

605 Special Skills in the Life Science (1-3:0:0). Prereq Baccalaureate degree and 24 hours of Biology or Pol. Lectures, lecture-demonstrations, laboratory, workshop, or field experiences in specific methods or techniques. Content varies. May be repeated with PoC. A maximum of three courses and six hours may be applied to the M.S. in Biology in the Interpretive Track only.

622 Methods and Principles of Animal Taxonomy (3:1:6). Prereq Course in evolution or Pol. Theoretical basis of techniques used in animal classification with emphasis on their practical application to a lab problem dealing with a particular animal group.

624 Coevolution of Plants and Animals (3:3:0). Prereq Course in evolution. Topics include the mechanisms of evolution of plant and animal interactions, chemical communication, population dynamics, energetics of ecosystems, and development of the interactions over time.

625 Animal Navigation (3:0:0). Prereq Course in animal behavior or statistics or Pol. Exploration of mechanisms by which animals orient and navigate while homing or migrating. Emphasis on vertebrates.

630 Selected Topics in Vertebrate Zoology (3:3:0) or (3:2:3). Prereq Courses in vertebrate zoology or comparative anatomy and ecology or Pol. Topics depend on specialty of instructor. May be repeated once.

640 Environmental Biology I (3:3:0). Prereq Course in ecology or Pol. Patterns of climate and weather, tectonics, soil formation, and surface and ground water movements. Fall.

641 Environmental Biology II (3:3:0). Prereq Course in ecology or Pol. Effects of human activities on environment. Airborne, waterborne and solid "waste" material are considered with respect to sources, control, and effects on the ecosystem. Spring.

643 Microbial Ecology (4:3:3). Prereq Course in microbiology or Pol. Study of relationships between microorganisms and their natural environment, and methodology for observing their natural environment, and biochemical activities in those environments. Spring of odd-numbered yrs.
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645 Freshwater Ecology (4:3:3). Prereq Course in ecology. Physical and chemical features of freshwater lakes and streams and relationship to the biota. Local streams and lakes are investigated. Fall.


649 Biological Resource Management (3:3:0). Prereq BIOL 641 and 648 or Pol. Modern ecological theories and methods applied to biological resource management covering problems from fisheries to forestry. Problems in achieving optimum productivity of specific resources and application of systems analysis.

650 (747) Environmental Analysis and Modeling (4:3:3). Prereq Calculus, 8 hr ecology, programming experience or Pol. Students learn to conceptualize ecological systems, represent these conceptualizations mathematically, and to develop and test models against field data.

665 Environmental Hazards to Human Health (3:3:0). Prereq Course in animal physiology or Pol. Health effects of chemical contaminants of air, water, and food resulting from industrialized society. Incl identifying, evaluating, and controlling hazards.

668 Advanced Techniques in Molecular Biology (4:2:6). Prereq BIOL 301, 311; CHEM 313-314, 563-564; or Pol; rec BIOL 361. Experimental studies utilizing current methods for purification and characterization of biologically important compounds; designed to provide training for research in molecular biology.

669 Pathogenic Microbiology (3:3:0). Prereq Courses in microbiology and in biochemistry. Molecular mechanisms of exotoxins, endotoxins, and viral pathogenicity and the immune response in infectious diseases.

670 Environmental Law for Biologists (3:3:0). Prereq course in ecology or environmental biology or Pol. Study of environmental laws such as the National Environmental Policy Act and regulatory issues such as the Clean Water and Clean Air acts. Emphasis on critical evaluation of alternatives to unresolved issues in environmental policies.


690 Introduction to Graduate Studies in Biology (1:1:0). Required of all new M.S. students in Biology. Fall.

691 Current Topics in Biology (1:1:0). May be repeated for cr.

692 Seminar in Environmental Biology (1:1:0). Topics vary. May be repeated for cr.

693, 694 Directed Studies in Biology (1-8:0:0). Prereq Pol, PoC and Po student’s graduate committee. Topic study not otherwise available in grad program. May involve any combination of reading assignments, tutorials, lectures, papers, presentations, or lab or field study, determined in consultation with instructor. May not be used to fulfill explicit undergrad prereq for grad work.

695 Seminar in Molecular, Microbial, and Cellular Biology (1:1:0). Review and discussion of recent literature in a specialized area. Incl student presentations. May be repeated for cr.

741 Advanced Topics in Environmental Biology (3:3:0) or (3:2:3). Prereq 8 hr ecology or Pol. Topics vary. May be repeated only with PoC.

745 Environmental Toxicology (3:3:0). Prereq Courses in ecology and physiology or Pol. Study of nature, distribution, and interaction of toxic chemicals released into the environment. Emphasizes effects on nonhuman biota, detection and fate of chemicals and implications for government regulation.

793 Research in Biology (1-3:0:0). Prereq 8 grad hr in BIOL and Pol and PoC. Library, lab, or field investigation under supervisor’s guidance. May be repeated for a total of three hr.

799 Thesis (3-6:0:0). Prereq 8 hr grad cr in BIOL and Pol and PoC. Thesis research under direction of supervisor. Students who take BIOL 793 may receive no more than a total of six cr for both BIOL 793 and BIOL 799.

800 Studies for the Doctor of Arts in Education (var cr). Prereq D.A.Ed. student admission to study in biology. Program of studies designed by the student’s discipline director and approved by student’s doctoral committee which brings the student to participate in research of discipline director and results in a paper reporting the original contributions of the student. The paper is presented in a subsequent D.A.Ed. summer seminar. Enrollment may be repeated.

894 Supervised Internship (3-12:0:0). Prereq PoC, Po student’s doctoral committee. Training in application of ecological skills to environmental management and policy under supervision of a qualified environmental scientist at a governmental agency, consulting firm, industry or other acceptable organization.

991 Advanced Seminar in Environmental Biology (2:2:0). Prereq 8 hr ecology or Pol. Topics will generally address the interface between environmental biology and public policy, but some may address more basic environmental biology. May be repeated. Required of all Ph.D. students.

999 Doctoral Dissertation Research (3-12:3:0). Prereq Approval of dissertation prop. Research dealing with a basic or applied problem in environmental biology.
Business Administration

Faculty

Bagranoff, Nancy A., D.B.A., George Washington University, 1986; Assistant Professor, Accounting

Bolce, William J., Ph.D., The American University, 1974; Assistant Professor, Management

Buchanan, Phillip G., Ph.D., Temple University, 1982; Assistant Professor, Accounting

Cao, Le Thi, D.B.A., University of Southern California, 1975; Associate Professor, Accounting

Carlson, Christopher, D.P.A., University of Southern California, 1985; Visiting Assistant Professor, Decision Sciences

Carper, William B., Ph.D., Virginia Polytechnic Institute and State University, 1979; Assistant Professor of Management

Coffinberger, Richard L., J.D., Wake Forest University, 1974; Associate Professor, Business Legal Studies

Crawford, Peggy J., Ph.D., Purdue University, 1979; Assistant Professor, Finance

Crockett, John H., Ph.D., University of North Carolina, Chapel Hill, 1975; Associate Professor, Finance

DeBoer, Lloyd M., Ph.D., University of Illinois, Urbana-Champaign, 1957; Professor, Marketing

Domzal, Teresa, Ph.D., University of Cincinnati, 1981; Associate Professor, Marketing

English, Jon, Ph.D., University of Florida, 1972; Professor, Management

Entrikin, Richard, Ph.D., St. Louis University, 1976; Associate Professor, Marketing

Floyd, Herbert F., J.D., Georgetown University, 1957; Associate Professor, Accounting

Gardner, Ella P., D.B.A., George Washington University 1982; Assistant Professor, Decision Sciences

Goretsky, M. Edward, Ph.D., The American University, 1968, Assistant Professor, Marketing

Grimshaw, Alan E., D.B.A., University of Maryland, 1979; Assistant Professor, Finance

Hanweck, Gerald A., Ph.D., Washington University, 1971; Associate Professor, Finance

Harvey, James, Ph.D., Pennsylvania State University, 1977; Assistant Professor, Marketing

Hicks, Margaret, D.B.A., University of Maryland, 1982; Assistant Professor, Accounting

Hunger, J. David, Ph.D., Ohio State University, 1973; Professor, Management

Hysom, John L., Ph.D., The American University, 1973; Associate Professor, Finance

Johnston, Robert D., Ph.D., University of Alabama, 1974; Associate Professor, Finance

Kelly, David L., Ph.D., University of North Carolina, 1976; Associate Professor, Decision Sciences

Kendall, Julie E., Ph.D., University of Nebraska-Lincoln, 1984; Assistant Professor, Decision Sciences

Kendall, Kenneth E., Ph.D., State University of New York at Buffalo, 1974; Professor, Decision Sciences

Kovach, Kenneth A., D.B.A., University of Maryland, 1975; Professor, Management

Lynn, Susan A., D.B.A., University of Maryland, 1982; Assistant Professor, Accounting

McCrohan, Kevin F., Ph.D., City University of New York, 1978; Professor, Marketing

Millspaugh, Peter E., J.D., The American University, 1968; Associate Professor, Business Legal Studies

Pearce, John A., II, Ph.D., Pennsylvania State University, 1976; Professor, Management

Pejsar, Roderick J., Ph.D., University of Nebraska, 1975; Assistant Professor, Management

Pugh, Robert E., Ph.D., American University, 1975; Visiting Assistant Professor, Decision Sciences

Render, Barry, Ph.D., University of Cincinnati, 1975; Professor, Decision Sciences

Reuben, Lucy J., Ph.D., University of Michigan, 1981; Commonwealth Visiting Associate Professor, Finance

Roberson-Bennett, Patricia A., Ph.D., University of Maryland, 1984; Assistant Professor, Management

Ruth, Stephen R., Ph.D., University of Pennsylvania, 1970; Professor, Decision Sciences

Rymer, Victoria S., Ph.D., University of Maryland, 1983; Assistant Professor, Accounting

Samuels, Linda B., J.D., University of Virginia, 1975; Associate Professor, Business Legal Studies

Sands, Ben F., Jr., D.B.A., The George Washington University, 1975; Emeritus Associate Professor, Management

Sims, Henry P., Jr., Ph.D., Michigan State University, 1971; Professor, Management
Steinhauser, Raleigh F., D.B.A., The George Washington University, 1972; Emeritus Professor, Management

Tongren, Hale N., D.B.A., The George Washington University, 1968; Professor, Marketing

Tucker, Michael J., Ph.D., University of Houston, 1980; J.D., New York University, 1974; Associate Professor, Accounting

Warkentin, Merrill E., Ph.D., University of Nebraska-Lincoln, 1986; Assistant Professor, Decision Sciences

Young, Margaret, Ph.D., Pennsylvania State University, 1985; Assistant Professor, Decision Sciences

Business Administration, M.B.A.

The Master of Business Administration degree, offered by the School of Business Administration, is designed to provide a high level of professional education in several functional areas of business administration. The program is oriented to management in both business and government. The program is available in the daytime for full-time students only and in the evening for full- or part-time students.

The student-to-faculty ratio in the classroom is less than 25 to 1. There is a balance of full-time faculty members who have doctoral degrees and part-time instructors whose normal employment is with government or business in the metropolitan Washington area. This balance in faculty provides the student with an exposure to both theory and practice and, thus, an excellent opportunity for a varied learning experience.

Admission Requirements

All students registering for graduate-level courses numbered 600 or higher offered by the School of Business Administration must have "graduate standing" (i.e., be admitted to the Graduate School).

In general, a degree applicant should meet the following minimum admission requirements:

1. A bachelor’s degree from an accredited institution (No application is processed until all official transcripts are forwarded from the institutions attended)

2. A grade-point average of 2.75 on a 4.00 scale for the last 60 semester hours of upper-level course work leading to an undergraduate degree with a grade of C or better in courses applied against the foundation requirements

3. Three letters of recommendation from professors or other persons directly knowledgeable of the applicant’s professional and academic competence

4. A satisfactory score (normally 500 or higher) on the Graduate Management Admissions Test (GMAT) (The GMAT must have been taken within seven years of applying for admission).

Admission to the M.B.A. degree program is on a competitive basis. The admissions decision is based primarily on grades in prior academic course work, and performance on the GMAT. These criteria are applied flexibly to assure that people with unusual qualifications are not denied admission. Course work taken as an Extended Studies enrollee per se does not qualify a student for admittance into the M.B.A. program.

Degree Requirements

The M.B.A. program involves between 36 and 60 semester hours of graduate course work. The exact number of credit hours for an individual is based on an evaluation by the Associate Dean at the time of admission. The decision is based on the applicant’s prior academic background, with particular emphasis on knowledge acquired in the foundation course work described below. The structure of the program is based on three levels of course work: foundation courses (0–24 hours); M.B.A. core courses (18 hours) and elective courses (18 hours). A student may elect a thesis option to substitute for six hours of course work with written approval of the Associate Dean, School of Business Administration.

Day Program

The entering class for the day program will begin its studies during the fall 1987 semester. All students must take the same courses at the same time over the three semesters of the program. The day program will be limited in size to approximately 25 students. All students must enroll for at least 12 semester hours and must have completed all foundation course work prior to beginning the day program. Students who start the MBA program during the day may transfer to the evening program but students in the night program may not normally transfer to the day program. Students who withdraw from the day program or otherwise fail to complete the expected sequence with their entering class must complete their studies in the evening program.

The day program mirrors the content of the evening program but offers less scheduling flexibility. The program of study for the day program is spread over eleven months as follows:

- Fall 1987 schedule: ACCT 611, MGMT 611, DESC 611, MKTG 611
- Spring 1988 schedule: FNAN 611 and four electives
- Summer 1988 schedule: MGMT 797 and two electives

Students will only be accepted to the day program for the fall term.

Evening Program

The evening program is available to both full-time and part-time students, although it is oriented toward the needs of part-time students. Students who have not completed all foundation course work must begin their studies in the evening program and may apply to transfer to the next class of the day program upon completion of all foundation deficiencies. Otherwise, evening program students may not transfer to the day program although the reverse is permissible.

Foundation Course Work (24 Hours)

Each graduate student must complete the course work identified in the foundation courses listed
below, unless the material offered in the course has been successfully completed prior to admission. Completion of all foundation course work is prerequisite to courses at the next level, the M.B.A. core. Normally an undergraduate degree in business administration will satisfy most of the foundation course work requirements. Foundation courses may not be used for M.B.A. elective credit.

The foundation courses are:
- ACCT 610 Accounting and Reporting (3)
- FNAN 610 Financial Management (3)
- MKTG 610 Marketing Concepts and Processes (3)
- IRM 610 Computer Systems for Management (3)
- DESC 610 Statistical Foundation for Business Decision Making (3)
- BULE 610 Law and the Business Environment (3)
- MGMT 610 Management Theory and Practice (3)
- FNAN 602 Managerial Economics (3)

**M.B.A. Core (18 Hours)**

Each candidate must complete the following M.B.A. core courses unless, in the opinion of the School of Business Administration faculty, the candidate has had previous comparable graduate-level course work which would justify substitution of a 700-level course in that discipline.

- ACCT 611 Managerial Accounting (3)
- FNAN 611 Cases in Financial Administration (3)
- MKTG 611 Cases in Managerial Marketing (3)
- DESC 611 Quantitative Analysis in Business and Operations Management (3)
- MGMT 611 Cases in Organizational Behavior (3)
- MGMT 797 Business Policy (3)

*(See note on thesis option)*

**Electives (18 hours)**

Each candidate must complete at least 18 hours of M.B.A. electives with no more than three 700-level (including 700-level courses transferred as M.B.A. electives) graduate courses in one of the following areas:

- Accounting: ACCT 653, 712, 713, 732, 733, 752, 754, 755, 756, 757, 758, 762, 772, 782, 792
- Financial Management: FNAN 711, 721, 722, 731, 732, 741, ACCT 752, REUD 783, 785
- Information Resource Management: IRM 720, 730, 735, 740, 750, 760, 770, 780, 790, 791, 792, 795
- Management Science: DESC 742 plus one course from DESC 535, 743, 744
- Marketing Management and Research: MKTG 722, 724, 725, 726, 727, REUD 784
- Real Estate and Urban Development: REUD 583, 584, 782, 783, 784, 785, 787, 788, 789, BULE 703

**Thesis Option**

On completion of 30 hours of M.B.A. core and elective courses, the student may elect to fulfill the requirement for two elective courses by completing a thesis.

**Special School Regulations**

1. No more than 12 hours of M.B.A. foundation or core credits may have been earned through enrollment in nondegree status or through Extended Studies enrollment prior to acceptance in degree status. A grade of B or better is necessary to transfer foundation or core requirements taken through Extended Studies.

2. A maximum of six semester hours of graduate credit in approved 500-level graduate courses may be authorized; however, these courses must be taken after entry into the program and normally are taken prior to the related M.B.A. core courses.

3. A maximum of six hours of elective credit in another graduate program of this University may be allowed provided they are in related field and have prior written approval of the Associate Dean, School of Business Administration.

4. Subject to general transfer policies of the Graduate School, up to six hours of graduate course work may be transferred from other institutions. However, to be considered for transfer, such work must have been completed within six years prior to the date of admission to the Graduate School.

5. In all cases, students must complete a minimum of 24 hours of graduate course work at the University while in degree status.

6. Required foundation courses must normally be completed prior to initiation of core courses, although there may be an overlap (normally limited to three hours) when a student is completing the foundation sequence. Core courses should be completed prior to taking electives.

7. No credit is granted for work done in absentia.

**Accounting (ACCT).** Graduate courses in Accounting are listed in the catalog under the heading of M.S. in Accounting.

The graduate certificate program in Information Resource Management is listed under the heading of Certificate Programs.

**Business Legal Studies Courses (BULE)**

**Warning:** Students who have not gained admitted status from the Graduate School may not register for graduate-level courses numbered 600 or higher offered by the School of Business Administration.

- **610 Law and the Business Environment (3:3:0).** Prereq graduate standing. Interrelationships between business organizations, their external environments, issues arising out of those environments, and the public policy process.
- **702 Business and the Regulatory Process (3:3:0).** Prereq BULE 610 or equiv. Regulatory process as it affects business; emphasis on interaction of legislative, administrative, and judicial policies and procedures as they influence the formulation and interpretation of regulations.
- **703 Land Use Control and Regulation (3:3:0).** Prereq REUD 301 or REUD 582 or Pol and BULE 610. Basic principles of law affecting the use of land and natural resources incl legal
remedies and defenses available to the private citizen. Emphasis on recent law and federal and state statutes (Same as REUD 703).

770 Legal Aspects of Information Resource Management (3:3:0). Prereq IRM 610 or Pol. Examination of the special problems of applying existing laws and legal doctrines to the management of information resources. Emphasis on how the public policy process responds to the unique problems posed by information processing technology, as well as how managers can influence public policy. Readings, case analysis, lecture, reports (same as IRM 770).

Decision Sciences Courses (DESC)

Warning: Students who have not gained admitted status from the Graduate School may not register for graduate-level courses numbered 600 or higher offered by the School of Business Administration.

535 Computer Simulation (3:3:0). Prereq I RM 610 and DESC 617. An introduction to the basic concepts of simulating complex systems by computer. Topics covered include Monte Carlo methods, discrete-event modeling, a specialized simulation language, and the statistics of input and output analysis.

563 Seminar in Operations Management (3:3:0). Prereq DESC 617. Aspects of productivity, technology, new processes, materials, products, equipment and facilities. Implications of new technology in managing the operation (production) function are treated. Lecture, discussion, cases, and problems.

610 Statistical Foundation for Business Decision Making (3:3:0). Prereq 6 cr of math and graduate standing. The use of statistical methods as scientific tools in the analysis of practical problems in business decision making. Topics incl: descriptive statistics; probability theory; probability distribution; sampling distribution, inference-estimation and hypothesis testing; elementary decision theory; time series analysis; linear regression and correlation; the analysis of variance.

611 Quantitative Analysis in Business and Operations Management (3:3:0). Prereq DESC 610, FNAN 602, and graduate standing. A systems approach which addresses a wide range of operations management decisions from long-term policy and systems design questions to daily scheduling, cost control, and quality control decisions. Emphasis is on modeling, quantitative analysis of systems, case studies, and using computer programs to solve operations management problems.

742 Management Science (3:3:0). Prereq DESC 611. Operations research techniques for systems analysis. Addresses prominent mathematical programming and stochastic process topics from linear programming, networks, integer programming, goal programming, decision theory, dynamic programming, Markov processes, inventory theory, and queuing theory. Use of computer software in problem solving and in case study analyses.


796 Independent Study and Directed Readings (3:0:0). Prereq Foundation and core courses. By special arrangement with professor and approval of the Decision Science Chair.

799 Thesis (6:0:0). Prereq 30 hr of grad course work beyond the foundation.

Finance Courses (FNAN)

Warning: Students who have not gained admitted status from the Graduate School may not register for graduate-level courses numbered 600 or higher offered by the School of Business Administration.

602 Managerial Economics (3:3:0). Prereq DESC 610 and graduate standing. Provides a fundamental understanding of how economic principles are applied, along with mathematical and statistical analysis, to managerial decision making. Principles of microeconomic theory are thoroughly explored including models of theories of choice under conditions of risk, uncertainty and multiple goals, market supply and demand, production and cost functions, monopoly, oligopoly and perfect competition, product and resource pricing, capital budgeting and investment and general equilibrium.

610 Financial Management (3:3:0). Prereq FNAN 602, ACCT 610, DESC 610 and graduate standing. Topics incl management of working capital, determination of the cost of capital and optimal financial structure, capital budgeting processes, and the overall integration of financial management to achieve a maximization of wealth-decision criteria.

611 Cases in Financial Administration (3:3:0). Prereq ACCT 611, FNAN 610, and graduate standing. Applying the theories of finance to the formulation and application of policies. Internal financial analysis, financial forecasting, management of assets, rate-of-return, capital formation cases, financial management in the multinational environment.

711 Long-Term Financial Management (3:3:0). Prereq FNAN 611. Analysis of capital budgeting and long-term asset financing. Capital budgeting and financing techniques for the fixed asset portion of balance sheet are considered.

721 Security Analysis (3:3:0). Prereq FNAN 611. The analysis of equity securities and debt instruments given the implications of the efficient market hypothesis and modern capital market theory.


732 Financial Institutions (3:3:0). Prereq FNAN 611. Financial institutions as intermediaries within the financial markets. Organizational and regulatory forces in terms of influences upon management.


772 Managerial Economics II (3:3:0). Prereq FNAN 772. Application of economic analysis to business management; government economic policy; the use of national economic statistics; interpreting economic trends and developments; forecasting. Current economic problems and their effects.

796 Independent Study and Directed Readings (3:0:0). Prereq Foundation and core courses. By special arrangement with professor and approval of the Finance Chair.

799 Thesis (6:0:0). Prereq 30 hr of grad course work beyond the foundation.

Information Resource Management Courses (IRM)

Warning: Students who have not gained admitted status from the Graduate School may not register for graduate-
level courses numbered 600 or higher offered by the School of Business Administration.

610 Computer Systems for Management (3:3:0). Prereq graduate standing. Examination of computer information systems and their interrelations with management processes. Emphasis on management information system life cycle from manager's perspective. Lecture and computing lab, including programming in BASIC and a variety of microcomputer software packages.

720 Analysis and Design of Computer Systems (3:3:0). Prereq IRM 610. Computer systems life cycle with emphasis on information req analysis, feasibility studies, system deign, equipment selection, and the implementation process. Student teams are assigned system development projects to work with users to define system req and to prepare implementation plans.

730 Decision Support and Expert Systems (3:3:0). Prereq IRM 610. Use of decision support systems and expert systems in large organizations' data bases. Course concentrates on technical and administrative issues facing companies and agencies which need to go beyond MIS for meeting more complex information needs. Integrates user and manager perspectives. Introduces micro-based and mainframe-based DSS and Expert Systems packages. Project and computer lab.

735 Management Information Systems (3:3:0). Prereq IRM 610. Conceptual foundations, structure, and development of management information systems from an organizational perspective are featured. Information-based support systems for the management of knowledge work are also covered. Term project.

740 Distributed Systems Applications (3:3:0). Prereq IRM 610. Technical and managerial issues in the planning installation, support, use, and operation of business data communication systems. Term project and laboratory.

750 Managerial Applications of Microcomputers (3:3:0). Prereq IRM 610 Selection and use of microcomputer hardware and software for management applications such as word processing, spread sheet analysis, graphics, communications, file management, and data base management. Term project and laboratory.

760 Human Engineering Issues in Computer Systems Design (3:3:0). Prereq IRM 610. Surveys the various human factors and ergonomic aspects of computer systems, including hardware and information displays as well as human factors principles of software design. Return on investment for alternative human factors decisions examined in applied settings. Cases and laboratory.

770 Legal Aspects of Information Resource Management (3:3:0). Prereq IRM 610 or Pol. Examination of the special problems of applying existing laws and legal doctrines to the management of information resources. Emphasis on how the public policy process responds to the unique problems posed by information processing technology, as well as how managers can influence public policy. Readings, case analysis, lecture, reports. (Same as BULE 770).

780 Knowledge-Based Systems for Business (3:3:0). Prereq IRM 610, 720. Introduction for system developers and managers to the concepts and techniques for building knowledge-based systems. Emphasis is on the use and application of knowledge-based systems in business and public section organizations. Term project.

790 Contemporary Issues in Information Resource Management (3:3:0). Prereq IRM 610. Introduction to the concepts, techniques, and implementation of Information Resource Management in businesses, government agencies (federal, state, local), and other organizations. Emphasis is on the use of contemporary techniques in IRM applied to the full spectrum of information resource issues, including equipment, hardware, software, training, data communications, and human factors. Term project.

792 Topics in Information Resource Management (3:3:0). Prereq IRM 610. A significant Information Resource Management topic is selected for detailed coverage. Examples of such topics are computer security, life cycle management of EDP systems, computer personnel management. Term Project.


Management Courses (MGMT)

Warning: Students who have not gained admitted status from the Graduate School may not register for graduate-level courses numbered 600 or higher offered by the School of Business Administration.


611 Cases in Organizational Behavior (3:3:0). Prereq MGMT 610 and graduate standing. Study and application of principles of individual and group behavior to the solution of human problems in business organizations, domestic and international. Relationships with superiors and subordinates in formulating and accomplishing personnel policies.

697 Organizational Policy and Strategic Management (3:3:0). Prereq 21 hours beyond the foundation course work. This course is not open to M.B.A. students. An examination of the role of top management in organizations. The major areas of study center on the integration of the functions and activities of organizations to ensure effective dealing with changing environments. A strong emphasis is placed on the applications as well as the theoretical basis of policy formulation, implementation, and evaluation. Readings, case analyses, management simulation, seminar reports, and discussions.

711 Organization Analysis and Development (3:3:0). Prereq MGMT 610. Application of theory and research in the study of organizational effectiveness. Emphasis on diagnosis of contributing factors; use of models; and design and implementation of organization development programs.


722 Human Resource Planning (3:3:0). Prereq MGMT 610. This course examines the personnel/human resource process which provides adequate human resources to achieve future organizational objectives. Emphasis is on forecasting internal labor supply and demand; programming to meet objectives; and evaluation and control. Readings, research, discussion and lecture.

731 Seminar in Labor Management Relations (3:3:0). Prereq MGMT 610. The U.S. labor movement and its present political-economic status. Legal environment surrounding labor relations and recent rulings by regulatory bodies. Executive orders and political forces influencing unions in the public sector. Emphasis on negotiations and administration of labor contracts at the local level.

741 Strategic Planning and Control (3:3:0). Prereq MGMT 610. Theories and applications of modern strategic planning. Strategic decision making within the supportive framework of a strategic planning system. Emphasizes the methodologies, "how to do it" aspects of strategic decision making, planning, and control. Lecture, readings, discussion, case analysis, and projects.

751 Small Business Ventures and the Entrepreneur (3:3:0). Prereq MGMT 610. Small business and its economic, competitive and social environment. Lectures, case studies,
and research illustrate and develop solutions to potential problems of initiating, organizing, and managing a small business.

761 Management of Research and Development (3:3:0). Prereq MGMT 610 and FNAN 602 or PoD. Study of management concepts in R & D, incl examination of selected international practices (e.g. Japan, West Germany, etc.) and possible adaptation, recognizing cultural differences. Emphasis on the incentives and disincentives for R & D climate and the organizational and management techniques which affect R & D performance. Economics affecting R & D programs, role of government and universities in industrial R & D activities.


781 Seminar in Comparative Business Management (3:3:0). Prereq MGMT 610. Comparative analysis of business practices and management systems in different economic, social, and political systems. Generic characteristics of management and business enterprises as modified in varying environments.


796 Independent Study and Directed Readings (3:0:0). Prereq Foundation and core courses. By special arrangement with professor and approval of the Management Chair.

797 Business Policy (3:3:0). Prereq 24 grad sem hr beyond foundation course work including completion of all 611 courses. Written report on entrepreneurial functions in business; determination of the field of business in which the firm will operate, its goals, corporate strategy to reach these goals, and major policies to implement the corporate strategy.

798 Seminar in Business Research (3:3:0). Prereq 30 grad sem hr beyond foundation course work. Study of research design plans, methodologies, data collection and analyses and their application to business research projects. Students prepare a written report covering an approved research topic in a specialty area.

799 Thesis (6:0:0). Prereq 30 hr of grad course work beyond the foundation.

Marketing Courses (MKTG)

Warning: Students who have not gained admitted status from the Graduate School may not register for graduate-level courses numbered 600 or higher offered by the School of Business Administration.

610 Marketing Concepts and Processes (3:3:0). Prereq FNAN 602, ACCT 610 and graduate standing. Decision making in the marketing areas of product development, pricing, promotion, and physical distribution. Emphasis on analysis of marketing situations and on data-based decision making.

611 Cases in Managerial Marketing (3:3:0). Prereq MKTG 610 and graduate standing. The application of qualitative and quantitative techniques in approaching various marketing situations. Emphasis on use of marketing research, product planning, pricing and target market determination.

724 Promotional Strategy in Marketing (3:3:0). Prereq MKTG 611. Promotion activities as applied to both profit and nonprofit organizations. The approach is to develop basic issues in promotional strategy, then to focus on managerial issues and problems as encountered by promotion executives.

725 Marketing Research (3:3:0). Prereq MKTG 611 and DESC 611. Concepts, theories, principles, techniques, and models underlying the marketing research process.

726 Advanced Consumer Behavior (3:3:0). Prereq MKTG 611. Advanced study of the concepts and propositions that comprise consumer decision processes. Examination of extant literature and research applications for marketing strategy and public policy are stressed. Lecture and case analysis.


796 Independent Study and Directed Readings (3:0:0). Prereq Foundation and core courses. By special arrangement with professor and approval of the Marketing Chair.

799 Thesis (6:0:0). Prereq 30 hr of grad course work beyond the foundation.

Real Estate and Urban Development Courses (REUD)

Warning: Students who have not gained admitted status from the Graduate School may not register for graduate-level courses numbered 600 or higher offered by the School of Business Administration.

582 The Real Estate Process (3:3:0). Prereq ECON 103, 104, or FNAN 602. Institutional background of real property; economics of urbanization, supply and demand; building industry, real estate credit, cyclical fluctuation, rents and prices, real estate market analysis, city growth, structure and planning, land use control, urban redevelopment and real estate investment analysis. Students will develop analytical skills involving the use of the microcomputer and appropriate software.

583 Residential Property Development (3:3:0). Prereq REUD 301 or REUD 582. Business of creating housing incl strategy, market and merchandising trends, legal and political constraints, site selection, social implications, design and construction procedures and financial analysis and control for single family subdivisions, multifamily projects and new towns. Students will develop analytical skills involving the use of the microcomputer and appropriate software.

584 Commercial Property Development and Management (3:3:0). Prereq REUD 301 or REUD 582. The business of creating industrial and commercial real estate, incl office space, shopping centers, recreation facilities, and specialized commercial properties. Incl feasibility and market studies, design and construction, location analysis, site selection, and financial analysis. Students will develop analytical skills involving the use of the microcomputer and appropriate software.

585 Real Estate Market Analysis (3:3:0). Prereq REUD 301 or REUD 582 or Pol. Real estate market analysis and sources of data; problems and techniques that apply to each of the analyses of various types of real estate. Students will develop analytical skills involving the use of the microcomputer and appropriate software.

586 Real Estate Location Analysis (3:3:0). Prereq REUD 301 or REUD 582 or Pol. An examination of the environment and any special physical, economic, governmental, and social factors that influence the marketability and utility of various kinds of real estate properties. It focuses on regional, metropolitan, and neighborhood influences. Instruction will include lectures, microcomputer applications, and field research.

587 Computer Applications in Real Estate (3:3:0). Prereq REUD 301 or REUD 582 or Pol. A survey of the software
available to professionals in real estate; description of how
the software is used in various types of applications with
the requirement of student development of proficiency in
these applications. Instruction will include lectures,
microcomputer applications, and field research.

703 Land Use Control and Regulation (3:3:0). Prereq REUD
301 or REUD 582 or Pol and BULE 610. Basic principles of
law affecting the use of land and natural resources including
legal remedies and defenses available to the private citizen.
Emphasis on recent law and federal and state statutes.
(Same as BULE 703).

782 Urban Development and Land Use (3:3:0). Prereq REUD
301 or REUD 582 or Pol. Urban growth and process of
change characterizing urban development. Incl factors in
socioeconomic change, locational interdependence and
consumer preferences. Students will develop analytical skills
involving the use of the microcomputer and appropriate
software.

783 Real Estate Investment Analysis (3:3:0). Prereq FNAN
610 or Pol. Real estate investment decision making process
and skills req to function effectively in the investment
environment. Students will develop analytical skills
involving the use of the microcomputer and appropriate
software.

785 Mortgage Markets and Finance (3:3:0). Prereq FNAN
610 or Pol. Mortgage banking with emphasis on markets,
markets, instruments, and financial environment and techniques.
Students will develop analytical skills involving the use of the
microcomputer and appropriate software.

Prereq IRM 610, DESC 611 or Pol. Systems in use today by
professionals in the real estate and urban development
fields for asset management, appraisal, counseling,
consulting, and financial analysis. Students will develop
analytical skills involving the use of the microcomputer and
appropriate software.

788 Advanced Appraisal Theory & Practice (3:3:0). Prereq
REUD 582 and REUD 411. Critical review of existing
appraisal theory and presentation of a variety of reform
appraisal techniques; field appraisal work to apply market
simulation approaches to most probable market price
theories. Students will develop analytical skills involving the
use of the microcomputer and appropriate software.

789 Seminar in Real Estate and Land Use Analysis (3:3:0).
Prereq REUD 582, REUD 783, REUD 785 or Pol. Policy
planning issues in selected areas of real estate and land use
analysis in response to current issues and needs. Students
will develop analytical skills involving the use of the
microcomputer and appropriate software.

Computer and Electronics Engineering

Faculty

Baraniecki, Anna Z., Ph.D., University of Windsor,
1980; Assistant Professor

Beale, Guy O., Ph.D., University of Virginia, 1977;
Associate Professor

Berry, Alok K., Ph.D., University of Missouri, 1985;
Assistant Professor

Black, W. Murray, Ph.D., Pennsylvania State
University, 1971; Associate Professor

Bourbakis, Nikolaos G., Ph.D., University of Patras,
1982; Assistant Professor

Ceperley, Peter H., Ph.D., Stanford University, 1973;
Associate Professor

Chang, Shih-Chun, Ph.D., University of Hawaii, 1977;
Associate Professor

Cook, Gerald, Sc.D., Massachusetts Institute of
Technology, 1965; Professor

Cooley, William C., Sc.D., Massachusetts Institute of
Technology, 1951; Associate Professor

Earp, Samuel L., Ph.D., Duke University, 1985;
Assistant Professor

Eldeib, Hany K., Ph.D., University of Virginia, 1986;
Assistant Professor

Gertler, Janos, Sc.D., Hungarian Academy of
Sciences, 1980; Professor

Gokhale, Baji V., Sc.D., Massachusetts Institute of
Technology, 1951; Associate Professor

Kruppa, Walter, Ph.D., The Ohio State University,
1969; Associate Professor

Mouchahoir, George E., Ph.D., Georgia Institute of
Technology, 1968; Associate Professor

Mulpuri, V. Rao, Ph.D., Oregon State University,
1985; Assistant Professor

Schaefer, David H., B.S., Tulane University, 1949;
Associate Professor

Stephanou, Harry E., Ph.D., Purdue University, 1976;
Associate Professor
Tabak, Daniel, Ph.D., University of Illinois, 1967; Professor

Computer and Electronics Engineering, M.S.

Graduate programs leading to the master of science and doctor of philosophy degrees are available to prepare students for industrial, government, or academic careers. The M.S. degree is offered by the Department of Electrical and Computer Engineering. The Ph.D. degree is offered by the School of Information Technology and Engineering, which includes the Department of Electrical and Computer Engineering.

While firmly committed to high standards of teaching and research excellence in the traditional areas of communications and signal processing, control and robotics, computers, and electronics, the department also recognizes the need to augment and enhance these areas through the use of modern information technology. Graduate students are thus provided with a progressive environment with ample opportunities for the type of multidisciplinary research that will be needed to confront the complex realities of the twenty-first century.

The courses in this program are being offered during the evening or late afternoon hours to permit persons who are employed full time to enroll in the program. For those who enter the program on a full-time basis, some financial aid is available in various forms such as assistantships, research grants with a project conducted at the University, work-study, or co-op agreements with local industry.

Students may take courses through the Cooperative Graduate Engineering Program, in affiliation with the University of Virginia and Virginia Tech. Appropriate courses may be transferred, with adviser approval, into this GMU degree program. Refer to the section on Certificates, Programs, and Additional Graduate Courses in this catalog.

Admission Requirements

Admissions are strictly competitive. The department's policy is to admit only students who have demonstrated a potential for outstanding performance in their graduate work. To be considered for admission to the master's program, applicants should have the following:

1. An earned baccalaureate in electrical engineering, computer engineering, or a closely related discipline from an accredited program with a reputation for high academic standards.
2. A grade average of B or better during the last 60 hours.
3. Three letters of recommendation, preferably from academic references, or from references in industry or government who are holders of advanced degrees and are familiar with the applicant's professional accomplishments.
4. A detailed statement of career goals and aspirations.
5. For students whose native language is not English, a score of 550 or higher on the Test of English as a Foreign Language. A minimum score of 600 is required for applicants who wish to be considered for graduate assistantships.

6. Although the Graduate Record Examination (GRE) is not formally required, it is strongly recommended, particularly for international students. Test results will be used as an additional measurement of the applicant's qualifications.

Admission Categories. Students may be admitted into one of the following categories: degree, provisional, or nondegree. Provisional admission is for students whose past performance provides reasonable, but not strong, evidence of their capacity to pursue graduate work. To be advanced to degree status, provisional students must achieve a 3.0 grade-point average after 12 semester hours, must remove all undergraduate deficiencies (by taking the corresponding courses with a B or better), and must receive a grade of B or better in each of the graduate core courses ECE 520, 521, 528, and 546. Nondegree students who wish to enter the degree program need to formally apply for admission.

Non-ECE Students. Outstanding students with B.S. or M.S. degrees in ECE-related disciplines (for example, computer science, mathematics, mechanical engineering, physics) are encouraged to apply for admission. As a general guideline, students who do not have adequate preparation in some of the ECE undergraduate "core" areas are required to complete the corresponding course(s) from the following list with a B average or better:

- Circuit Theory ECE 285, 286
- Digital Electronics ECE 331, 332
- Linear Electronics ECE 333, 334
- Signals and Systems ECE 360
- Matrix Algebra MATH 303
- Differential Equations MATH 304
- Probability MATH 351
- Pascal and Data Structures CS 211

In addition to the above core areas, students must display some competence in two or more of the following areas: communications, controls, computers, and semiconductors, before being granted the master's degree. The following undergraduate courses correspond to these areas:

- Control Theory ECE 421
- Device Theory ECE 430
- Computer Architecture ECE 445
- Communications ECE 460

Transfer of Credit. With the recommendation of the department and with the approval of the Graduate School, graduate students may transfer up to six semester hours of graduate credit from an accredited institution. Twelve hours of credit may be transferred from GMU's Continuing Education Division. Up to twelve hours may be transferred from the University of Virginia or Virginia Polytechnic Institute and State University as part of the Northern Virginia Cooperative Graduate Engineering Program.

Student Advising

Newly admitted graduate students need to consult with the ECE Graduate Coordinator before they can register for classes. Students should make an appointment by calling (703)332-2892. Each student will be expected to select a major area of
concentration from the department's four specialty areas: communications and signal processing, computer engineering, control and robotics, or electronics. The student will then be assigned an academic adviser from that area. Before the end of the first semester, each student must submit a plan of study (approved by his or her academic adviser) to the Graduate Coordinator's office.

Degree Requirements

Course Work. Each student must complete a minimum of 30 semester hours of graduate-level courses beyond the bachelor's degree. A minimum grade-point average of 3.0 is required. Additional constraints include the following:

1. A minimum of two core courses (with B or better in each) from the following list:
   - ECE 520 Electronic Systems Analysis
   - ECE 521 Modern Systems Theory
   - ECE 528 Random Processes in ECE
   - ECE 546 Parallel Computer Architectures

2. A minimum of two courses above the 500 level.

3. A minimum of three courses outside the student's major area.

4. A maximum of two non-ECE courses, subject to prior departmental approval. This constraint does not apply to INFT courses taught by ECE faculty.

5. A maximum of two courses with a C grade may be applied toward the degree. All graduate courses will, however, be counted in the computation of the student's grade-point average.

Seminar Requirement. All degree candidates must have attended a minimum of ten department seminars.

Thesis Requirement. Students may select one of the following options:

1. Thesis option.

Thesis students register for ECE 799 Master's Thesis (6 hours). This option involves a significant research effort, which is conducted under the guidance of a faculty adviser. In some cases, permission may be granted to complete a portion of the work at the student's place of employment. The final written thesis and oral defense are to be approved by the student's advisory committee. This committee consists of three full-time faculty members, including two from the student's major area and one from outside the area. A fourth member, possibly from outside the department or University, may be optionally added. Thesis students may not register for ECE 798 Research Project.

2. Nonthesis option.

Students who select this option must pass a written comprehensive examination in their major area. Each examination consists of six sections, corresponding to the following courses:

- Communications: ECE 528, 535, 542, 630, 631, 642
- Computers: ECE 445, 511, 516, 542, 546, 641
- Control and Robotics: ECE 512, 521, 528, 620, 624, 650
- Electronics: ECE 520, 565, 584, 586, 587, 689

The student may select any four sections from the examination in his or her major area. Registration for the comprehensive must be approved by the student's academic adviser, and submitted to the Graduate Coordinator by the end of the fourth week of the semester during which the student plans to take the examination. Students who fail the comprehensive may repeat the entire examination once.

Nonthesis students may register for three hours of ECE 798 Research Project.

Electrical and Computer Engineering Courses (ECE)

Prereq MATH 213, MATH 303, MATH 351—Not open to Electrical and Computer Engineering students. Fundamental and advanced techniques for system analysis; review of Fourier series and integral; convolution, correlation, power spectrum, bandwidth; communication systems and modulation techniques; sampling and quantization; discrete-time signals and systems, Z-transform; discrete Fourier Transform and FFT algorithms; analysis and design of digital filters.

511 Microprocessors (3:3:0).
Prereq ECE 445 or equiv. Introduction to microprocessor architecture and structure. Intel 8080/8085 and Z-80 architecture and programming. Microcomputer bus structure. Microcomputer memory. Microcomputer I/O, interrupt, DMA, interface. Microcomputer development systems. Applications examples. Introduction to 16-bit microprocessors. The course includes a project involving hands-on experience with microcomputer systems.

512 Real-Time Microprocessor Systems (3:3:0).
Prereq ECE 421 and 511 or equiv. A course on real-time microprocessor systems with emphasis on control, interfacing techniques, real-time operating systems, and related applications. Topics include basic input-output, interfacing the peripheral analog circuitry, operating systems, programming techniques, process control with microcomputers, and microcomputers for communications. The course includes a simulation and design project.

Prereq ECE 305, MATH 313 or equiv. Maxwell's equations, electromagnetic wave propagation, wave guides, transmission lines, radiation and antennas.

516 Advanced Microprocessors (3:3:0).
Prereq ECE 511 or equiv. 16-bit and 32-bit microprocessors. Detailed study of the Intel 8086 and Motorola 68000 families (up to 80386 and MC68020). Auxiliary chips of the above families, microcomputers and applications. Brief coverage of NS32000, Z8000, Z80000, AT&T WES32100, NEC V70, V71, DEC MicroVAX 78032. The course includes a laboratory project and demonstration involving the Intel 8086 and MC68000 systems.

520 Electronic Systems Analysis (3:3:0).
Prereq ECE 333. A study of electronic circuits from a systems viewpoint. Topics consist of the analog building block circuits used in system design including operational amplifiers, voltage regulators, video amplifiers, oscillators, modulators, phase-locked loops, multiplexers, active filters, A/D and D/A converters, and optoelectronic circuits.

521 Modern Systems Theory (3:3:0).
Introduction to the design of linear feedback control systems.

528 Random Processes in Electrical and Computer Engineering (3:3:0). Prereq ECE 360, MATH 351, or equivalent. Topics include random signals and noise in communications, stationary and ergodic random processes, spectral analysis, Gaussian processes, Brownian motion, mean-square estimation, Kalman and adaptive filtering, Markov processes and Poisson processes. Applications are drawn from computer, communication, control, and signal processing.


542 Computer Network Architectures and Protocols (3:3:0). Prereq Graduate standing or Pol. Introduction to the architectures and protocols of computer networks and the concept of packet switching. Topics include ISO standard layer model, physical interfaces and protocols, data link control, multiaccess techniques, packet switching, routing and flow control, network topology, data communication subsystems, error control coding, local area network, satellite packet broadcasting, packet radio, interconnection of packet-switching networks, network security and privacy, various examples of computer networks.


565 Introduction to Optical Electronics (3:3:0). Prereq PHYS 352, 305, and either ECE 286 or MATH 313. An introduction to optical systems for information gathering, transmission, storage, and processing. Topics include introduction to lasers, solid-state detectors, and optical fibers; variety of optical sensors, imaging and nonimaging; optical data storage techniques and optical signal processing; optical communications.

567 Optical Fiber Communications (3:3:0). Prereq ECE 305, 331, 333, and MATH 313. A study of the components and integration of fiber-optic transmission systems. Topics include optical fibers, signal degradation, optical sources, power launching and coupling, photodetectors, receiver circuits, link analysis, and optical measurements.

584 Solid-State Device Theory I (3:3:0). Prereq ECE 430 or Pol. A study of the theory of semiconductor devices based on solid-state physics. Topics include physics and properties of semiconductors, p-n junction diode, metal semiconductor contacts, MIS diode and CCD, bipolar and field effect transistors.

586 Digital Integrated Circuit Analysis and Design (3:3:0). Prereq ECE 331, ECE 430, or Pol. A study of the devices and circuit topologies used in digital integrated circuits. Topics include large signal active device models, MOS and BJT gates, regenerative logic circuits, semiconductor memories, LSI and VLSI circuits.

587 Analog Integrated Circuit Analysis and Design (3:3:0). Prereq ECE 333, ECE 430, or Pol. A study of the devices and circuit topologies used in analog integrated circuits. Topics include active device models, differential amplifiers, current sources, output stages, operational amplifiers, frequency response, noise, and computer-aided design.

590 Selected Topics in Engineering (3:3:0). Prereq Grad stdg or PoD. Selected topics from recent developments and applications in engineering. This course is designed to satisfy the needs of the professional engineering community to study current developments in various disciplines.

620 Optimal Control Theory (3:3:0). Prereq ECE 521 or Pol. A detailed treatment of optimal control theory and its applications. Topics include: System dynamics and performance criteria, the calculus of variations and Pontryagin's minimum principle, computational methods in optimal control, and applications of optimal control.

621 Estimation, Identification, and Adaptive Control (3:3:0). Prereq ECE 521 and ECE 528 or Pol. A detailed treatment of stochastic control theory and its applications. Topics include: State space models with random inputs, optimum state estimation, Kalman filtering, Linear Quadratic Gaussian problem, computational issues, stochastic dynamic programming, applications in process control and in decision making under uncertainty.

630 Statistical Communication Theory (3:3:0). Prereq ECE 528. This course is an introduction to optimum receiver design in the additive white Gaussian noise environment. Topics include: efficient signal set design, modulation techniques, matched filter, correlation detector, coherent and noncoherent detections, fading and diversity channels, random amplitude and phase, diversity techniques, performance bounds of communications, and waveform communications.


632 Information Theory (3:3:0). Prereq ECE 528 or Pol. Comprehensive study of information with emphasis on concepts of reliable, efficient communication systems. Measure of information, efficient representation of message sources, communication channels and their capacity. Coding for reliable transmission over noisy channels.


634 Detection and Estimation Theory (3:3:0). Prereq ECE 528. This course is an introduction to detection and estimation theory with communication applications. Topics include M-hypotheses, Bayes, minimum-distance, minimum-likelihood criterion, detection of signals in AWGN and ACGN, Bayes estimations, ML estimations of signal parameters in AWGN and ACGN, estimations of Gaussian waveforms in Gaussian noise, linear MSE estimations, Kalman and Wiener filters.


636 Secure Telecommunication Systems (3:3:0). Prereq ECE 632 and ECE 633. Introduction to secure data and voice communications. Topics include theoretical basis of cryptography, random cipher systems, practical security schemes, linear and nonlinear shift registers and encryption.
algorithms, block cipher and NBS data encryption standard (DES), public key cryptography, RSA, knapsack algorithms, digital signatures and authentication, security of computer networks, cryptographic protocols, key management, speech security, voice scrambling.

637 Spread Spectrum Communications (3:3:0). Prereq ECE 631. Introduction to spread spectrum communications. Topics include pseudo-noise spread spectrum systems, feedback shift registers, jamming strategy, code acquisition, synchronization, tracking, Gold codes, burst-communication systems, time-hopping, frequency-hopping, and multiple access communications.

639 Satellite Communications (3:3:0). Prereq ECE 631 or Pol. Introduction to the theory and applications of modern satellite communications. Topics include satellite channel characterization, channel impairments and transmission degradation, link calculations, modulation, coding, multiple access, broadcasting, random access schemes, demand assignment, synchronization, satellite switching and onboard processing, integrated service digital satellite networks, and satellite transponder, ground stations, packet switching, optical satellite communications.

640 Spatially Parallel Computers (3:3:0). Prereq ECE 546 or Pol. Topics include basic concepts of parallelism, two-dimensional computation schemata, types of intercommunication networks between processing elements, single instruction stream-multiple data stream computers, computers with "massive parallelism," pyramid computing structures, multiple instruction stream-multiple data stream computers, and parallel processing of images.

641 Computer Systems Architecture (3:3:0). Prereq ECE 546 or equiv. Advanced course in computer architecture. Definitions, multiple processors, VLSI architecture, data flow, computation, the semantic gap, high-level language architecture, object-oriented design, RISC architecture, current trends in computer architecture.

642 Design and Analysis of Computer Communication Networks (3:3:0). Prereq ECE 542 and ECE 528 or equiv. This course is an introduction to queuing theory. Other topics include: concentrator design, multiplexing, capacity assignments, random access schemes, polling and probing techniques, topology design, flow control and routing, packet radio, protocol specification, and validation.

644 Architectures and Algorithms for Image Processing (3:3:0). Prereq ECE 511 or equiv. Architectures and algorithms for the analysis and processing of pictorial information. Topics include systems and techniques for the digital representation of images; image scanning methods and their applications; picture processing languages; image data structures; feature detection, extraction, and reconstruction; detection of symmetries; systems and methods for regular decomposition; image desegmentation, object thinning, real-time orthogonal transformations, and applications. The course includes a design project.

650 Robotics (3:3:0). Prereq ECE 521 or Pol. An introduction to robotics and advanced automation from an electrical engineering standpoint. Topics include hardware overview; coordinate systems and manipulator kinematics; differential motion and the inverse Jacobian; manipulator path control and motion planning; design and control of articulated hands; sensory feedback; machine vision; applications to industrial automation.

651 Robotics II (3:3:0). Prereq ECE 650 or Pol. An in-depth study of the theoretical aspects of robotics. Emphasis on the integration of topics from control theory and machine intelligence. Topics include manipulator dynamics; optimal, self-organizing, and distributed control of manipulators; stability of legged locomotion; mathematical modeling of uncertain knowledge; knowledge-based control of robot systems.

662 (563) Microwave Theory (3:3:0). Prereq ECE 513 or Pol. Study of the generation, control, and propagation of microwave signals. Topics include transmission lines, waveguides, resonators, scattering parameters, Smith charts, measurement techniques, instrumentation, and microwave devices.

663 Antennas and Propagation (3:3:0). Prereq ECE 513 or Pol. Study of the electromagnetic antennas and the waves which radiate from them. Topics include: types of antennas and their characterization, radiative E-M fields, transmission loss, propagation near and around obstacles, and phased arrays.

665 Optical Signal Processing (3:3:0). Prereq ECE 565. This course covers optical systems for processing temporal signals as well as images. Topics include use of coherent optical systems for image processing and pattern recognition, principles of holography, acousto-optic systems for radar-signal-processing optical computers.

671 (571) Network Analysis (3:3:0). Prereq ECE 520 or Pol. A study of linear active and passive networks. Topics include graph theory, network properties, scattering parameters, frequency and time domain representation, sensitivity measures, Tellelegen's theorem, and computer-aided design.

680 VLSI Circuit Analysis and Design (3:3:0). Prereq ECE 584 and 586 or Pol. Physics and modeling of various semiconductor devices and fundamental building block circuits that are extensively used in VLSI design. Topics include review of MOSFETs and BJTs, SPICE device modeling, inverter and logic circuits, logic minimization, PLA implementation, static and dynamic RAM and problems in VLSI.

684 Advanced Solid-State Device Theory (3:3:0). Prereq ECE 584 or Pol. A study of the theory of special microwave and optoelectronic semiconductor devices based on solid-state physics. Topics include tunnel devices, IMPATT diodes, transferred-electron devices, LED and semiconductor lasers, photodetectors, and solar cells.

689 Semiconducting Materials (3:3:0). Prereq ECE 584 or Pol. A course on semiconducting materials that are of interest for present and future device applications. Topics include crystal and electronic structure, elemental semiconductors, group III-V and group II-VI compound semiconductors, various material growth techniques, ion implantation, material characterization techniques, and novel device structures.

744 Computer Vision and Expert Systems (3:3:0). Prereq ECE 511 and 644. A brief review of image analysis; vision system architectures (human visual system, computer visual systems); vision system operations (focus and zooming); picture recognition languages; introduction to knowledge-based systems; learning algorithmic schemes; applications to text processing/analysis (as expert systems). Design project will be conceived, simulated, and tested by the students.

798 Research Project (3:0:0). Prereq 9 hours of grad-level course work. Research project to be chosen and completed under the guidance of a graduate faculty member, and which results in an acceptable technical report.

799 Master's Thesis (3-6:0:0). Prereq 9 hours of grad-level course work and Pol. Research project to be chosen and completed under the guidance of a graduate faculty member, and which results in a technical report acceptable to a three-faculty-member committee and an oral defense.

For more advanced doctoral level courses in electrical and computer engineering, see course descriptions under School of Information Technology and Engineering.
Computer Science

Faculty

Acquah, James B., D.Sc., George Washington University, 1986; Assistant Professor

Amsbury, Wayne P., Ph.D., University of Tennessee, 1972; Visiting Associate Professor

Bottegal, Thomas B., D.Sc., George Washington University, 1985; Assistant Professor

De Jong, Kenneth A., Ph.D., University of Michigan, 1975; Associate Professor

Diaz-Herrera, Jorge L., Ph.D., University of Lancaster, 1981; Assistant Professor

Gonzalez, Carlos M., Ph.D., Case Western Reserve University, 1975; Assistant Professor

Hamburger, Henry J., Ph.D., University of Michigan, 1971; Associate Professor

Kjell, Bradley P., Ph.D., University of Wisconsin, 1985; Assistant Professor

Mark, Abraham M., Ph.D., Cornell University, 1947; Visiting Professor

Norris, Eugene M., Ph.D., University of Florida, 1969; Associate Professor

Onyukwu, Ibrahim, H., Ph.D., University of Michigan, 1985; Assistant Professor

Qu, Yaoshuang, Ph.D., University of Wisconsin, 1985; Assistant Professor

Quammen, Donna J., Ph.D., University of Pittsburgh, 1986; Assistant Professor

Rice, Michael D., Ph.D., Wesleyan University, 1973; Associate Professor

Rine, David C., Ph.D., University of Iowa, 1970; Professor, Department Chair

Seidman, Stephen B., Ph.D., University of Michigan, 1969; Professor

Sood, Arun K., Ph.D., Carnegie-Mellon University, 1972; Professor

Wang, Pearl Y., Ph.D., University of Wisconsin, 1980; Assistant Professor

Computer Science, M.S.

The Master of Science in Computer Science, offered by the Computer Science Department, is a program designed for individuals who are involved in or wish to become involved in the expanding fields of computer technology. The program encompasses the depth of knowledge needed to pursue more advanced work in computer science or allied areas.

Many graduate classes are offered in the late afternoon and evening to accommodate the professionally employed student. Financial aid in the form of graduate assistantships may be available for full-time students.

Students may avail themselves of course opportunities through the Cooperative Graduate Engineering Program, in affiliation with the University of Virginia and Virginia Tech. Appropriate courses may be transferred, with adviser approval, into the GMU degree program. Refer to section on Certificates, Programs, and Additional Graduate Courses in this catalog.

The major academic computing capability at the University is provided by a CDC Cyber 835, VAX 8500 and 8600 running VMS and UNIX, Pyramid and C-70 UNIX machines, and a VAX 11-750. The CS Laboratories have minicomputers, an HP 1000 for microprogramming, an HP 9040 for computer graphics, AI and graphics systems, and a PDP-11/44 for use by students and faculty. Several microcomputer laboratories, including software engineering software, and a large graphics facility are available as well. Additional equipment is in operating systems, artificial intelligence, parallel computation, and computer graphics and vision laboratories.

Admission Requirements

A student seeking admission to this program will be expected to satisfy the following requirements:

1. Fulfill all admission requirements of the Graduate School of George Mason University

2. Hold a baccalaureate degree including those courses or their equivalents in practical experience comprising the body of knowledge which is commonly held to be preparatory for continued study in computer science. These include courses in Data Structures and Algorithms (CS 211, 312), Assembly Language Programming (CS 311), and Computer Architecture (CS 365). In addition, the student should have completed one year of mathematics beyond first-year calculus, including a substantial course in discrete mathematics (MATH 305). A student with deficiencies in preparation may be admitted provisionally pending completion of foundation courses in mathematics or computer science. Undergraduate credit earned for this purpose may not be applied toward the degree.

3. Have an undergraduate cumulative grade-point average over the last two years of 3.0, preferably with a major in a technical field such as computer science, mathematics, physics, or engineering.

4. Submit transcripts of all post-secondary education, a self-assessment form (normally included in the application package or available from the department), three letters of recommendation, and an official GRE (Graduate Record Examination) report showing verbal and quantitative scores.
Degree Requirements
In addition to the general requirements of the University, completion of this program requires the following:

1. Completion of 33 hours of graduate course credit, including the following:
   a. Nine hours comprising the following courses:
      - CS 540 Language Processors
      - CS 571 Operating Systems
      - CS 583 Data Structures and Analysis of Algorithms
   b. Twelve or more hours of computer science courses at the 600 level or above
   c. Three hours of project work or three to six hours of thesis for a total of not more than six hours
   d. Additional graduate-level courses in computer science or in closely related fields, chosen in consultation with the adviser

2. Presentation of the student's project or thesis at an appropriate forum, approved by the department graduate committee; and comprehensive examination.

Course Work
The department offers computer science courses in general areas of software engineering, artificial intelligence, parallel processing, and foundations of computer science. A complete list appears below and is available from the department by request.

The department actively participates in the program leading to the Ph.D. degree in Information Technology in the School of Information Technology and Engineering.

Computer Science Courses (CS)

521 Introduction to Software Engineering (3:3:0). Prereq Admission to CS graduate program or Pol. An introduction to software engineering concepts, methods, tools, and formalisms. The course will include a discussion of formal models of modular design, software life cycle concepts, segmentation, top-down and bottom-up design, and documentation. Students will organize, manage, and develop a software project.

531 Theory of Computation (3:3:0). Prereq CS 311 and MATH 305; CS 331 strongly rec. Theory of computability, Turing machines, computable functions, recursive functions, unsolvable decision problems and Godel's Incompleteness Theorem, computational complexity.

540 Language Processors (3:3:0). Prereq MATH 305, CS 212 and 311. Basic programming language processors: assemblers, interpreters and compilers. Topics incl design and construction of language processors, formal syntactic definition methods, parsing techniques and code generation techniques. Lab incl construction of language processors and experience with programming environments.


555 Data Communication Systems (3:3:0). Prereq CS 365 or equiv. Techniques and systems for the communication of data between among computational devices. Topics include the role of exchanges, concentrators, multiplexors, buffering; network analysis, cost and design; software considerations.

568 Computer Systems Programming (3:3:0). Prereq CS 211 and 311. Introduction to assemblers, compilers, systems structures, operating systems, and machine architecture.


580 Introduction to Artificial Intelligence (3:3:0). Prereq CS 212 and MATH 305. Principles of representation, heuristic search and control in the context of specific intelligent systems in such areas as problem-solving, vision, medical diagnosis, and natural language. The LISP PROLOG, or expert systems programming languages as a means of representation.

583 Data Structures and Analysis of Algorithms (3:3:0). Prereq CS 212 and MATH 305. This course gives a thorough introduction to the design and analysis of algorithms. Topics to be covered include: review of basic data structures and their implementation, measures of time and space complexity, algorithms for internal and external sorting and searching, graph algorithms, and an introduction to computational complexity.

611 Introduction to Computers (3:3:0). Intro to computer systems. Design-oriented programming languages. Provides experience in multiprogramming or personal computing modes. Primarily for individuals with no prior computer experience. Cr are not applicable toward the 30 cr req for the MS in mathematics nor the 33 cr req for the MCS, but may be applicable toward a degree in some other fields.

612 The Use of Computer Statistical Packages (3:3:0). Prereq Course in statistics. Intro to use of computer packages in the statistical analysis of data. Emphasizes techniques common to use of all statistical packages, incl data checking, cleaning, manipulation, and transformation. Both simple and complex statistical analyses are covered. Techniques are illustrated by concentrating on one of the major statistical packages such as SAS or SPSS. Other packages are discussed and compared. Students are expected to perform computer statistical analyses of data relevant to their respective fields of study. Cr are not applicable toward the 30 cr req for the M.S. in mathematics nor CS, but may be applicable toward a degree in some other fields.

640 Theory of Programming Language Translation (3:3:0). Prereq CS 540. Programming language translation and concepts in compiler design. Topics incl formal grammars, finite state automata as recognizers for finite state grammars, lexical scanning, context-free languages and push-down automata, context-free parsing techniques, run-time environments necessary to support language techniques of code generation. Students work on projects to demonstrate the various concepts and consult the current literature concerning recent advances in the theory and practice of programming language translation.

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668 Microprogramming (3:3:0). Prereq CS 468 or a graduate course in systems programming. Instruction sets and the hardware organization of a microprogrammable central processor. Assembly languages, instruction set modification, I/O programming, interrupt handling, DMA programming. Microprogram development. A substantial hands-on microprogramming experience using a dedicated computer architecture lab.

671 Computer Systems Theory (3:3:0). Prereq CS 571, MATH 351 or Pol. This course will develop advanced computer systems concepts, including models and mechanisms of operating and distributed system structure and techniques of modeling and analysis.

672 Computer System Performance Evaluation (3:3:0). Prereq CS 571, MATH 351. Theory and practice of measuring and evaluating digital computer systems. Topics include systems analysis techniques, simulation techniques, data requisition, programmed measurement techniques, instrumented measurement techniques and presentation of data.

680 Natural Language Processing (3:3:0). Prereq CS 580 or Pol. Principles of the design of computer programs that respond appropriately to questions, commands, and statements expressed in human language, particularly English. Role of knowledge representation and linguistic theory. Students are expected to become familiar with current literature to implement a limited natural language processor.


682 Computer Vision (3:3:0). Prereq CS 580. Study of computational models of visual perception and their implementation on computer systems. Topics include early visual processing, edge detection, segmentation, intrinsic images, image modeling, representation of visual knowledge, and image understanding.

683 Analysis of Algorithms (3:3:0). Prereq CS 583. A second course on the analysis of algorithms. Topics incl the analysis of sequential and parallel algorithmic strategies (such as greedy methods, divide and conquer strategies, dynamic programming, search and traversal techniques, approximation algorithms, image processing), the analysis of specific algorithms falling into these classes, NP-Hard and NP-Complete problems.

684 Graph Algorithms (3:3:0). Prereq CS 583. Data structures and analytical techniques for the study of graph algorithms. Data structures discussed include disjoint sets, heaps and dynamic trees. Algorithms treated include minimum spanning trees, shortest path, maximum flow, and graph planarity.

697 Independent Reading and Research (1-3:0:0). Prereq Grad stgd; completion of at least two core courses (CS 540, 571, 583) and Pol. In areas of importance but insufficient demand to justify a regular course, an individual student may undertake a course of study under the supervision of a consenting faculty member. A written statement of the content of the course and a tentative reading list will normally be submitted by the student as part of the request for approval to take the course. A literature review, project report, or other written product is normally required.

699 Advanced Topics in Computer Science (3:3:0). Prereq Pol. Special topics in computer science not occurring in the regular computer science sequence will be presented in this course. The course may be repeated for credit if subject matters in distinct offerings of the course differ.

798 Project Seminar (3:3:0). Prereq 18 hr of cr applicable towards the MS in CS. Master's degree candidates undertake a project utilizing what they have learned in the M.S. program. Topics chosen in consultation with adviser. Project carried out intended to meet the project-or-thesis req for the M.S. in CS.

799 Thesis (3-6:0:0). Prereq 18 hr of cr applicable towards the M.S. in CS. Original or expository work is evaluated by a committee of three faculty members.
Conflict Management

Faculty

Avruch, Kevin A., Ph.D., University of California at San Diego, 1978; Associate Professor, Anthropology

Barringer, Henry C., B.A., University of Michigan, 1942; Center for Conflict Resolution

Black, Peter W., Ph.D., University of California at San Diego, 1977; Associate Professor, Anthropology

Broome, Benjamin J., Ph.D., University of Kansas, 1980; Assistant Professor, Communication

Burton, John W., Ph.D., London School of Economics, 1942; Distinguished Professor, Conflict Management

Gaughan, Lawrence D., J.D., University of Montana, 1957; LL.M., University of Virginia, 1964; Professor, Law

Gittler, Joseph B., Ph.D., University of Chicago, 1941; Distinguished Professor, Sociology

Gortner, Harold F., Ph.D., Indiana University; 1971; Associate Professor, Public Administration; Chair, Department of Public Administration

Horton, Lois E., Ph.D., Brandeis University, 1977; Associate Professor, Sociology

Sandole, Dennis, J.D., Ph.D., University of Strathclyde, Scotland, 1979; Associate Professor, Public Affairs; Faculty Associate, Conflict Resolution

Scimecca, Joseph A., Ph.D., New York University, 1972; Professor, Sociology; Chair, Department of Sociology and Anthropology

Taylor, Anita, M.G.B., Ph.D., University of Missouri, 1971; Professor, Communication

Tyer, Zita E., Ph.D., Texas Tech University, 1968; Professor, Psychology

Note: Faculty members teaching in the M.S. in Conflict Management graduate degree program constitute a Faculty Advisory Board that oversees daily administration and operation of the program.

Conflict Management, M.S.

The administration and operation of this program is directed by an interdisciplinary Faculty Advisory Board, which reports to the Department of Sociology and Anthropology and to appropriate University officers at the college and university level. This curriculum is a two-year professional M.S. degree program designed to provide advanced training in the theories, concepts, methods, and application of conflict management skills. Students are trained to understand conflict and to be able to apply tested methods (e.g., conciliation, mediation, arbitration, and negotiation) in the management of conflict.

Intensive classroom study is combined with practical work in laboratory, simulation, field work, and internship courses. Nearly half the degree courses concern learning practical skills in conflict management. This degree program, the first to be offered in the United States, provides an opportunity for a professional career in the emerging discipline of conflict management through work and service in public and private organizations, institutional settings, firms, and agencies, and opportunities for professionals now engaged in conflict management work to further advance their knowledge and skills.

Admission Requirements

In addition to meeting all Graduate School requirements for admission, students in the Conflict Management program must have a GPA of no less than 2.75 in all undergraduate work; submit GRE scores on verbal and quantitative sections; and provide three letters of recommendation, one of which must be from a faculty member in the applicant's undergraduate major department; submit GRE general test scores; and write a brief essay stating their reasons for seeking admission to the program. Admission is on a semester basis; students are admitted in the fall and spring semesters of an academic year, and may begin their study as either full- or part-time students. Any part-time student may become a full-time student when program curriculum offerings make it possible.

Graduate students in other degree programs who seek to enroll in Conflict Management courses may enroll with the permission of the course instructor. There is an internship course requirement that is offered only in the summer session, following completion of the first year of full-time study. This course (CONF 694) will not be offered during other semesters. Students who plan to attend classes on a part-time basis will require a much longer period of time to complete the M.S. degree and should note that most courses will be offered only once in a two-year period. Applicants with a B.A. or B.S. degree should note that there are no substitutions permitted for courses offered in the M.S. curriculum in Conflict Management and no directed readings courses or class may be substituted for the required comprehensive examination. Since this is a professional program, all students applying for admission should not expect to substitute transfer credit for a course or requirement leading to the M.S. degree. Students with an M.A. or M.S. degree must complete all requirements for the M.S. degree in Conflict Management, including the comprehensive written and oral examinations. The Faculty Advisory Board directs the attention of all applicants to the statement "Purposes of Graduate Study" found in the beginning of this catalog.

Degree Requirements

Each student is required to successfully complete (grades of A or B) all courses in the curriculum and a
written and oral comprehensive examination. Four hours each day over a period of three days will be allotted to the written examination. The two-hour oral examination by a Conflict Management faculty committee will follow successful completion of the written examination.

Note: Directed reading and research courses (CONF 697) and the optional Master of Science thesis course (CONF 699) may not be substituted for the required written and oral examinations. The required courses are:

Semester I
CONF 610 Research Methods in Conflict and Conflict Management I: Quantitative Methodology (3)
CONF 613 Laboratory and Simulation in Conflict Processes I (3)
CONF 615 Conflict and Conflict Management: A Social Psychological Perspective (3)
CONF 616 Conflict and Conflict Management: Perspectives from Political Science (3)

Semester II
CONF 617 Research Methods in Conflict and Conflict Management II: Qualitative Methods (3)
CONF 618 Conflict and Conflict Management: Perspectives from Economics (3)
CONF 623 Laboratory and Simulation in Conflict Processes II (3)
CONF 624 Fieldwork in Cross-Cultural Conflict Processes I (3)

Summer Session
CONF 694 Internship in Conflict Management (3)

Semester III
CONF 611 Philosophical Foundations of Conflict and Conflict Management (3)
CONF 619 Conflict and Conflict Management: Perspectives from Sociology (3)
CONF 620 Conflict and Conflict Management: Perspectives from Law and Jurisprudence (3)

Semester IV
CONF 625 Conflict and Conflict Management: Perspectives from Cultural Anthropology (3)
CONF 633 Laboratory and Simulation in Conflict Processes III (3)
CONF 641 Conflict and Conflict Management: Integration of Knowledge and Practice (3)
CONF 643 Laboratory and Simulation IV: International Facilitation (3)

Courses to be taken in any semester (optional):
CONF 697 Directed Reading and Research (1–3)
Independent reading on a specific topic related to conflict and conflict management agreed to by a student and a faculty member. The course may be repeated once. This course may not be counted as a substitute or replacement for any course required in the Master of Science in Conflict Management degree program, including the scheduled comprehensive examination (written and oral parts).
CONF 699 Optional Master's Thesis (3–6). Open only to students who have successfully completed all requirements for the Master of Science in Conflict Management degree. May not be substituted for any required course or activity, including reading courses or the comprehensive examination. Suggested for students expecting to go on to the Ph.D. program.
Economics

Faculty
Alexeev, Michael, Ph.D., Duke University, 1984; Assistant Professor
Bennett, James T., Ph.D., Case Western Reserve University, 1970; Professor
Bloch, Howard R., Ph.D., Princeton University, 1964; Professor
Bodreaux, Donald J., Ph.D., Auburn University, 1986; Assistant Professor
Buchanan, James M., Ph.D., University of Chicago, 1948; University Distinguished Professor
Chung, Jae W., Ph.D., New York University, 1972; Associate Professor
Coelho, Philip R.P., Ph.D., University of Washington, 1969; Professor
Crain, W. Mark, Ph.D., Texas A & M University, 1976; Professor
DiLorenzo, Thomas J., Ph.D., Virginia Polytechnic Institute and State University, 1979; Associate Professor
Grier, Kevin, Ph.D., Washington University in St. Louis, 1984; Assistant Professor
High, Jack C., Ph.D., University of California at Los Angeles, 1980; Assistant Professor
Lavoie, Donald C., Ph.D., New York University, 1981; Associate Professor
Levy, David M., Ph.D., University of Chicago, 1979; Assistant Professor
Phillips, Samuel H., Ph.D., University of Virginia, 1968; Professor
Reid, Joseph, Ph.D., University of Chicago, 1974; Associate Professor
Roback, Jennifer, Ph.D., University of Rochester, 1980; Assistant Professor
Rowley, Charles, Ph.D., University of Nottingham, 1964; Professor
Selgin, George A., Ph.D., New York University, 1986; Assistant Professor
Shughart, William, Ph.D., Texas A & M University, 1978; Associate Professor
Tollison, Robert, Ph.D., University of Virginia, 1969; Professor
Tullock, Gordon, J.D., University of Chicago, 1947; University Distinguished Professor
Vanberg, Viktor, Ph.D., Universitat Mannheim, 1981; Associate Professor
Vaughn, Karen I., Ph.D., Duke University, 1971; Professor
Wiest, Philip R., Ph.D., University of Pittsburgh, 1976; Associate Professor
Williams, Walter E., Ph.D., University of California at Los Angeles, 1972; John M. Olin Distinguished Professor of Economics

Economics, M.A.

The Master of Arts in Economics is designed to provide students with a strong foundation in economic analysis and the opportunity to apply this knowledge in specialized subject areas. The program is designed to serve:

1. Students with recent baccalaureate degrees who wish to become qualified for employment with public and private institutions that hire economists;
2. Individuals employed in business and government who desire to further their professional careers through graduate training in economics; and
3. Students who intend to continue toward a Ph.D. in economics.

Admission Requirements

In addition to the entrance requirements of the Graduate School, the applicant is expected to hold a baccalaureate degree in economics. Students with an undergraduate major in a field other than economics may be admitted if their record demonstrates sufficient background in economics and allied fields. MATH 108 or its equivalent is required for admission to degree status. Undergraduate deficiencies must be made up by completion of appropriate remedial work including intermediate macro- and microeconomic analysis, taken without graduate credit. Before admission to degree status, students must submit two letters of recommendation and satisfactory GRE scores. The GRE scores may be waived if an applicant holds a graduate degree in another field, or has completed 6 to 12 hours of graduate course work in nondegree status or Extended Studies enrollment with a GPA of at least 3.00. Applications for admission to the M.A. program for the fall semester must be received by May 1 and November 1 for the spring semester.

Degree Requirements

Students must meet departmental degree requirements for all M.A. students and specific requirements depending on which track (thesis or non-thesis) is chosen.

General Core Requirements (all M.A. students)

All students are required to complete 30 semester hours of graduate credit. There are three required
core courses in micro- and macroeconomic theory (Econ 611, 615, and 812). Up to 21 hours of elective courses may be taken. Electives may be chosen from several areas, including public choice, public finance, labor economics, industrial organization, international trade, resource economics, environmental economics, urban economics, Austrian economics, economic history, history of economic thought, and monetary economics. In some cases, departmental permission will be given to substitute up to six hours of electives taken outside the economics department in closely related fields.

All students are required to pass comprehensive examinations in micro- and macroeconomic analysis. The exams are offered twice a year, usually in September and April, and are normally taken immediately upon completion of the core courses.

**Thesis Track**

The thesis track offers up to six hours of graduate credit for independent research and writing under the direction of a departmental supervisor in lieu of elective classroom hours. This means that the student who chooses the thesis track may receive 18 hours of credit for electives and 6 hours of credit for thesis research (Econ 796 or Econ 799). Normally a student selecting the thesis track would choose a topic in an area related to the elective courses.

**Public Policy Track**

Courses leading to an M.A. in Economics with a particular emphasis in public policy are offered at our Metro Campus in Arlington. Students in the public policy track can select their courses from a recommended set offered at the Metro Campus or from our Main Campus offerings.

**Economics, Ph.D.**

The Ph.D. in economics provides rigorous training in the discipline. There is a common core of courses taken by all candidates for the degree, with a wide variety of field specialization options once the core requirements are completed. Core courses include micro and macro theory, econometrics, mathematical economics, economic history, and history of economic thought. Our graduates will be familiar with the state and frontiers of the discipline and will be capable of carrying on substantive research programs of their own.

Recognizing the special character of students in this area, our Ph.D. program has two tracks. The traditional track prepares students for a career in economic research in government, business, or in universities. The applied track places a heavy emphasis on public policy and is especially suited for upper-level government workers who deal extensively with economics on the job.

**Admission Requirements**

Prerequisites for admission into the doctoral program in economics include an undergraduate degree from an accredited institution with a 3.00 GPA or higher the last two years of that baccalaureate program, a 3.00 or higher GPA in undergraduate economics courses, and training in economics at least through the intermediate level of micro- and macroeconomic theory. An applicant is also required to have an adequate background in mathematics, through calculus, and in statistics. A student without these prerequisites will be required to take ECON 306 and 311 (the undergraduate theory sequence), Mathematics 113 and 114 (calculus), and Decision Sciences 200 and 202 (statistics). The mathematics and statistics may be taken in the initial stages of the graduate program.

An application for the doctoral program must include undergraduate and graduate transcripts, two letters of reference and scores from the Graduate Record Examination, including both the general exam and the subject exam in economics. In some cases GRE scores may be waived at the written request of an applicant who has earned an M.A. degree in economics from an accredited institution.

Applications for admission to the program for the fall semester must be received by April 1 (February 1, if financial aid is desired) and October 1 (September 1, if financial aid is desired) for the spring semester.

**Degree Requirements**

The Ph.D. degree in economics is not granted automatically upon completion of a set of course requirements. It is granted only to candidates who have shown a thorough knowledge of economic theory and their fields of concentration and have demonstrated the ability to conduct sound independent research. A minimum amount of course work with satisfactory performance, however, is necessary to demonstrate this level of scholarship.

A doctoral student must complete 72 credit hours, including a minimum of 48 credit hours of course work and up to 24 hours of dissertation credit on an approved research topic. In order to ensure the high standards adopted by the Economics Department for its doctoral program, students will be required to take a set of core courses in theory, quantitative techniques, the development of economic thought, and economic history.

Each doctoral student is required to take six credit hours in graduate microeconomic theory (Econ 611, 812) and six credit hours in macroeconomic theory (Econ 615, 816). Three credit hours in mathematical economics (Econ 630) and three credit hours in econometrics (Econ 637) are required to ensure adequate training in quantitative methods. Each doctoral student is also required to take three credit hours in the history of economic thought and three credit hours in economic history. A student is required to take a minimum of six credit hours of courses in each of the two specialization fields for which the student will write comprehensive exams. Up to six hours may be taken in course work in other disciplines approved by the department.

Transfer credits from accredited graduate programs in economics will be evaluated on a case-by-case basis.

Preparing for and passing comprehensive exams are an integral part of the Ph.D. program. General theory
exams are used as a qualifying requirement for the Ph.D. In addition, Ph.D. candidates are required to pass field exams that demonstrate professional competence in their two chosen areas of specialization. The general theory exams are given twice a year. The field exams will be scheduled according to course offerings and student interest in the particular specialized fields, but no more than twice a year.

The department will offer field exams in the following areas, although particular course sequences are still in the developmental stage:
- Public Choice
- Public Finance
- Economic History
- Political Economy
- Austrian Economics
- Monetary Theory and Policy
- History of Economic Thought
- Econometrics
- Labor Economics
- Economic Development
- Industrial Organization
- Urban and Regional Economics
- International Trade and Finance
- Resource and Environmental Economics

Core Requirements for the Economics Ph.D. (total 36 hours):
- Microeconomic Theory (6)
- Macroeconomic Theory (6)
- Mathematics for Economists (3)
- Statistics and Econometrics (3)
- Economic History and History of Thought (6)
- Field I (6)
- Field II (6)

In addition, the student must take elective courses to complete the required 48 hours of course work. The dissertation must be completed within five years after passing the theory qualifying exams.

### Economics Courses (ECON)

#### Departmental Course Prerequisites
ECON 306 and 311, or equivalent, are prerequisites for all graduate courses except ECON 600 and 602. Additional prerequisites are noted. With permission of the instructor prerequisites may be waived.

- **535 Survey of Applied Econometrics (3:3:0).** Prereq DESC 200 and 202 or Pol. Applied introduction to estimating economic relationships. Simple equation and simultaneous equation system estimation along with their associated problems.

- **600 Current Issues in Economics (3:3:0) (B).** Prereq Grad stdg or Pol. For students with little economic background. Topics incl supply and demand, operation of a free market system, stock and bond markets, and U.S. role in world economy. May be used in partial fulfillment of the core req in the teaching discipline for the master's degree in education.

- **602 Economic Analysis (3:3:0).** Prereq Baccalaureate degree. This course cannot be taken for graduate credit toward a graduate degree in economics. A rigorous, concentrated introduction to micro- and macroeconomic analysis. Emphasized are economic concepts, tools of analysis, and business applications.

- **611 Microeconomic Theory (3:3:0).** Theory of behavior of consumers, firms, and resource suppliers. Theories of choice under conditions of risk and uncertainty. Partial equilibrium analysis of competitive and noncompetitive markets. General equilibrium analysis, welfare economics, and intro to capital theory.

- **615 Macroeconomic Theory (3:3:0).** Classical, neoclassical, Keynesian, and the post-Keynesian theories of income and employment determination. Theories of inflation and growth. The demand for money and its implications for the effectiveness of monetary vs. fiscal policy.

- **623 American Economic History (3:3:0).** Growth and development of the American economy as well as the evolution of economic institutions.

- **630 Mathematical Economics I (3:3:0) F.** Topics incl set theory, function, differential calculus, integration, series, and matrix algebra, with the special emphasis on the economic applications.

- **637 Econometrics I (3:3:0).** Prereq DESC 200 and 202 or Pol. Techniques of estimating relationships among economic variables. Intro to multiple regression and problems associated with the single equation model-autocorrelation, multicollinearity and heteroscedasticity.

- **676 Comparative Economic Systems (3:3:0).** Capitalism, socialism and corporatism historical perspective. Incl examination of the economies of representative contemporary countries.


- **816 Macroeconomic Theory II (3:3:0).** Prereq ECON 611, 615 and 535 or Pol. 1 Aggregate economic activity and price levels with emphasis on dynamic models. Topics vary.

- **817 Monetary Theory and Policy (3:3:0).** Theory of the mechanisms through which central banking affects economic activity and prices. Analysis of the demand for money and its relationship to economic activity. The development of monetary theory with emphasis on current theories and controversies in the field.

- **820 History of Economic Thought (3:3:0).** Major figures in the history of economic thought and the tools of analysis they created; emphasis on classical, neoclassical, and Keynesian theories.

- **821 History of Economic Thought II (3:3:0).** Development of economic analysis from the "marginal revolution" of 1877 to present. Emphasis on the development of neoclassical economic theory.

- **823 Topics in Economic History (3:3:0).** Prereq ECON 611 and 615. Economics analysis of various historical epochs, such as: Industrial Revolution, Evolution of Political Reform, Rise of Unions, Growth of Government.

- **825 Political Economy and Public Policy I (3:3:0) Prereq** ECON 611 or Pol. Economic process of public policy formulation and implementation. Economic behavior of principals in policy making and execution.

- **826 Political Economy and Public Policy II (3:3:0).** Prereq ECON 611, 615 and 825 or Pol. Specific issues related to public policy of economic issues. Topics incl privatization, political economy of deficit spending, regulation and deregulation, and the economics of rent seeking.

- **827 Economic Philosophy (3:3:0).** Prereq ECON 611 or Pol. Analysis of the philosophical organization. Interrelations between economics, legal and political institutions. Philosophical presuppositions of a capitalist economy under constitutional democracy. Consideration of alternative presuppositions for noncapitalist economies. Critical evaluation of history of ideas in social and moral philosophy.

- **828 Constitutional Economics (3:3:0).** Prereq ECON 611 or Pol. Analysis of existing and proposed elements of the "economic constitution." Emphasis on fiscal, monetary, transfer, and regulatory powers of government and on constitutional limits on such powers which have existed.
especially in the United States. Also includes analysis of changes in these limits that have been proposed.

831 Mathematical Economics II (3:3:0). Prereq ECON 630 or Pol. Mathematical treatment of economic theories. Static and dynamic analysis of macro-models. Input-output analysis. Optimization techniques such as Lagrangian multipliers, linear programming, nonlinear programming, and game theory.

838 Econometrics II (3:3:0). Prereq ECON 637 or Pol. Econometric models and simultaneous equation systems. Identification of parameters and least squares bias; alternative estimation methods and block recursive systems.


851 State and Local Public Finance (3:3:0). Analysis of public spending and taxation at the subfederal level. Theory of public goods, positive and normative explanatory models of public expenditure determination, and intergovernmental fiscal relations. Problems in the provision of specific state and local services, incl education and police and fire protection.

852 Public Choice (3:3:0). Prereq ECON 611 or Pol. Application of economic theory and methodology to the study of nonmarket decision making.

853 Special Topics in Public Finance (3:3:0). Prereq ECON 611 and 849. Topics vary; announced in Schedule of Classes.

854 Public Choice II (3:3:0). Prereq ECON 611 or Pol. This is the second course in the two course sequence in Public Choice. The Public Choice approach will be applied to study such topics as the causes and consequences of governmental growth, the behavior of public bureaucracies, and the economic reasoning behind constitutional limitations on the size and growth of government.

856 Urban and Regional Economics (3:3:0). Prereq ECON 611, or Pol. Regional development and metropolitan growth, economics incl locational decisions of households and firms and problems associated with high density urban economic activity.

858 The Economics of Urban Transportation Planning (3:3:0). Issues and problems in urban transportation planning using various analytical techniques; planning for the future; techniques of evaluation, environmental and socioeconomic impact.

860 Resource Economics (3:3:0). Resource management in the public sector with emphasis on development of water resources. Problems of uncertainty, time horizon considerations, joint costs, multiple benefits, nonquantifiable benefits and costs.


866 Economic Development (3:3:0). Forces contributing to and retarding economic progress in developing countries. The role of foreign trade, economic integration, foreign investment, multinational corporations, and technological transfers.

869 International Trade and Policy (3:3:0). Classical, neoclassical and modern theories of international trade. A study of the theory and practice of world trade models such as project LINK. Analysis of foreign investment and economic growth, tariffs and nontariff barriers, and economic integration; recent developments with emphasis on natural resources. (May not be taken for cr by students who have completed ECON 590.)

871 International Monetary Economics (3:3:0). Examination of the international adjustment mechanism, price and income effects, controls and the monetarist approach. Development of the international monetary system, the demand for international reserves, capital movements, and the role of the International Monetary Fund. (May not be taken for cr by students who have completed ECON 590.)

872 Managerial Economics (3:3:0). Prereq ECON 602 and BUAD 641. Economic theory as it applies to specific business situations and decisions. Production levels, price determination, cost, competition, profits, supply/demand.

876 Marxian Economics (3:3:0). Prereq ECON 611 and 615. Major Marxian economic theories and criticisms of Marxian economics.


881 Austrian Theory of the Market Process II (3:3:0). Prereq ECON 611, 615 (ECON 880 is rec.). Continuation of ECON 880; topics vary and incl emphasis on market-process approach to analysis of capital accumulation, growth, money and credit institutions, inflation, unemployment, and industrial fluctuations.

895 Special Topics in Economics (3:3:0). Topics vary according to interests of instructor. Emphasis on new areas of the discipline. May be repeated for cr as new topics vary.

896 Directed Reading and Research (3:0:0). Independent reading and research paper on a topic agreed on by student and faculty member.

789 Thesis (3-6:0:0). Students who take ECON 896 and then elect the thesis option receive three cr for ECON 799 upon completion of the thesis. Students who do not take ECON 896 receive six cr for ECON 799 upon completion of the thesis.

800 Studies for the Doctor of Arts in Education (var cr). Prereq D.A.Ed. student admission to study in economics. Studies designed by student's discipline director and approved by student's doctoral committee, which brings the student to participate in the current research of the discipline director and results in a paper reporting the original contributions of the student. The paper is presented in a subsequent D.A.Ed. summer seminar. Enrollments are repeated according to each student's program.

918 Seminar in Monetary Theory and Policy (3:3:0). Selected topics of current interest are discussed.

940 Seminar in Labor Economics (3:3:0). Union and management decision making processes, government's role in labor negotiations and dispute settlement, economic analysis of discrimination and poverty, and effectiveness of wage-price controls.

945 Seminar in Industrial Organization (3:3:0). Topics incl centrifugal and centripetal forces affecting aggregate and industry concentration; the impact of market structure on
the rate of innovation, concentration, and oligopolistic price behavior; constraints on oligopolistic pricing; vertical integration; traditional antitrust policy, regulation, and state ownership.

950 Seminar in Public Finance (3:3:0). Prereq ECON 611 and 849. Important public finance issues treated in seminar format.

955 Seminar in Urban and Regional Economics (3:3:0). Prereq ECON 611. Development of regional economics of metropolitan areas and larger regions.

965 Seminar in Economic Development (3:3:0). Prereq ECON 611 and 615. Topics vary and incl macroeconomic and trade policies, inflation and labor migration.

970 Seminar in International Economics (3:3:0). Prereq ECON 611 and 615. Topics vary and incl subjects of current research and policy interests.

999 Doctoral Dissertation Research (cr vary). Prereq Admission to Ph.D. economics program and permission of dissertation adviser. Research on an approved dissertation topic under the direction of dissertation committee. May be repeated. 24 cr hr may be applied to doctoral degree req.

**Education**

**Faculty**

Behrmann, Michael M., Ed.D., Columbia University, 1978; Associate Professor

Beyer, Barry K., Ph.D., University of Rochester, 1962; Professor

Bindel, Henry J., Ed.D., University of Maryland, 1971; Professor

Bonfadini, John E., Ph.D., Virginia Polytechnic Institute and State University, 1976; Associate Professor

Bowen, Larry S., Ph.D., Ohio State University, 1970; Professor

Burger, Christine, Ph.D., Iowa State University, 1984; Research Assistant Professor

Cates, Ward M., Ed.D., Duke University, 1979; Associate Professor

Chu, Harold, Ph.D., University of Minnesota, 1973; Associate Professor

Collier, Virginia P., Ph.D., University of Southern California, 1980; Assistant Professor

Dobson, E. Clark, Ph.D., Florida State University, 1972; Associate Professor

Duck, Lloyd E., Ph.D., University of Virginia, 1974; Associate Professor

Dunklee, Dennis R., Ph.D., Kansas State University, 1985; Associate Professor

Dzama, Mary A., D.Ed., University of Virginia, 1972; Associate Professor

Edgemon, Albert W., Ed.D., Teachers College, Columbia University, 1964; Professor

Gilstrap, Robert L., Ed.D., George Peabody College, 1963; Professor

Given, Barbara K., Ph.D., Catholic University of America, 1974; Associate Professor

Isenberg, Joan P., Ed.D., Rutgers University, 1978; Associate Professor

Jacob, Evelyn J., Ph.D., University of Pennsylvania, 1977; Assistant Professor

Jones, Edward, Ed.D., Virginia Polytechnic Institute and State University, 1977; In-Service Education Coordinator; Associate Professor
**Master of Education Programs, M.Ed.**

The Department of Education offers the Master of Education degree in the following fields: education administration and supervision, elementary education, counseling and development, reading, secondary education, school psychology, and special education.

Students holding the baccalaureate degree or a graduate degree who wish to take courses toward certification, endorsement, or licensure should apply for nondegree status in the Graduate School. For additional information contact the Department of Education.

**Program Approval and Accreditation**

All of the graduate programs listed above have been approved by the State Department of Education and are accredited by the Southern Association of Colleges and Schools and by the National Council for the Accreditation of Teacher Education.

**Admission Requirements**

The general admission requirements to the Graduate School for degree status are:

1. An earned baccalaureate degree from an accredited institution of higher education
2. A 2.75 grade point average or better in the last two years of undergraduate study
3. Some undergraduate preparation for the chosen field of graduate study
4. Submission of official transcripts and all other documents required by the Graduate School.

In addition to fulfilling the Graduate School admission requirements, the applicant must:

1. Meet specific requirements for the program desired; the admission requirements for each program are shown in the following pages. Students admitted provisionally because of low grade point averages normally will be required to demonstrate academic skills by taking courses in introductory and foundations courses in the program before being considered for admission as degree students.
2. If seeking graduate course work in teacher education, possess a temperament appropriate for the teacher as required by Virginia Certification Regulations.

**Degree Requirements**

In addition to fulfilling the Graduate School degree requirements, the candidate must:

1. Complete foundation requirements in the three areas listed below; each student, with adviser, should select courses that will broaden knowledge in those fields upon which professional activities are based; the following outline may serve as a guide:

   **Area I, Foundations of Education, EDUC 521 (2)** Area II, one two-semester-hour course in specialized foundational studies. Select from EDUC 502, 503, 504, 509, 510, 523, 524, 529, 530

   **Area III, Research: EDUC 590**

2. Complete the number of semester hours and course requirements for the graduate program in which enrolled

3. Pass a comprehensive examination (where required) covering the graduate program in which enrolled. The comprehensive examination given at the conclusion of each student's program will be broadly conceived. Therefore, the student should support with independent reading those areas not chosen for course work.

Students having an interest in research may elect a program requiring the preparation of a thesis. Students electing a thesis in lieu of a comprehensive examination must include within the requirements for their program the following courses:
EDUC 590, 591, and 599.

Program Requirements

It is each student's responsibility to be aware of all requirements and to develop with the assigned adviser a program that will meet the requirements. The program should be developed as soon as possible after the student is admitted to degree status. The typical programs that appear for each degree are offered as examples.

The following programs require a practicum or internship: Counseling, Reading, Education Administration and Supervision, and Special Education. Students should apply for practicum or internship one semester prior to enrollment and observe the following application deadlines:

March 15 for fall semester
September 15 for spring semester
February 15 for summer session

Application forms are available in the Office of Field Experiences in the Education Department and must be returned to the student's adviser.

Computer Names

Names provided for specialized courses in the six M.Ed. programs offered in the Department of Education are:

EDAS Education Administration/Supervision
EDCI Elementary/Secondary Curriculum and Instruction
EDGC Counseling
EDRD Reading
EDSE Special Education

Other education courses (including foundations, research and support courses) are prefixed EDUC. Prerequisites pertaining to each course are listed with the course descriptions in this catalog.

Elementary Education

The Master of Education Program in elementary education is designed to improve the competence of teachers working with children at the pre-elementary, lower elementary, and upper elementary levels.

Areas of Specialization

Each candidate may select one of the following areas of specialization:

Curriculum and Instruction (9 hours)
Pre-elementary (9 hours)
Bilingual/Multicultural (12 hours)
Instructional Applications of Microcomputers (15 hours)

Admission Requirements

Students preparing for the pre-elementary specialization (infancy-kindergarten) must:

1. Possess a baccalaureate degree
2. Submit evidence of three years of acceptable teaching or administrative experience in a preschool or elementary school program. (This requirement is waived for students who can provide evidence of certification in elementary education by the state of Virginia or another jurisdiction)

3. Submit recommendations by three persons qualified to judge the candidate's professional competence.

Students preparing for the elementary curriculum and instruction and bilingual/multicultural specializations must:

1. Provide evidence of certification in elementary education by the state of Virginia or another acceptable jurisdiction

2. Submit recommendations by three persons qualified to judge the candidate's professional competence.

Students interested in the Instructional Applications of Microcomputers specialization will find admission requirements under Admission to Student Teaching.

Degree Requirements

In addition to the departmental degree requirements, students must take 6 hours of basic concentration courses, 9-15 hours in an area of specialization, and additional course work to meet the degree total of 30 semester hours. Normally, students are required to take as the basic concentration EDUC 596, and EDCI 650 and 782 (EDCI 782 is usually offered only in the spring term). In addition, students normally take hours in one of the following specializations:

1. Pre-elementary education (infancy-kindergarten): EDCI 511, 512, 513, 514, or EDSE 541

2. Curriculum and instruction: EDCI 657, 658, 660, 661, 663, 666, EDGC 624, EDRD 559, EDSE 541, or EDUC 565

3. Bilingual/Multicultural (see Admission to Student Teaching)

4. Instructional Applications of Microcomputers (see Admission to Student Teaching).

Secondary Education

The Master of Education program in secondary education is designed to improve the competence of teachers who have completed a basic program in preparation for teaching and who hold a Virginia certificate or its equivalent. Teaching fields available for study are biology, business, chemistry, economics, English, French, German, government, history, mathematics, psychology, physics, science, social studies, Spanish, and vocational education.

Areas of Specialization

Each candidate may select one of the following areas of specialization:

Curriculum and Instruction (12 hours)
Bilingual/Multicultural (12 hours)
Instructional Applications of Microcomputers (15 hours)
Vocational Education (15 hours)

Admission Requirements

Applicants for Secondary Curriculum and Instruction, Bilingual Multicultural, and Vocational Education specializations must:

1. Provide evidence of certification in secondary education by the state of Virginia or another jurisdiction
2. Submit recommendations by three persons qualified to judge professional competence.

Students interested in Instructional Applications of Microcomputers specialization will find admission and degree requirements in another part of the catalog.

Degree Requirements

In addition to the departmental degree requirements, students must take 6 hours of basic concentration courses, 12-15 hours in an area of specialization, and additional course work to meet the degree total of 30 semester hours. Normally, students are required to take as the basic concentration EDUC 596, EDCI 652, and EDCI 783. (EDCI 783 is usually offered only in the fall term.) In addition, students normally take hours in one of the following specializations:

1. Curriculum and Instruction: Nine hours of course work in the teaching field or a related discipline and one of the following as related to the teaching field:
   - EDCI 567, 569, 572, 573, EDRD 614, 615, or EDUC 565.
2. Bilingual/Multicultural (see Admission to Student Teaching)
3. Vocational Education (see Admission to Student Teaching)
4. Instructional Applications of Microcomputers (see Admission to Student Teaching).

Secondary Education Certification Program

Students who wish to be certified in a secondary school discipline must complete a graduate-level, 30-hour certification program in Education. They must also complete those general education and discipline courses that they need to meet GMU certification program requirements. These courses may either be undergraduate or graduate courses.

Students who wish to earn a Master of Education degree in Secondary Education must complete 17 hours beyond the certification requirements for a total of 47 hours. This total includes 12 hours of practicum, which is the student teaching experience. The total number of hours any given student will complete is dependent upon the individual’s prior preparation in general education and in the chosen teaching discipline.

Certification Components

Admission Requirements: Students must meet the general admission requirements of the graduate school:

1. A baccalaureate degree from an approved institution
2. An undergraduate GPA of 2.75 on last two years of undergraduate study.

In addition, students must have an approved Plan of Study of course work needed for certification.

Admission to the Teacher Education Program for Students Seeking Secondary Education Certification

Admission to the Teacher Education Program is granted on a selective basis by the Teacher Education Screening Committee (TESC). Students seeking secondary education certification must meet all program entrance requirements prior to applying for admission to the program. Admission is a prerequisite for EDCI 515 (Practicum in Secondary Education). Application forms and detailed policies and procedures are available in the Office of Field Experiences.

Prerequisites for admission are the following:

Deadlines

Completed and signed application forms must be submitted to the Office of Field Experiences by January 1, March 15, August 1, or November 1 of the semester preceding that in which all prerequisites have been met.

Academic Requirements

1. Admission as a degree or non-degree student in the Graduate School
2. The student must be in good academic standing in accordance with the policies of the Graduate School
3. A minimum professional GPA of 2.75. To qualify for a Professional GPA the student must have:
   - Completed EDUC 510, 522, and 524
   - Note: No grade below C will be accepted for satisfactory completion of course work in the professional sequence. Grades of C or below may be remedied in accordance with Graduate School policy.

Proficiency Exams

1. Submission of scores for the General Knowledge and Communications Skills components of the National Teachers Exam (NTE) that meet the minimum standards for teacher certification in Virginia.
2. Successful demonstration of proficiency in written English and computer literacy
3. Completion of a panel interview as scheduled through the Office of Field Experiences.

Retention in Teacher Education Programs

Upon admission to teacher education programs, the student’s progress and development as a teacher
will be monitored by the Coordinator of Field Experiences and the Education Department faculty. Should a student's qualifications fall below the required level, admission status will be revoked until such time as the student presents appropriate evidence that these deficiencies have been remedied.

**Academic Requirements**

Requirements for retention are:

1. Continued academic performance at or above the admission requirement standards

2. Courses included in the computation of the professional GPA will include all courses taken through the Department of Education or accepted by the department for transfer credit.

**Suitability for Teaching**

Continued demonstration of suitability for teaching as stated in the admission requirements. Special focus will be placed on the student's performance in methods courses and related field experience activities. When Education Department faculty notify the TESC of concerns relevant to the level of a student's performance, a review of the case will be conducted and the student notified of those results in accordance with committee policy.

**Admission to Student Teaching**

In addition to having maintained all teacher education program requirements for admission and retention, students must make application for and be accepted for placement in student teaching.

Students must recognize the fact that the semester prior to student teaching is critical. Academic or performance deficiencies (i.e., incompletes, graduation deficiencies) may preclude student teaching.

Requirements for admission to student teaching are:

**Deadlines**

Filing of applications for student teaching in the Office of Field Experiences by February 10 for the fall semester and September 10 for the spring semester.

**Academic Requirements**

1. Completion of all degree or program requirements, except for student teaching, as determined by the student's graduation catalog or plan of study.

2. No grade below C in any professional sequence course.

**Suitability for Teaching**

Completion of an interview scheduled through the Office of Field Experiences resulting in a recommendation for admission to student teaching from the Coordinator of Field Experiences. In cases of denial, a review will be presented to the TESC for action in accordance with committee policy.

**Education Courses**

1. EDUC 522 Introduction to Secondary Education (3)
2. EDUC 510 Human Development (Adolescence-Adulthood) (2) and EDUC 524 Learning Theory (2)
3. EDUC 529 Pluralism in U.S. Education (2)
4. EDUC 531 Educational Tests and Measurements (3)
5. EDUC 593 Utilization of Instructional Technology (3)
6. Curriculum and Methods (Select one from the following:)
   - EDUC 567 Social Studies
   - EDUC 569 English
   - EDUC 572 Math
   - EDUC 573 Science
   - EDUC 550 Foreign Language
   - EDUC 519 English as a Second Language
   - Prerequisites: Courses in Areas 1, 2, 3, and 4
6. Practicum
   - EDUC 515 Practicum in Secondary Education (12)

Total Hours: 30

**M.Ed. Component**

Admission Requirements:

To be admitted to degree status in the Master of Education in Secondary Education program, a student must have completed all but six credits in the chosen teaching discipline as listed on the Plan of Study for certification.

Degree Requirements in Addition to the Education Courses in the Certification Component:

1. Courses:
   - EDUC 521 Foundations of Education (2)
   - EDUC 590 Educational Research (3)
   - EDUC 652 Curriculum Development in the Secondary School (3)
   - EDUC 783 Seminar in Secondary School Teaching (3)
   - Approved Electives*

Total Hours (17)

Comprehensive Exam or Master's Thesis

**Bilingual/Multicultural Education**

Students in either the elementary or secondary M.Ed. program may specialize in bilingual/multicultural education. Twelve hours are required in the specialization:

- EDUC 517 Introduction to Bilingual Education (3)
- EDUC 518 Introduction to Multicultural Education (3)
- EDUC 519 Methods of Teaching in Bilingual/English as a Second-Language Settings (3)
- One course in Linguistics (3), or
- EDRD 615 Teaching Reading in Multicultural/Multilingual Settings (3)

*Students must select, with adviser's approval, at least six graduate credits from one of the following areas: (a) The Instructional Applications of Microcomputers; (b) The Northern Virginia Writing Project; (c) Advanced Study in a Discipline; (d) Bilingual/Multicultural Education.
This specialization is designed for all teachers who work with students of limited English proficiency. Fluency in a language other than English is not required. Financial aid is available for students bilingual in English and a minority language of the public school population in this metropolitan area.

English as a Second Language

Students in either the elementary or secondary M.Ed. program may specialize in teaching English as a second language. Interested students should consult with an adviser in the Bilingual/Multicultural Education Center in the Education Department.

Instructional Applications of Microcomputers

Students in either the elementary or secondary Master of Education programs may complete a specialization in the Instructional Applications of Microcomputers. This specialization is designed to enable students to incorporate microcomputers in the instructional programs of elementary and secondary schools.

Specialization Requirements

In addition to general degree requirements, students must take 6 hours of basic concentration courses (EDCI 705 and 782 or 783) and 15 hours of specialization courses: One course selected from EDCI 519, 550, 567, 568, 572, 573, 658, 663, 666 or EDCI 655 and all of the following: EDCI 530, 532, 630, and 730.

1. Admission criteria and procedures:

Criteria. Applicants must meet the general requirements for admission to the M.Ed. programs in Elementary and Secondary Education. In addition, applicants must document: (1) Their ability to communicate effectively in writing, and (2) Their understanding of the application of this specialization to their work situation.

Procedures. In addition to the regular application for admission to the M.Ed. program in Elementary and Secondary Education, applicants must complete an essay. The essay should address the following issues: (1) The nature of computer literacy: present and defend a definition; (2) Experiences relative to the program; (3) The knowledge you want to gain from this program; and (4) How you envision using microcomputers in your classroom. An interview may also be required.

2. Priority will be given to classroom teachers, or those who will have an impact on classrooms, at the elementary and secondary school levels.

3. All admissions shall be conditional. Candidacy will be granted upon completion of EDCI 530 or proficiency test in BASIC with grade of B or better.

4. Admission will be fall semester only and application deadline will be March 1.

5. Transfer students. Students who apply to transfer from a GMU M.Ed. program to the IAM program must meet the same requirements as new applicants. Transfer will only be approved for fall semester (same March 1 deadline).

Northern Virginia Writing Project

This Project, a cooperative effort between the Departments of English and Education, has developed several courses which students may use as part of the specialization requirement within the elementary or secondary M.Ed. program. These courses are:

EDUC 695 NVWP In-Service Program
EDUC 696 NVWP Research Seminar
EDUC 697 NVWP Writing Theory Seminar

Teachers who have completed the Project’s six-semester-hour summer institute may also use this as part of their degree requirements.

Vocational Education

Students in the M.Ed. in Secondary Education Program may specialize in vocational education. This specialization is designed to meet the needs of persons with a background in such areas as Industrial Arts Education, Occupational Education, Business and Office Education, General Vocational Education, Special Needs Education, Cooperative Education, Adult Education, and Home Economics Education.

Nine semester hours in the vocational core are required to meet the state certification for administration and supervision of vocational education.

The Master’s Degree in Secondary Education with a specialization in Vocational Education requires 32 semester hours as follows:

Educational Foundations:
EDUC 515 History and Philosophy of Vocational Education (3)
EDUC 521 Foundations of Education (2)
EDUC 590 Education Research (3)

Vocational Core:
EDAS 631 Supervision of Instruction (3)
EDUC 682 Curriculum in Vocational Education or EDUC 581 Cooperative Work/Study Curriculum (3)
EDUC 631 Organization and Administration in Vocational Education or EDUC 587 Administering Cooperative Programs (3)

Vocational Specialization:
EDUC 688 Internship (3 or 6)
EDUC 783 Seminar (3)

Electives (6 to 9)

Interested persons should consult the Vocational Education Office in the Education Department.

Reading

The Master of Education program in Reading is designed to permit qualified candidates to become reading specialists or reading teachers at the elementary or secondary levels. Federal Grants: Chapter I—Reading teachers, adult education teachers, and administrators of private reading programs. The program meets the standards
established by the Virginia State Department of Education and the International Reading Association. Direct involvement with youths and adults is provided through assignments within individual courses. Practicum provides candidates the opportunity to put into practice the techniques and methods learned in individual courses. The Educational Study Center at the University is used as the practicum site. Program undergoing some modification; see program faculty for detailed information.

**Admission Requirements**

Applicants to the M.Ed. program in Reading must:

1. Provide evidence of certification at the collegiate professional level by the State of Virginia or another jurisdiction

2. Have completed two years of successful teaching experience

3. Be recommended by three professional educators in the position of principal, supervisor, or administrator, including at least one who has observed the applicant's teaching.

Exceptions to the first two admission requirements may be made with the approval of the department chair or associate chair for applicants seeking to work with adults.

**Degree Requirements**

The Master’s Degree in Reading requires 36 semester hours as follows:

- Departmental Foundations Courses (7 semester hours)
  - EDUC 590 Education Research (3)
  - EDUC 521 Foundations of Education (2)
  - Other Foundations course (2)

- Common Core Courses (15 semester hours)
  - EDRD 611 Remedial Reading (3)
  - EDRD 613 Diagnostic and Evaluative Techniques in Reading (3)
  - EDSE 652 Language Development and Disorders (3)
  - EDRD 790 Practicum in Reading (6)

- Specialization requirements (select area of specialization) (3–6 semester hours)
  - For Reading Teacher (elementary level)
    - EDRD 559 Teaching Developmental Reading in the Elementary School (3)
    - EDCI 657 Teaching Language Arts in the Elementary School (3)
  - For Reading Teacher (secondary level)
    - EDRD 614 Teaching Reading in the Secondary School (3)
    - EDCI 569 Teaching English in the Secondary School (3)
  - For Reading Specialist (elementary level)
    - EDRD 559 Teaching Developmental Reading in the Elementary School (3)
  - For Reading Specialist (secondary level)
    - EDRD 618 Organization and Administration of Reading Programs (3)

- EDRD 614 Teaching Reading in the Secondary School (3)
- EDRD 618 Organization and Administration of Reading Programs (3)

- Reading Specialist with ESL/multilingual students
- EDRD 615 Teaching Reading in Multicultural/Multilingual Settings (3)

- Reading Specialist with adult/college students
- EDRD 616 Teaching Reading to Adults (3)
- Electives 6–11 semester hours

Selected in conjunction with advisers from list of specialization courses or other relevant courses.

Total: 36 semester hours

Applicants seeking to take selected courses for endorsement or professional development, not for degree, may apply as nondegree students. These applicants are required to provide evidence of successful completion of a baccalaureate degree and should generally have an undergraduate grade point average of at least 2.75.

**Education Administration and Supervision**

The Master of Education program in Education Administration and Supervision is designed to enable qualified individuals to participate in the leadership and management of schools and other institutions. Through individualization of programs, candidates prepare themselves for a wide variety of positions such as assistant principal, principal, instructional director, instructional coordinator, head teacher, director of education in business or government.

**Admission Requirements**

All degree applicants must:

1. Have an undergraduate grade point average of at least 3.00

2. Provide three letters of recommendation.

Applicants to the M.Ed. program in Education Administration and Supervision who are planning on a school-based career must:

1. Provide evidence of certification at the collegiate professional level by the State of Virginia or another jurisdiction

2. Have completed two years of successful teaching experience, a portion of which must be at the level where qualification is desired

3. Be recommended by three professional educators in the position of principal, supervisor, or administrator, including at least one who has observed the applicant's teaching.

**Degree Requirements**

The Master of Education Degree in Administration and Supervision requires 30–36 semester hours as follows:
Departmental Foundations Courses (7 semester hours)
EDUC 590 Education Research (3)
EDUC 521 Foundations of Education (2)
Other Foundations course (2)

Program Requirements (15–18 semester hours)
Each student must take the following:
Elementary, Middle, or Secondary School Curriculum (3)
Education Administration (3)
Supervision of Instruction (3)
EDAS 789 Seminar in Education Leadership (3)
EDAS 790 Practicum in Education Leadership (3–6)

Electives (5–8 semester hours)
Electives are selected in conjunction with adviser and permit candidates to work toward specific school endorsements or other specializations.

To meet the departmental comprehensive examination requirement, candidates for the M.Ed. Degree in Education Administration and Supervision must present an acceptable written report based on a practice-oriented project completed during practicum enrollment.

Nondegree Applicants
Applicants seeking to take selected courses for administration/supervision certification (endorsement) or for professional development, not a degree, should apply as nondegree students. Generally, nondegree applicants are required to provide evidence of successful completion of a master's degree and a master's degree grade point average of at least 3.00.

Counseling and Development

The Master of Education program in Counseling and Development is designed to prepare students to function as counselors and human development professionals in a variety of work settings including educational, middle, and secondary schools, colleges and universities, and community mental health agencies, and as other student personnel professionals in higher education. The program is designed to develop in its students competence in a broad range of counseling skills, including group and individual counseling, career counseling, and assessment. The program emphasizes the integration of theory and practice and seeks to prepare knowledgeable and capable helping professionals for a wide range of employment settings. The culmination of the students' program is the internship in which they are placed in an educational or mental health agency counseling setting similar to that in which they hope to be employed. This offers students the opportunity to test and refine their counseling skills while experiencing the role of the counselor.

Admission Requirements

Students must satisfy admission requirements under either 1, 2, or 3 below:

1. Students preparing for elementary, middle, or secondary school counseling positions and seeking the M.Ed. degree must:
   a. Provide evidence of teacher certification by the state of Virginia or another acceptable jurisdiction.
   b. Have successfully completed a minimum of 12 semester hours of undergraduate work in the behavioral sciences. (Courses taken to make up undergraduate deficiencies cannot be used to fulfill degree requirements.)
   c. Have completed two years of successful work experience, one year of which must be in a school setting.
   d. Submit three letters of recommendation from supervisors or professors regarding the potential of the applicant for the field of counseling.
   e. Submit a statement of interests and objectives.
   f. Be interviewed and recommended for acceptance.

2. Students preparing for counseling and student development work in colleges and universities and for counseling in mental health agencies and seeking the M.Ed. degree must:
   a. Possess a baccalaureate degree.
   b. Have successfully completed a minimum of 12 semester hours of undergraduate work in the behavioral sciences. (Courses taken to make up undergraduate deficiencies cannot be used to fulfill degree requirements.)
   c. Submit three letters of recommendation from supervisors or professors concerning applicant's potential as a professional counselor or as a student professional.
   d. Submit a statement of interests and objectives.
   e. Be interviewed and recommended for acceptance.

3. Students who wish to take courses in the Counseling and Development Program but do not want a degree should apply to the program as nondegree students. Such applicants will generally fit into one of the following categories:
   a. Students seeking endorsement—these are applicants with a master's degree in education or in a helping profession who plan to take a series of courses, typically including an internship, leading to endorsement as an elementary, middle, or secondary school counselor in Virginia.
   b. Students seeking licensure—these are applicants with a master's degree in a helping profession who plan to take a series of courses, typically including an internship, in order to obtain the 60 credits of needed course work so that they can apply for licensure as a professional counselor in Virginia. Program courses have been approved by the Board of Professional Counselors as meeting all specific course requirements for licensure in Virginia.
   c. Students not seeking licensure, endorsement, or a degree and not planning on taking an internship in Counseling who want to take some courses in that program for their personal and professional development.

Students applying under categories 3a or 3b must submit three letters of recommendation from supervisors or professors and a statement of interests and objectives. These students will generally be required to take a minimum of 15 credits of course work. Those applying under 3c do not need to submit either letters of recommendation or a professional statement. There is no minimum on the number of credits these students must complete.
Degree Requirements

The M.Ed. degree in Counseling and Development requires 39 semester hours. Students admitted to the degree program will take the following courses:

- Department Foundations Courses—7 semester hours
  - EDUC 521 Foundations of Education (2)
- EDUC 590 Education Research (3)
- EDUC 509 or EDUC 510 Human Development (2)
- Core Courses—23 semester hours
  - EDGC 604 Analysis of the Individual (3)
  - EDGC 606 Counseling Theory and Practice (4)
  - EDGC 608 Group Processes and Analyses (3)
  - EDGC 610 Career and Educational Counseling (4)
  - EDGC 754 Practicum in Counseling and Development (3)
  - EDGC 790 Internship in Counseling and Development (6)
- Specialization courses (see below)—9 semester hours

Areas of Specialization

School Counseling and Development

The school counseling specialization prepares students for careers as elementary, middle, or secondary school counselors. The admission requirements for this specialization were developed to ensure that graduates of this program of study will possess the academic and experiential prerequisites for endorsement as a school counselor by the Virginia Department of Education. Along with the foundations and core courses common to all specializations, school counseling students also take two courses focusing on the school counselor’s role, two other specialization courses, and a 180 hour internship in a school setting. Students who wish to be endorsed at more than one level of school counseling (e.g., elementary and middle) can do so by completing an additional two-credit course and a second internship that is 120 hours in length.

Required Specialization Courses:
- EDGC 620 Philosophy and Principles of School Counseling (1)
- EDGC 666 Counseling and Development for Special Populations (3)
- EDGC 668 Counseling and Development Programming (3)

One of the following:
- EDGC 624 Theories and Practices of Elementary School Counseling (2)
- EDGC 626 Theories and Practices of Middle School Counseling (2)
- EDGC 628 Theories and Practices of Secondary School Counseling (2)

Higher Education Counseling and Development

The higher education specialization is designed to prepare counselors and other student development professionals who share with teaching faculty the responsibility for humanizing and personalizing each student’s experience in higher education. Graduates of the program are employed in a variety of positions in postsecondary education: counseling centers, career planning and placement, residence halls, student activities, financial aid, academic advising, and special programs for foreign students, returning students, minority students, and others. The higher education counseling specialization focuses on the role of student development professionals, knowledge of special groups, and higher education settings in which student development professionals use their skills.

Required Specialization Courses:
- EDGC 644 College Student Development (3)
- EDGC 666 Counseling and Development for Special Populations (3)
- EDGC 668 Counseling and Development Programming (3)

Community Agency Counseling and Development

The specialization in community agency counseling is designed to prepare counselors for employment in a wide range of settings, including community mental health centers, family counseling centers, agencies specializing in career counseling, businesses and industries, rehabilitation agencies, and counseling programs in federal, state, and local governments. Students complete foundations and core courses along with other students in the program. In addition, specialization courses familiarize students with the role and function of agency counselors and provide special skills they will need such as intake interviews, diagnosis and treatment planning, and couples and family counseling.

Required Specialization Courses:
- EDGC 654 Counseling in Community, Agency, and Business Settings (3)
- EDGC 656 Diagnosis and Treatment Planning for Mental Health Professionals (3)
- EDGC 658 Couples and Family Counseling (3)

School Psychology

Certification in School Psychology can be obtained by completing the M.A. in Psychology. This program, jointly administered by the Departments of Education and Psychology, is open to students with either an Education or Psychology background. The degree is offered by the Department of Psychology, while the Department of Education assumes responsibility for certification. Further information concerning this program can be found under the Psychology Department in this catalog.

Special Education

The Master of Education degree in Special Education is designed to enable qualified individuals to become specialists in:
1. Learning Disabilities (LD)
2. Emotional Disturbance (ED)
3. Early Childhood Handicapped (ECH)
4. Severely and Profoundly Handicapped (SPH)
5. Bilingual/Multicultural Special Education (BMSE)
6. Special Education Technology (SET)

Completion of program course work in the areas of ECH, ED, LD, and SPH will allow the student to meet state endorsement requirements. Initial state certification can be obtained while seeking endorsement.

BMSE is taken in conjunction with any of the other four areas of specialization. Specific requirements include those of the chosen specialization (LD, ED, ECH, SPH) and at least one additional course (including EDUC 532: Bilingualism and Language Acquisition Research).

Prior to state endorsement in SPH, LD, and ED, candidates must have or qualify for Provisional Professional Certification or its equivalent.

Prior to state endorsement in preschool handicapped, graduates of the Early Childhood Handicapped program must possess Collegiate Professional certification and have completed two years of experience as an elementary or Special Education Teacher.

Admission Requirements

Applicants for the M.Ed. degree in Special Education must:

1. Provide evidence of successful completion of the baccalaureate degree
2. Submit recommendations by three persons qualified to judge the applicant’s professional competence
3. Submit a written autobiography
4. Be interviewed and recommended for acceptance.
5. For LD and ED, applicants must complete or have completed one course in each of the following:
   a. Teaching of reading
   b. Teaching of mathematics
   c. Human growth and development
   d. Survey of special education or equivalent.
6. For ECH and SPH, applicants must:
   a. Provide evidence of successful completion of baccalaureate degree in a human services area such as education, psychology, sociology, or allied health services
   b. Provide evidence of work-related experiences with severely handicapped individuals
   c. Complete or have completed a course in survey of special education or its equivalent.
7. For BMSE, applicants must:
   Also complete above requirements of the combined specialization (LD, ED, 9ECH, or SPH, and EDUC 532).
8. For SET, applicants must meet at least one of the following prerequisites:
   a. Possess an undergraduate or graduate degree in special education
   b. Provide evidence of Virginia State endorsement in special education, or its equivalent, or
   c. Have successfully completed (1) a course in the survey of special education, or its equivalent; (2) a characteristics course in a specific special education category; and (3) a curriculum and methods course in the same category. Additional courses may have to be taken to meet prerequisite requirements for special education course work.

Degree Requirements

A total of 33–46 graduate credit hours are required depending upon previous course work.

Early Childhood Handicapped

EDSE 550 Precision Teaching: Individual Instructional Procedures (2 or 3)
EDSE 552 Language Development and Disorders (3)
EDSE 622 Augmentative Communication (2)
EDSE 647 Medical and Health Aspects of Handicapping Conditions (3)
EDSE 648 Introduction to Psychoeducational Assessment (2 or 3)
EDSE 649 Clinical Psychoeducational Assessment in Special Education (3)
EDSE 659 Curriculum and Methods—ECH (3)
EDSE 665 Family Intervention Programs for Handicapped Children (3)
EDSE 669 Transdisciplinary Approaches to Rehabilitation (2)
EDCI 514 Administering and Supervising Pre-Elementary Education (3)
EDSE 782 Comprehensive Topics in Special Education: Trends and Issues (2)
EDSE 790 Internship in Special Education (6)
EDUC 509 or EDUC 510 Human Development (2)
EDUC 590 Education Research (3)
EDUC 521 Foundations of Education (2)

Emotionally Disturbed

EDSE 544 Vocational and Continuing Education Aspects of the Academically Handicapped (1)
EDSE 550 Precision Teaching: Individual Instructional Procedures (2 or 3)
EDSE 552 Language Development and Disorders (3)
EDSE 553 Teaching Remedial Mathematics (2 or 3)
EDSE 554 Adaptive Methods in Education (2)
EDSE 620 Advanced Applied Behavior Analysis and Social Learning Theory (3)
EDSE 643 Emotional and Behavioral Disorders of Children (3)
EDSE 648 Introduction to Psychoeducational Assessment (2 or 3)
EDSE 649 Clinical Psychoeducational Assessment in Special Education (3)
EDSE 654 Curriculum and Methods—ED (3)
EDGC 606 Counseling Theory and Practice (4)
EDSE 782 Comprehensive Topics in Special Education: Trends and Issues (2)
EDSE 790 Internship in Special Education (6)
EDUC 529 Pluralism in U.S. Education (2)
EDUC 590 Education Research (3)
EDUC 521 Foundations of Education (2)

Learning Disabilities

EDSE 544 Vocational and Continuing Education Aspects of the Academically Handicapped (1)
EDSE 550 Precision Teaching: Individual Instructional Procedures (2 or 3)
EDSE 552 Language Development and Disorders (3)
EDSE 553 Teaching Remedial Mathematics (2 or 3)
EDSE 554 Adaptive Methods in Education (2)
EDSE 645 Characteristics of Children With Learning Disabilities (3)
EDSE 648 Introduction to Psychoeducational Assessment (2 or 3)
EDSE 649 Clinical Psychoeducational Assessment in Special Education (3)
EDSE 657 Curriculum and Methods—LD (3)
EDSE 659 Curriculum and Methods—ECH (3)
EDSE 661 Curriculum and Methods—SPH (3)

Three hours of instructional technology electives selected (with adviser’s approval) from the following courses:
EDUC 699 Computer Applications in Education (3)
EDUC 752 Seminar in Instructional Applications of Computers (3)
EDUC 754 Seminar in Computers for Educational Administration and Research (3)
EDCI 532 Programming Microcomputers in LOGO for Instructional Applications (3)

Education, D.A.Ed.
The Doctor of Arts in Education (D.A.Ed.) program offers an advanced liberal-professional education for individuals pursuing or planning careers in nontraditional as well as traditional educational settings.

Program Requirements
The D.A.Ed. requires a minimum of 99 semester hours of study beyond the baccalaureate degree or a minimum of 68 semester hours beyond the master’s degree. A limited number of graduate hours may be applied to the program. However, an individual’s total program may require more semester hours than these minimum requirements depending on the individual’s goals, assessed strengths and program requirements.

Program of Study
With the guidance of graduate faculty, students develop individual programs of study in concert with their goals, self-assessed skills and knowledge, and program requirements. Each student’s program must include interdisciplinary study in the liberal arts, sciences, and humanities; in a subject area supportive of his or her professional specialization; and in a professional education field.

Structure of Program
All enrollees in the program participate in a common core of required courses and seminars. These include:
DAED 800, 801, 811;
EDUC 805 (four two-credit seminars over three years of course work);
EDUC 800, 810, 811 or 812, 911, 994, 998.

A sequence of at least five courses (15 semester hours) must also be taken in a specific area of special scholarship, which may be supportive of the student’s professional area of expertise (e.g., public affairs for an administrator, English for an English teacher, etc). Students may choose to study in one of the following: anthropology, art, biology, chemistry, communications, economics, English literature, a foreign language, geography, geology, government, history, international relations, linguistics, mathematics, philosophy, physics, psychology, public administration, and sociology.
Preparation of a research paper demonstrating
proficiency in the chosen subject and participation in seminar discussions of similar papers presented by one's peers culminate this study.

Additional internships, research seminars, specialized courses, or reading courses in special areas of education such as educational administration, educational uses of microcomputers, special education, curriculum and instruction, counseling and development, bilingual education, and so on are elected or required to complete the program. The specific nature of all courses is determined by the student in conjunction with his or her faculty doctoral advising committee and a required summer entry seminar, EDUC 800.

General Program Goals

To complete the D.A.Ed. program each individual must demonstrate competence in oral and written English; computer literacy; mastery of the knowledge and skills of an area of special scholarship and of an area of professional expertise; and the ability to apply general and specific knowledge and skills to significant educational problems. Students demonstrate these competencies by successful completion of courses and seminars, by passing a special written comprehensive qualifying examination near the conclusion of program course work, and by preparation and oral defense of a doctoral project.

Students have five years from the time of their enrollment in the summer entry seminar to complete all course work through the comprehensive examination. Two additional years, starting with the date on which students complete the comprehensive examination, are allowed to complete the doctoral project.

Residency

The purposes of residency are achieved in the D.A.Ed. program through a combination of core courses and special seminars and through continuous enrollment. These requirements include successful completion of the Entry Seminar and of the required number of doctoral residency seminars and participation in a specified number of special scholarship colloquia. Students must enroll in at least one approved course each semester they are in the program.

Internship

Candidates enroll in at least one and up to three internships designed to broaden their professional expertise. These internships may occur in a variety of settings. One three-credit internship must be taken in a setting that differs from the student's work setting. In all cases, the student works with University and on-site supervisors.

Admission Requirements

Candidates are admitted to study by the Department of Education and by a department offering study in a field of special scholarship chosen by the student. Admission is a highly selective process. Up to 20 persons are admitted to the program each year.

In addition to completing all University Graduate School admission requirements, each applicant must fulfill the following program admission requirements:

1. A minimum of three years of successful experience as a practitioner in an educational setting
2. A baccalaureate and/or master's degree from an accredited institution
3. Demonstration of high intellectual capability
4. For applicants from public elementary and secondary education, evidence of certification at the Virginia collegiate professional level (or its equivalent from another jurisdiction)
5. Minimum requirements established by the various areas of special scholarship
6. Demonstrated leadership potential.

Admission Documents

Each applicant must submit the following to be considered for admission:

1. A completed Graduate School Admission application
2. A completed Virginia Domicile Classification Form (if applicable)
3. All undergraduate and graduate transcripts
4. Three letters of recommendation
5. Graduate Record Examination or Miller Analogies Test scores
6. Evidence of certification at the Virginia collegiate professional level or its equivalent from another jurisdiction, if applicable
7. A written statement relating the study in the D.A.Ed. program to the applicant's educational and career plans.

The D.A.Ed. program accepts only one class of students annually. Those admitted into the program must enter the program through a seminar offered only during the summer session. Upon faculty approval of a student's program of studies, applicants are admitted to full doctoral student status.

Information and Applications

For further information about admission and program requirements, contact the Graduate School, the Admissions Office, or the Coordinator of the Doctor of Arts in Education program. Completed applications must be submitted to the Admissions Office of the University by February 1 of the year in which admission is sought.

Education Courses (EDUC)

500 In-Service Educational Development (1-6:0:-0). Prereq Employment in professional capacity by sponsoring division
or agency. Offered at request of school division or other educational agency. Content varies. May be repeated.

502 History of Education in the U.S. (2:2:0). Prereq Admission to grad school or Pol. A history of ideas about learning in the U.S. analyzed from the perspective of what can be accomplished for determining the future.

503 Philosophy of Education (2:2:0). Prereq Admission to grad school or Pol. A critical analysis and examination of ancient and contemporary educational philosophies and their impact upon educational thought and practice. The method of instruction is primarily lecture.

504 Issues in Comparative Education (2:2:0). An overview of national systems of education from the perspective of their similarities to and differences from education in the U.S., with special focus on the countries of recent immigrants to the Northern Virginia-D.C. metropolitan area.

506 Education and Cultural Transmission (3:3:0). Prereq Admission to grad school or Pol. Examination and application of studies in educational anthropology, with focus on the process of cultural transmission in the U.S. through formal and informal institutions. Analysis of U.S. values, cultural discontinuity, hidden transmission of values in schools, U.S. schools' response to cultural pluralism, cultural transmission in educational systems within other countries, school as an interface institution between cultures, biculturalism in schools.

508 Human Relations for Educators (3:3:0). Helps students develop awareness of self and self-concept, learn communication skills for improving interpersonal relations, and create a nondiscriminatory school environment.

509 Human Development: Infancy to Middle Childhood (2:2:0). Prereq Admission to grad school or Pol. An advanced course in the physical, psychological, cognitive, and personality development of the child from birth to age 12. Emphasis is on the critical review of contemporary theories of human development and their relevance to educational practice.

510 Human Development: Adolescence Through Adulthood (2:2:0). Prereq Admission to grad school or Pol. An advanced course in the physical, psychosocial and cognitive development of the adolescent from pubescence to adulthood, as well as the study of adulthood from a developmental perspective. Emphasis is on the examination of the principal contemporary theories and conceptualizations of adolescence and adulthood and their application in contemporary educational settings. The relationship between development and learning will also be emphasized.

515 (formerly 684) History and Philosophy of Vocational Education (3:3:0). Prereq Completion of undergrad degree or appropriate educational req. Study of historical, philosophical and societal backgrounds of vocational education. Several speciality areas of vocational education and their relationship to general education. Students study current trends in their own areas of specialty with attention to the backgrounds of those trends.

517 Computer Applications for "Special Populations" (4:3:1). Prereq grad stdg or Pol. A lecture/laboratory course for teaching populations with special needs (handicapped, bilingual) in applications of computer technology for instructional programs and career skills. Experiences enable students to utilize computer technology designed specifically for special populations.

521 Foundations of Education (2:2:0). Prereq grad stdg in the Education Department or Pol. An overview of the various ways of educating and of the socialization processes operating within American educational institutions and other organizations. Current educational practices analyzed in terms of history, philosophy, psychology, sociocultural factors of formal and informal learning. Emphasis on trends, issues, alternative futures.

522 Introduction to Secondary Education (3:3:0). Prereq Admission to grad school or Pol. Analysis of the philosophical assumptions, curriculum issues, learning theories and history associated with current teaching styles.

Emphasis on applications to all disciplines taught in secondary schools. Current educational trends and issues examined in relation to the sociology of secondary school settings.

523 The Exceptional Child in American Education (2:2:0). Prereq grad stdg in the Department or Pol. This course will introduce the regular classroom teacher to the psychological, sociocultural, educational and physical aspects of the exceptional child. Emphasis will be given to the integration of the exceptional child in the regular classroom. Lectures, simulations, films and other modes of instruction will be utilized.

524 Learning Theory (2:2:0). Prereq Admission to Graduate School or Pol. Examination of the relationships among learning theory, motivation, personality development, social and emotional behavior and student attitudes. Emphasis on putting theory into practice.

529 Pluralism in U.S. Education (2:2:0). Prereq Admission to grad school or Pol. An examination of cultural pluralism in American education, with a focus on the nature of linguistic and cultural diversity in public schools, including education settings, the relationship between nonverbal communication and language systems, and interpersonal skills needed for encouraging harmony between the dominant culture and culturally and linguistically diverse communities in the United States.

530 Contemporary Social Issues in Education (2:2:0). Prereq Admission to grad school or Pol. An examination of selected social issues in education. Uses concepts and information from social sciences to understand the social issues and suggest possible remedies through practice and policy.

531 Educational and Psychological Measurement (3:3:0). Emphasis on techniques and principles used in the construction, administration and quantification of measuring devices for evaluation purposes: interpretation of standardized tests of ability, aptitude, achievement, interest, and personality.

532 Bilingualism and Language Acquisition Research (3:3:0). An examination of research in first and second language acquisition, including the interaction of a bilingual person's two languages, with implications for the classroom.

565 Production of Instructional Materials (3:3:0). Prereq Course in instructional media. Prepares teachers with basic knowledge needed to produce inexpensive teaching materials. Emphasizes planning, production techniques, and evaluation standards. Students are given an opportunity to work on individual projects in their own subject field.

571 Role and Function of the School Psychologist (3:3:0). Surveys roles and functions of the school psychologist within the educational environment. Considers certification and ethical standards of the school psychologist and current issues and trends.

579 School Psychologist Practicum (3:0:0). Prereq POd. Field work with a practicing school psychologist in a school division two days per week.

581 Cooperative Work Study Programs (Curriculum and Methods) (3:3:0). Prereq Completion of proper undergrad req in Vocational Education for industrial cooperative instructors. Prepares teachers to develop curriculum material for cooperative work study course. Opportunity to gain proficiency in the techniques of planning and teaching generally related and directly related curriculum materials.

586 Competency-Based Instruction in Vocational Education (3:3:0). Intro to practical and theoretical components of the competency-based programs in vocational education. Includes methods and strategies of implementation for specific areas of vocational education, industrial arts, trade and industrial education, home economics, business and office education, health occupations, and cooperative programs.

587 Administration and Coordination of Cooperative Work Programs (ICT) - (COE) (3:3:0). Prereq Completion of undergrad req in Vocational Education for industrial cooperative instructors. This course will prepare teachers in developing and selecting cooperative work stations.
Teachers will obtain proficiency in planning and working with advisory groups. Included in the course are materials related to employment opportunities, rules and regulations of employment, and design and completion of necessary documentation. State certification for Cooperative ICT Instructors requires completion of this course. The course is the second in the required sequence for certification.

589 Materials and Processes Technology (Variable) (3-12). An advanced lab course centering on the implementation of new technological methods of manufacturing and testing materials, energy utilization and products. Students will build, research and test individual products and ideas including the strategies required for classroom implementation.

590 Education Research (3-3:0). Development of skills, insights and understandings basic to performing research, with emphasis on interpretation and application of research results. Critique of research and use of findings in educational settings.

591 Education Statistics (3-3:0). Intro to practical and applied aspects of statistics in education. Incl selected descriptive and inferential statistics; also statistical data processing.

593 (formerly 625) Utilization of Instructional Technology (3-3:0). Effective utilization of educational technology in the teaching-learning situation.

596 Project in Applied Education (2:2:0). The completion of a research and development project or paper as one of two culminating courses for the Masie’s degree in Education. The completed project or paper will make a contribution to the field of education within the student’s specialization.

598 Directed Reading, Research and Individual Projects (1-6:0:0). Prereq Admission to a degree program and PoD. Various subjects and projects, principally by directed study, discussion, research, and participation under the supervision of a member of the grad faculty. May be repeated. No more than six hr of EDUC 598 (may also be listed as EDAS, EDGC, EDRD or EDSE) 598 and/or 600 may be applied to degree cr.

599 Thesis (6:0:0). Prereq EDUC 590 and 591 Study of a problem of significant interest to the student, utilizing accepted research methods under the supervision of a member of the grad faculty.

600 Workshop in Education (1-6:0:0). Full time workshops, weekend seminars, and workshops dealing with selected topics in education, education tour seminars. May be repeated.

610 Practical Research in School Psychology (4:0:0). Prereq Completion of req courses in school psychology program and/or Po program coordinator. School psychology students who do not choose a master’s thesis may complete a practical project in the school system under the supervision of a faculty member. Students complete a paper on their project and have it approved by their advisor and at least one other faculty member.

665 School Psychology Internship (3:0:0), (3:0:0). Prereq Completion of req courses in school psychology and/or Po program coordinator. A one-school-year supervised field experience where the advanced school psychology student functions as a full-time staff member within a school system.

680 Competency-Based Instruction in Vocational Education—Technical Area Specialty (3-3:0). Advanced course. Provides opportunity to research and implement competencies associated with a specific instructional area. Each student researches and identifies present occupationally related skills in the cognitive, psychomotor, and affective domains and incorporates these into a specific instructional program.

681 Organization and Administration of Vocational Education (3:3:0). Study of principles and practices of organizing and administering vocational educational programs in the public schools. Areas of concern are: planning, policies, curriculum, personnel development, program development, budgeting, public relations, teacher evaluation, program evaluation, and research.

682 Curriculum Development in Vocational Education (3:3:0). Curriculum development for teachers of vocational subjects. Program development, implementation, and evaluation are studied with emphasis on current trends in vocational education. The impact of the Virginia Vocational State Plan and competency-based instruction are stressed.

686 Teaching and Working with Adult Learners (3:3:0). Prereq Completion of undergrad degree or appropriate educational req. Designed to provide adult instructors with the necessary fundamental program skills req to organize and administer programs for teaching adults. Topics relate to vocational and avocational adult basic program goals incl an overview of existing vocational and adult programs in the community.

687 Industrial Safety (3:3:0). Prereq Completion of undergrad degree or appropriate educational req. Designed to acquaint teachers, industrial managers, and others with the processes and procedures of establishing safety programs for industry and the public schools. Specific areas of concentration highlight OSHA req, safety evaluation systems, and safety awareness techniques. Incl review of the legal responsibilities related to various industrial and educational environments. Incl field visits.

688 Internship in Vocational Education (1:6:0:0). Prereq Completion of undergrad degree or appropriate educational req. Opportunity to complete a total of six hr placed in education, industry or business associated with the area of teaching responsibility. Students research the various technical and professional skills req for successful employment and develop recommendations for curriculum revisions. Projected program changes are presented to peer groups at regularly scheduled seminars.

695/ENGL 695 Northern Virginia Writing Project In-Service Program (1:3-0:0). Prereq Admission to the grad program or PoD. Offered at the request of a school division or other educational agency. Content varies. May be repeated with the PoD, but no more than six sem hr of cr in EDUC 695/ENGL 685 and/or ENGL 695 may be applied toward a master’s degree.

696/ENGL 696 Northern Virginia Writing Project/Research Seminar (3:0:0). Prereq EDUC 695/ENGL 695 or NVWP Summer Institute. Designed to acquaint classroom teachers with current findings related to the composing process and methods of studying writing in a school setting. Focus on development of a proposal investigating some aspect of the composing process. Teachers who have developed a proposal prior to enrolling will conduct the research during the course.

697/ENGL 697 Northern Virginia Writing Project/Theory of Composition (3). Prereq ENGL/EDUC 695 OR NVWP Summer Institute. Designed to acquaint classroom teachers with current theory relating to writing and the teaching of composition. Focus is on making explicit the theories of the participants, on reading the works of leading theorists, and on developing a statement describing the implications of theoretical consistency in the teaching of writing.

699 Computer Applications in Education (3:1:2). Prereq None. This course introduces grad students to the instructional and databased management uses of microcomputers and mainframe computers in school settings. Emphasis is placed on student analysis, development and exploratory application in laboratory classes of selected concepts of computer usage to achieve objectives common to a variety of formal education settings.

752 Seminar in Instructional Application of Computers (3:3:0). Prereq EDUC 699 or Pol. Mastery of BASIC. Concentrates on principles and techniques of implementation of instructional curricula using computers, especially microcomputers. Emphasizes computer-assisted, computer-managed, and computer-based instruction, advanced BASIC statements, the use of instructional programming and authoring languages (e.g., LOGO, PILOT), courseware authoring systems, and the evaluation and validation of educational software for instructional purposes.

754 Seminar in Computers for Educational Administration and Research (3:2:1). Prereq EDUC 699 or its equiv or Pol.
Mastery of BASIC. Emphasizes the principles and techniques of using microcomputers, minicomputers and large mainframe computers for purposes of record keeping, management information, instructional supervision and data analytic research in instructional settings in education and industry.

800 Doctoral Entry Seminar (3:3:0). Prereq Admission to the D.A.Ed. prog. Course req for all entering candidates. A seminar in which students examine the components of the D.A.Ed. programs, engage in intensive self-assessment of skills and knowledge, and study educational trends and issues. Full-time participation req for first two weeks; variable scheduling for remaining three weeks. Offered summer only.

805 Doctoral Seminar in Education (2:2:0). Prereq Admission to the D.A.Ed. prog. In-depth study of selected topics in education. Students participate in an information exchange with other students, faculty members and other scholars about current research interests and ideas. Students also present their own research in a professional forum. A maximum of 8 cr in EDUC 805 may be credited toward minimum D.A.Ed. reqs.

810 Problems and Methods in Education Research (2:2:0). Prereq Admission to the D.A.Ed. prog or Pol. An advanced course in the interpretation and application of education research methods. Emphasizes comparing alternative philosophies of research, ways of formulating questions/hypotheses, research plans and analysis procedures. Students evaluate existing studies and investigate a range of research approaches.

811 Quantitative Methods in Educational Research (2). Prereq Satisfactory completion of EDUC 810 or its equiv or Pol. Emphasizes advanced methods of conducting research using quantitative methods of data collection and analysis appropriate for research in education. Includes the design of experimental and quasi-experimental research studies and methodology and analysis appropriate to these studies, incl the analysis of variance and multiple linear regression.

812 Qualitative Methods in Educational Research (2:2:0). Prereq Satisfactory completion of EDUC 810 or its equiv Pol. Students study and apply qualitative data collection and analysis procedures used in educational research, incl ethnographic and other field-based methods, historical materials and unobtrusive measures. Emphasize depending on the interests and needs of the students.

820 Evaluation Methods for Educational Programs and Curricula (3:3:0). Prereq Satisfactory completion of EDUC 810 or its equiv or Pol. Explores the development and types of current systems and models for evaluating educational programs and curricula. Emphasis is on procedures for evaluation of public and private elementary and secondary schools, colleges and universities, and government and industrial education programs.

840 Seminar in Adult Development and Learning (3:3:0). Prereq Admission to the Doctor of Arts in Education program or Pol. An advanced course in the nature of the adult learner and the processes of adult learning and development. Emphasizes adults as learners, motivations of adult learners and their participation patterns in adult education activities, and learning theory implications for adult learners.

881 Seminar in Bilingual Education: Policy (3:3:0). Prereq Admission to the D.A.Ed. program. Examines the historical development of bilingual education in the U.S., focusing on federal and state legislation and court decisions of the last two decades. Policy issues and programmatic models developed in response to legal mandates and legislative decisions affecting bilingual education are explored in depth from federal, state and local points of view.

882 Seminar in Bilingual Education: Theory and Research (3). Prereq Admission to the D.A.Ed. program. Examines the theoretical foundations of bilingual education through focus on linguistic, anthropological, sociological, psychological, and educational research in the areas of first and second language acquisition, language use in a bilingual classroom, code-switching, bilingualism and intelligence, cognitive style, the teaching of reading, language dominance/ proficiency assessment, achievement testing, special needs assessment, and research on the effectiveness of bilingual education.

890 Doctoral Internship in Education (3:3:0) or (1:1:0 to 6:6:0). Prereq Admission to the D.A.Ed. program. Requires 100 hr of on-site internship completed over at least a five-week period. Interns work with an appropriate staff member in a cooperating school, school system, or other educational institution, agency, or setting. Up to 6 hr of EDUC 890 may be applied toward D.A.Ed. degree req.

895 Seminar in Emerging Issues of Education (3:3:0). Prereq Satisfactory completion of EDUC 800 and DAED 800. Focuses on the study of selected emerging issues or problems in education. Students engage in reading, study, discussion and writing about various aspects of the topics selected for study. May be repeated. Up to 6 hr of EDUC 895 may be applied toward D.A.Ed. req.

896 Doctoral Seminar in "Curriculum Areas" (2:2:0). Prereq Successful completion of EDUC 800 and DAED 800. Focuses on research, theory and exemplary practice in specific subject areas of education. Students engage in research, study, discussion and writing in the designated subject area to analyze trends, assumptions, and important implications for the educational area today and in the future. Usually taken near the end of D.A.Ed. course work.

897 Independent Study for the Doctor of Arts in Education (varying cr). Prereq Admission to the D.A.Ed. program and doctoral student status; Po student’s doctoral advising committee. A structured learning experience designed to extend and develop skills and knowledge relative to a field of professional expertise.

911 Doctoral Projects Seminar (2:2:0). Prereq Admission to candidacy in the D.A.Ed. program, successful completion of the doctoral qualifying examination and EDUC 810 or its equiv. Development of proposals for individual projects in the D.A.Ed. prog. May be repeated. No more than eight hr of EDUC 911 and EDUC 998 may be applied toward the minimum D.A.Ed. degree req.

994 Advanced Internship in Education (3:3:0). Prereq Admission to candidacy in the D.A.Ed. prog; and Po student’s doctoral committee. Req internship in a setting related but not identical to the student’s major area of study. Req a minimum of one hundred hour completed over at least a five-week period. Each intern works with an appropriate staff member in a cooperating school, school system, other educational institution or agency, or in a setting that may differ from regular employment.

998 Doctoral Project Research (6:0:6). Prereq Admission to candidacy in the D.A.Ed. program, successful completion of the doctoral qualifying examination, and EDUC 810 or its equiv. Continued faculty assistance on an individual basis in the completion of projects planned in EDUC 911 and the initiation of new projects. No more than eight hr of EDUC 991 and EDUC 998 may be applied toward the minimum D.A.Ed. degree req.

999 Doctoral Research (1:0:0). Prereq Enrollment in EDUC 998 for req cr, Po D.A.Ed. Coordinator. Students engaged in doctoral project research and writing must register in this course each sem following approval of their project unless registering for EDUC 998. Does not count toward the D.A.Ed. degree cr req. Open only to candidates for the D.A.Ed. degree in Education. For additional D.A.Ed. courses see DAED. May be repeated.

Doctor of Arts in Education

Interdisciplinary Courses (DAED)

For other D.A.Ed. courses see also EDUC 800, 805, 810, 811, 812, 890, 897, 911, 994, 998, and 999.

800 Ways of Knowing (3:3:0). Prereq Satisfactory completion of EDUC 800. Provides an understanding of the
methods of inquiry in various fields of study. Examines selected disciplines in terms of subject matter, scope, key concepts, principles, generalizations, and theories in each field. The characteristic way of knowing in each discipline is studied as a tool for the analysis and solution of educational issues and problems.

801 Seminar in Liberal Education (3:3:0). Prereq Satisfactory completion of DAED 800. Analysis of American education from a variety of discipline perspectives. Students apply concepts and methodologies studied to a study of education in America. Incl regular seminar papers and critiques.


897 Independent Study for the Doctor of Arts in Education (varying cr). Prereq Admission to the D.A.Ed. program. An independent study in which the student engages in an interdisciplinary study which is supportive of the student's program goals but which is not directly in the field of Education or in the student's special discipline. The course may be repeated up to a maximum of six hr.

Administration/Supervision (EDAS)

500 See EDUC 500.

600 See EDUC 600.

611 School-Community Relations (3:3:0). Principles, philosophy, practices, and agencies involved in developing and maintaining desirable relationships between schools and communities.

612 School Law (3:3:0). Provides the background in school law needed by school administrators, supervisors, counselors and others.

621 School Administration (3:3:0). Prereq Teaching experience. Basic principles and practices of school organization and administration. Emphasis on elementary, middle and high schools with reference to state and district structures.

631 Supervision of Instruction (3:3:0). Prereq Teaching experience and EDCI 650, 651 or 652. Basic principles and practices of instructional supervision. Elementary, middle and high school specialization may be accomplished through options in reading and project assignments. Includes the theory and practices of both supervision and evaluation of instruction.

725 Educational Finance (3:3:0). Study of the economic interdependence of educational systems and society and economic concepts as they relate to schooling. Focus on issues, solution sets and philosophies of educational funding.


789 Seminar in Education Leadership (3:3:0). Prereq EDCI 650, 651 or 652; EDAS 631 and 621; admission to the degree prog in education administration and supervision; or PoD. Theory and practice of leadership behavior applied to educational environments.

790 Practicum in Education Leadership (3-0 or 6:0:0). Prereq admission to and completion of the grad prog except for practicum, enrollment in the final term of the prog, or PoD. Students translate administrative theories and concepts into practice through field experiences and intensive seminar inquiry. Placement appropriate to each participant.

Elementary/Secondary Education Courses (EDCI)

500 See EDUC 500.

507 Internship in Applied Linguistics (3:0:3). Prereq grad stdg in the Education or English Department and EDCI 519 or ENGL 521 (ESL methods course). Internship requires 100 hours completed over at least a five-week period for three hours of credit. Internship provides practical experience in the field of English as a Second Language and Applied Linguistics as, e.g., teacher, administrator, counselor, or researcher. For placement, consult instructor before semester starts.

511 Preparing the Pre-Elementary Environment (3:3:0). Study of procedures, materials and organization of environments for young children (infancy-kindergarten). Field experiences req for students without previous teaching or administrative experience at the pre-elementary levels.

512 Home-School Relations in Pre-Elementary Education (3:3:0). Examination of patterns and problems of family life for the purpose of improving communication between teachers and parents.

513 Play as a Growth Process in Pre-Elementary Education (3:3:0). Focus on play as an approach to teaching and learning; examined as an intellectual, social and emotional function in children's development.

514 Administering and Supervising Pre-Elementary Education (3:3:0). Examines programs and techniques relating to the administration and supervision of pre-elementary education programs. Emphasis on the director's role in staff recruitment, hiring, development and evaluation. Leadership and management techniques.

515 Practicum in Secondary Education (12:0:12). Prereq Admission to and completion of all additional coursework in the secondary education certification program, admission to and good stdg in the Teacher Education Program and/or permission of instructor and adviser. An intensive, supervised clinical experience of a full semester in an approved school in Virginia. Experience at the secondary level. Participation in scheduled group sessions req.

517 Introduction to Bilingual Education (3:3:0). Analysis of concepts, principles, and issues of bilingual education; its present status, and its future direction. Focus on current programs and their relationship with curricula in English as a second language.

518 Introduction to Multicultural Education (3:3:0). A survey of multicultural education that examines problems faced by an individual in an alien culture, theories of bilingual/multicultural education, relationships between nonverbal communication and language systems, and interpersonal skills needed for encouraging harmony between our dominant culture and minority ethnic communities.

519 Methods of Teaching in Bilingual/English-as-a-Second-Language Settings (3:3:0). Examination of past and current methods and techniques for teaching English as a Second Language (ESL) in bilingual/ESL classrooms. Students analyze all program models and methods of instruction for students of limited English proficiency; practice teaching strategies based on recent second language acquisition research; and examine materials, textbooks, and resources available in the field. This course includes a field experience component and meets Virginia certification requirements for ESL teachers.

520 Assessment and Curriculum Development in Bilingual/ English-as-a-Second-Language Settings (3:3:0). Examination of issues in testing students of limited English proficiency and development of curricular materials for bilingual English-as-a-Second-Language classrooms. Analysis of testing for placement, diagnosis, entry-exit criteria and evaluation; and examination of sources and models of curriculum development for bilingual/ESL classrooms.

530 Programming Microcomputers in BASIC for Instructional Applications (3:3:0). Prereq None. Students will learn the fundamentals of operating a microcomputer. The major focus of the course will be learning to use the BASIC language to program microcomputers for instructional applications.

532 Programming Microcomputers in LOGO for Instructional Applications (3:3:0). Prereq EDCI 530 or Pol. Students will learn how to write and use programs in LOGO, an interactive programming language used in schools. They
550 (formerly EDUC 450) Teaching Foreign Languages in the Secondary School (3:3:0). Study of theories and methods of foreign language teaching, with practical application to the classroom. Field experience req for those seeking initial teacher certification. Fall semester only.


580 Introduction to Training and Development (3:3:0). An introduction to the field of training and development in industry, government, and other settings. Discussion topics include overview/history of training, basic types of training programs, profiles of training professionals, general training techniques, needs assessment, evaluation, employment opportunities, among others.

600 See EDUC 600.

630 Supervising and Organizing Instructional Uses of Microcomputers (3:3:0). Prereq EDCI 530 or Pol. Teachers will do some programming; develop criteria for selecting microcomputer hardware; learn to choose and evaluate available software; and study, analyze and develop procedures for organizing and managing the use of microcomputers in schools.

650 Curriculum Development in the Elementary School (3:3:0). Study of development of the curriculum in the pre-elementary, elementary levels; historical backgrounds; present programs; development of new programs; methods of implementing new programs; and evaluative methods and procedures.

651 Curriculum and Instruction in the Middle School (3:3:0). Study of development of curriculum in the middle school grades; historical backgrounds, present programs; development and implementation of new programs; program evaluation; instructional and organizational implications.

652 Curriculum Development in the Secondary School (3:3:0). Study of development of the curriculum in the secondary school; historical backgrounds, present programs; development of new programs; methods of implementing new programs; and evaluative methods and procedures.

657 Teaching Language Arts in the Elementary School (3:3:0). Study of methods, curricula, current issues and research literature in English-language arts programs of the elementary school. Emphasis on recent innovations in methodology and traditional concerns of the communication arts.

658 Teaching Social Studies in the Elementary School (3:3:0). Prereq Course in teaching social studies in the elementary school. Study of methods, materials, content and organization of social studies programs in the elementary school.

660 The Diagnostic Teaching of Reading in the Elementary School (3:3:0). Prereq Course in reading. Use of diagnostic techniques, diagnostic instruments and evaluation to individualize the reading instruction in the classroom. Primarily designed for classroom teachers.


663 Teaching Science in the Elementary School (3:3:0). Prereq Course in teaching science in the elementary school and/or Pol. An advanced course methodology and materials involved in the teaching of the biological, physical and earth sciences.


701 Educational Program Development (3:3:0). Prereq Completion of student teaching or a bachelor's degree from an accredited undergrad institution. Analysis and application of principles and procedures essential to the planning, design, testing, evaluation, revision and implementation of instructional programs for use in schools, community colleges, public agencies, museums and business settings. Studies selected theory, research and exemplary practice regarding program development, and investigates alternative strategies for developing instructional programs.

705 Instructional Design (3:3:0). Prereq Bachelor's degree from an accredited institution; teaching experience. Analysis, application and evaluation of the principles of instructional design to develop and evaluate narrative texts, programmed drill and practice materials, tutorial modules and simulations. Attention is given to materials designed to develop problem solving skills.

730 Designing Learning Activities for Microcomputers (3:3:0). Prereq EDCI 530 and EDCI 705. Students will design, write, implement and evaluate microcomputer learning activities and ancillary materials for microcomputers.

782 Seminar in Pre-Elementary School Teaching (3:3:0). Prereq Student must have completed grad program except for seminar, or PoD. Application of grad course work to instructional situations through discussion, projects and reports related to practice and/or research.

783 Seminar in Secondary School Teaching (3:3:0). Prereq Student must have completed grad program except for seminar, or PoD. Application of grad course work to instructional situations through discussion, projects and reports related to practice and/or research.

Counseling and Development Courses (EDGC)

500 See EDUC 500.

600 See EDUC 600.

604 Analysis of the Individual (3:3:0). Development of a framework for understanding the individual in counseling, incl methods of gathering and interpreting data; choosing, administering, and interpreting individual and group tests; the study of individual differences; use of case study technique.

606 Counseling Theory and Practice (4:3:2). Prereq EDUC 509 or 510 or equivalent. Study of theories, principles, and techniques of counseling and applications to counseling settings. Attention to supervised practice sessions. Includes lab.

608 Group Processes and Analyses (3:3:0). Prereq EDGC 606. Incl theories appropriate to various types of groups, and descriptions of group practices, methods, dynamics, and facilitative skills. Attention to application of theory to practice.

610 Career and Educational Counseling (4:3:2). Prereq EDGC 604 and 606. Study of vocational choice theory, sources of
occupational and educational information, approaches to career decision-making processes, and career development exploration techniques. Attention to application of theory to practice. Includes lab.

620 Philosophy and Principles of School Counseling (1:1:0). An introduction to school counseling programs at the elementary, middle, and secondary levels. Philosophy and basic principles necessary for effective school counseling programs.

624 Theories and Practices of Elementary School Counseling (2:2:0). School counseling programs at the elementary school level will be explored. Emphasis will be on appropriate counseling practices in the elementary school setting. Developmental needs of students five to ten years of age will be considered.

626 Theories and Practices of Middle School Counseling (2:2:0). School counseling programs at the middle school level will be explored. Emphasis will be on appropriate counseling practices in the middle school setting. Developmental needs of students 10 to 14 years of age will be considered.

628 (formerly EDGC 634) Theories and Practices of Secondary School Counseling (2:2:0). School counseling programs at the secondary school level will be explored. Emphasis will be on appropriate counseling practices in the secondary school setting. Developmental needs of students 14 to 18 years of age will be considered.

644 College Student Development (3:3:0). Introduces theory, nature and background of the student personnel profession in higher education. Structure, organization and administration of services and programs.

654 Counseling in the Community, Agency, and Business Settings (3:3:1). Emphasis on the types of services and facilities provided, needs, and problems of the client population served, role and function of the counselor in the agency setting, and personnel needs of the individual agency.

656 Diagnosis and Treatment Planning for Mental Health Professionals (3:3:0). Prereq EDGC 606. By using actual and hypothetical cases, the course helps the student develop written plans and simulate implementation for overall diagnosis and treatment of agency clients and their families.

658 Couples and Family Counseling (3:3:0). Prereq EDGC 606. Introduces major approaches to counseling couples and families. Case studies and simulations facilitate the transition from theory into practice.

666 Counseling and Development for Special Populations (3:3:0). Study of the nature, characteristics, and needs of special groups seeking counseling and development services. Analysis of content, techniques, and goals of programs developed to serve these groups.

668 Counseling and Development Programming (3:3:0). Needs assessment, planning, implementation of counseling and human development programs including the development of workshops, group and individual sessions. Attention will be given to consultation and collaboration with other professionals in efforts to facilitate human development and self direction.

754 Practicum in Counseling and Development (3 or 6:6:0). Prereq EDGC 606 Focus on basic counseling skills through simulated and actual counseling experiences. Students are req to volunteer in a counseling setting and spend time in class meeting for presentation, analysis, and practice of techniques.

790 Internship in Counseling and Development (6:0:0). A. Elementary; B. Middle; C. Secondary; D. Higher Education; E. Agency. Prereq Admission to and completion of the grad program except for internship, and PoA based on satisfactory academic stdg and satisfactory level of counseling skill. Supervised practice of counseling in a setting similar to that in which students plan to work. (Elementary, middle, and secondary school internships open to certified personnel only. All other students are placed in a setting related to their career goals.)

Reading Education Courses (EDRD)

500 See EDUC 500.

559 Teaching Developmental Reading in the Elementary School (3:3:0). Advanced course. Study of foundations of reading; principles, techniques and materials for developmental reading programs.

600 See EDUC 600.

611 Remedial Reading (3:3:0). Prereq EDRD 559 or 614. Incl nature and causes of reading difficulties, organization of remedial reading programs, use of remedial techniques, teacher aids and learning centers, psychological and health services, and innovative methods and materials.

613 Diagnostic and Evaluative Techniques in Reading (3:3:0). Prereq Admission to grad program in reading, EDRD 611 or 612, and PoA. Technical diagnosing of reading problems. Procedures in testing, scoring, and evaluating standardized and informal tests, individual and group tests, physical and psychological tests, and techniques of reporting test results.

614 Teaching Reading in the Secondary School (3:3:0). Emphasis on reading in content areas; reading problems; causes, diagnosis, remediation; skills and speed reading.

615 Teaching Reading in Multicultural/Multilingual Settings (3:3:0). Develops competencies in reading methods for students from multicultural or multilingual backgrounds. Emphasis on increasing the teacher's knowledge and understanding related to effective reading instruction. Particular emphasis on issues, methods, techniques, innovative designs for teaching, problem areas, linguistic differences, prereading skills, and the psychological development of the child.

616 Teaching Reading to Adults (3:3:0). Incl history of adult education, assessment techniques and reading methods and materials that meet the special needs of adult students.

617 Teaching Reading to the Gifted (3:3:0). Prereq EDRD 559 or 614. Study of higher levels of reading attainment: speed reading, critical reading, advanced study skills, intellectual needs of the gifted literature and materials for enrichment programs.

618 Organization and Administration of Reading Programs (3:3:0). Prereq EDRD 559 or 614, EDRD 611, EDRD 613 or PoA. Designed to examine the roles of administrative staff and resource personnel in reading programs. Emphasis will be placed on the roles of reading administrators (consultants, specialists or language arts supervisors), the organization and implementation of reading programs and services, a review and analysis of management techniques, and the development of skills necessary to implement reading programs.

790 Practicum in Reading (3-6:0:0). Prereq Admission to and completion of the grad program in reading except for practicum; or enrollment in the final semester of the program; and PoA. Supervised practice in the Educational Child/Youth Study Center, work with individuals and small groups using a variety of reading procedures. Participation in scheduled group sessions req.

794 Internship in Reading (3:3:0). Prereq Admission to and completion of grad program in reading except for practicum; or enrollment in the final semester of the program; and PoA. Supervised teaching and participation as a reading specialist in a public school system. Participation in scheduled group sessions req.

Special Education Courses (EDSE)

500 See EDUC 500.

(EDSE 541, formerly required as a prerequisite for admission to the Special Education Program, has been replaced by EDUC 523 or its equivalent.)
544 Vocational and Continuing Educational Aspects of the Academically Handicapped (1:1:0). Primarily a lecture course designed to explore factors for developing vocational independence in individuals with disabilities and/or limited English proficiency.

550 Precision Teaching: Individual Instructional Procedures (2:2:0) or (3:3:0). Focus on identifying, recording, changing, and evaluating social and academic behaviors. Development of individual education programs emphasized. Field experiences required.

552 Language Development and Disorders (3:3:0). Reviews major theories of language development, stages of normal language development, overview of language disorders associated with various handicapping conditions, techniques of language assessment, strategies of language intervention.

553 Teaching Remedial Mathematics (2:2:0) or (3:3:0). Study of techniques for assessing and remediating difficulties in mathematics.

554 Adaptive Methods in Education (2:2:0). Prereq EDUC 523. Students apply theory to practice as they adapt different levels of general education course content to accommodate various learning needs. Emphasis is placed on adaptation of materials, intervention methods and the development of an ongoing system for evaluation of student progress.

600 See EDUC 600.


622 Augmentative Communication (2:2:0). Prereq grad stdg, EDSE 552 (can be coreq) and PoA. Focus on alternative language and communication techniques for children with severe language and speech impairments.

643 Emotional and Behavioral Disorders of Children (3:3:0). Prereq EDUC 523 or PoA. In-depth study of characteristics of individuals experiencing emotional and/or psychological disturbance. Implications for educational intervention. Field experiences req.

645 Characteristics of Children with Learning Disabilities (3:3:0). Prereq EDUC 523 or PoA. In-depth study of characteristics of individuals experiencing receptive, integrative, and/or expressive learning disabilities. Implications for educational intervention. Field experiences req.

647 Medical and Health Aspects of Handicapping Conditions (3:3:0). Prereq EDUC 523 or PoA. Nature and causes of disabling and/or special health conditions. Examine screening and evaluation techniques, treatment goals and intervention procedures. Field experience req.

649 Introduction to Psychoeducational Assessment (2:2:0) or (3:3:0). Explores the concepts, purposes, terminology, and practices basic to standardized testing of handicapped children and youth. Emphasis is placed on individual screening and diagnostic instruments for assessing learning and behavior problems. Practice in administering, scoring, and interpreting tests is required.

649 Clinical Psychoeducational Assessment in Special Education (3:3:0). Section A: ED/LD Mildly and Moderately Handicapped. Section B: ECH/SP Severely/Profoundly Handicapped and Early Childhood Handicapped. Section C: BMSE Bilingual/Multicultural Special Education. Prereq Section A and C, EDSE 648, EDSE 552, EDSE 643 or 645 and EDSE 654 or 657. Section B: EDSE 648, EDSE 552, EDSE 647, EDSE 669 and EDSE 659 or 661. Administration, scoring and interpretation of education evaluation instruments with emphasis on the generated educational plan and written report. Supervised experiences req.


658 Curriculum and Methods—Early Childhood (3:3:0). Prereq PoA. Emphasis on planning, organizing, implementing and evaluating programs for handicapped children ages two to eight.

661 Curriculum and Methods—Severely Profoundly Handicapped (3:3:0). Prereq PoA. Formulation, implementation and evaluation of individualized educational programs for severely/profoundly handicapped individuals.

665 Family Intervention Programs for Handicapped Children (3:3:0). This course focuses on strategies for developing and strengthening bonds between school and family for the benefit of the handicapped child. Home training approaches, programs, and materials are explored. Due process rights, legal roles of parents, and legislation governing substance and child abuse are emphasized.

668 Vocational and Leisure Education for Severely Handicapped (2:2:0). Prereq grad std. Focus on methods and techniques for vocational and leisure training of severely handicapped individuals in school and non-school settings.

669 Transdisciplinary Approach to Rehabilitation (2:2:0). Prereq grad stdg and PoA. Students are introduced to adaptive equipment and special techniques used by medical disciplines to enhance independence in the physically/multisensory handicapped population. Incorporation of therapeutic modalities into other settings is explored via the educational/medical team approach.

670 Introduction to Gifted and Talented Education (3:3:0). Examination of personal values, academic strengths and leadership qualities of gifted and talented. Identification techniques, articulation of personal philosophy, and rationale for gifted and talented education are studied.

671 a. Special Topics in the Education of Exceptional Children: Counseling the Gifted (1:1:0). Intro to theory, principles, practices and trends of guidance related to gifted and talented education.

671 b. Special Topics in the Education of Exceptional Children: Identification and Evaluation in Gifted Education (1:1:0). Interpretation of formal and informal measuring devices used to identify gifted and talented students and study of screening models adapted to individual program needs.


671 d. Special Topics in the Education of Exceptional Children: Creative Methods of Solving Problems (1:1:0). Systematic creative methods of problem solving processes will be learned cognitively and experientially.

672 Models and Methods of Teaching in Gifted and Talented Education (3:3:0). Study of theory and practice of gifted and talented education in elementary and secondary education. One-half course time will be an internship in which theoretical principles are applied to classroom settings. Theories studied incl models for teaching, methods, individualization, group procedures and aspects of creativity.

673 Curriculum Design and Research in Gifted and Talented Education (3:3:0). Prereq EDSE 790 and/or Po special education program committee. Topics incl innovative research studies, methods of research, program design, evaluation, thought processes, creative studies. Each student designs, implements and
presents a project designed to contribute to the improvement of gifted and talented education. Req seminars scheduled throughout year.

782 Comprehensive Topics in Special Education: Trends and Issues (2:2:0). Prereq PoA and Po Special Education Committee. Designed to synthesize course work, theory, and practical application. Focus on current trends and issues in special education. Students must pass this course to grad. May be repeated twice. Offered only in fall and spring.

790 Internship in Special Education (1–6:0:0). Prereq Po the Special Education Committee. Students are req to enroll in an on-campus internship prior to field placement. In addition, students complete field internships in two separate settings. Applications for field internship are due as follows: Fall—April 15, Spring—September 15, Summer—February 15.

Supervised internships include the design and implementation of educational programming for handicapped youngsters in a public school, approved private school, hospital, institution or clinic.

English

Faculty

Adamson, Douglas, Ph.D., Georgetown University, 1980; Assistant Professor

Albanese, Denise, Ph.D., Stanford University, 1986; Assistant Professor

Bausch, Richard C., M.F.A., University of Iowa, 1975; Associate Professor

Baxter, Ralph, Ph.D., Wayne State University, 1964; Professor

Bergmann, Johannes D., Ph.D., University of Connecticut, 1969; Associate Professor

Brown, Lorraine A., Ph.D., University of Maryland, 1968; Professor

Brown, Stephen J., Ph.D., Yale University, 1959; Professor

Brunette, Peter C., Ph.D., University of Wisconsin, 1975; Associate Professor

Cohn, Jan K., Ph.D., University of Michigan, 1964; Professor

Comito, Terry A., Ph.D., Harvard University, 1968; Professor

D'Andrea, Paul, Ph.D., Harvard University, 1966; Robinson Professor

Foreman, Joel E., Ph.D., The George Washington University, 1975; Associate Professor

Foster, John B., Ph.D., Yale University, 1974; Associate Professor

Gallehr, Donald R., Ph.D., The Catholic University of America, 1974; Associate Professor

Garson, Helen S., Ph.D., University of Maryland, 1967; Professor

Goodwin, Stephen H., M.A., University of Virginia, 1969; Associate Professor

Gras, Vernon W., Ph.D., University of Chicago, 1967; Professor

Grossberg, Frederick A., Ph.D., Harvard University, 1975; Associate Professor

Hammond, Jeffrey A., Ph.D., Kent State University, 1979; Associate Professor
Hodges, Devon L., Ph.D., State University of New York at Buffalo, 1979; Associate Professor

Holisky, Dee A., Ph.D., University of Chicago, 1980; Assistant Professor

Horwitz, Howard, Ph.D., University of California, Berkeley, 1984; Assistant Professor

Irvine, Lorna M., Ph.D., The American University, 1977; Associate Professor

Jann, Rosemary, Ph.D., Northwestern University, 1975; Associate Professor

Kaplan, Deborah, Ph.D., Brandeis University, 1979; Associate Professor

Karlson, Robert Emil, Ph.D., The George Washington University, 1970; Associate Professor

Keaney, Winifred G., Ph.D., University of Maryland, 1975; Associate Professor

Kelley, Michael R., Ph.D., The Catholic University of America, 1970; Professor

Klappert, Peter, M.F.A., University of Iowa, 1968; Associate Professor

Kuebrich, David L., Ph.D., University of Chicago, 1973; Associate Professor

Lathbury, Roger D., A.M., Indiana University, 1968; Associate Professor

Melosh, Barbara, Ph.D., Brown University, 1979; Associate Professor

Molin, S. Eric, Ph.D., University of Pennsylvania, 1956; Professor

Nadeau, Robert L., Ph.D., University of Florida, 1970; Associate Professor

Nelson, Marie W., Ed.D., University of Georgia, 1981; Assistant Professor

O'Connor, John S., Ph.D., University of Virginia, 1974; Associate Professor

Owens, Collin D., Ph.D., Kent State University, 1975; Associate Professor

Palmieri, Anthony F., Ph.D., University of Maryland, 1974; Associate Professor

Radner, John B., Ph.D., Harvard University, 1966; Associate Professor

Rutledge, Amelia A., Ph.D., Yale University, 1974; Associate Professor

Shreve, Susan R., M.A. University of Virginia, 1969; Professor

Story, Patrick L., Ph.D., Northwestern University, 1968; Associate Professor

Sypher, Eileen B., Ph.D., University of Connecticut, 1976; Associate Professor

Thaiss, Christopher J., Ph.D., Northwestern University, 1975; Associate Professor

Tsukui, Nobuko, Ph.D., University of Nebraska, 1967; Associate Professor

Williams, C. K., B.A., University of Pennsylvania, 1959; Professor

Yocom, Margaret, Ph.D., University of Massachusetts, 1980; Associate Professor

The Department of English offers graduate study designed to provide professional training in the study and practice of writing and literature to students with widely differing aims. The M.A. in English (30 semester hours) provides concentrations in the following areas: (1) Literature, (2) Professional writing and editing, (3) The writing of fiction and poetry, and (4) The teaching of writing and literature. The department also offers a terminal degree, the M.F.A. in creative writing (48 semester hours). In addition, the department offers an M.A. with a concentration in linguistics, a certificate in the teaching of English as a second language (TESL, 15 semester hours) and courses as part of the Doctor of Arts in Education degree.

English, M.A.

Admission Requirements

In addition to fulfilling Graduate School admission requirements, applicants must submit one copy of a 1,000-word writing sample and two letters of recommendation. The writing sample may be a paper written for an undergraduate class or any other material that gives evidence of writing skills. In addition to the writing sample requirement, applicants for the Concentration in Professional Writing and Editing must submit a statement of purpose (no more than 750 words) and two copies of a 10- to 15-page portfolio of their nonfiction work (a technical or business report, an essay, a term paper, an editing project, or any other material reflecting the student’s interests and skills in nonfiction writing). Applicants for the Concentration in the Writing of Fiction or Poetry must submit, in addition to the 1,000-word writing sample, two copies of a portfolio consisting of up to 10 pages of poetry or 20 pages of fiction. Applicants may submit scores on the GRE when they believe those scores will lead to a clearer presentation of their qualifications. Those with undergraduate majors in disciplines other than English are encouraged to apply, but may be required to make up deficiencies before entering the program.

Degree Requirements

Students must successfully complete 30 semester hours of credit in graduate English courses. With the approval of the department, up to six hours of graduate credit in courses in related disciplines may be substituted for six hours in English.

General Requirements for all Concentrations

1. ENGL 701 (normally in the first semester of study).

2. Nine hours in literature courses, including at least three hours of Master’s Seminar (either ENGL 790,
Topics in Literary History, or ENGL 791, Themes, Modes and Genres). For the Concentration in the Teaching of Writing and Literature only, ENGL 610 may be used to fulfill three hours of the literature requirement.

Students who have not completed 12 hours of undergraduate credit (or its equivalent) in a foreign language must either do so or demonstrate equivalent proficiency by passing a translation test administered by the English department.

Concentration Requirements (one Concentration must be completed)

1. Concentration in Literature.
   a. General requirements (above).
   b. Three hours in critical theory at the 600-700 level.
   c. Three hours of Master's Seminar in addition to those used to satisfy the general requirements.

Students in this concentration should complete both ENGL 790 (Topics in Literary History) and ENGL 791 (Themes, Modes, and Genres).

d. Nine hours in a core program organized by period, genre, theme, or some other principle approved by the student's adviser and the Director of Graduate Studies in English. These hours will customarily be in addition to those used to satisfy the general requirements. In two courses of the core program, the candidate must write an M.A. paper, a substantial paper on a topic agreed upon with the course instructor at the beginning of the semester. The M.A. papers must receive a grade of B or better, and will be filed with the Department of English.

e. Three hours of electives.

f. Optional: six hours of thesis may be substituted for the core program.

2. Concentration in Professional Writing and Editing.
   a. General requirements (above).
   b. Three hours in nonfiction writing.
   c. Nine hours in professional courses: e.g., editing, technical writing, scientific writing, internship in writing or editing, or Northern Virginia Writing Project.
   d. Three hours of electives in writing or literature.
   e. Three hours of thesis.

3. Concentration in the Writing of Fiction or Poetry.
   a. General requirements (above).
   b. Three hours in Form of Fiction or Form of Poetry.
   c. Six hours of workshop in this genre.
   d. Three hours of thesis in this genre.
   e. Six hours of electives in writing or literature.

4. Concentration in the Teaching of Writing and Literature.
   a. General requirements
   b. Six hours in writing courses.
   c. Three hours in linguistics.
   d. Three hours in the teaching of writing and three hours in the teaching of literature.
   e. Three to six hours of electives from literature or writing; alternatively, a thesis may be arranged through the student's adviser and the Director of Graduate Studies in English.

English: Linguistics, M.A.

The M.A. degree in English: Linguistics is an interdisciplinary program that combines courses in linguistics with courses in some related area of language study such as teaching English as a second language, bilingual education, or foreign language teaching. The course of study is designed to prepare students for teaching in one of these fields or for doctoral work. The Certificate in Teaching English as a Second Language can be earned concurrently.

Admission Requirements

The admission requirements are the same as those for the other concentrations in the Master of Arts in English. Students with undergraduate majors in any field are encouraged to apply. There are no specific prerequisites.

Degree Requirements

Students must successfully complete 30 semester hours of graduate credit distributed as follows:

1. Fifteen hours in the following core courses: ENGL 520, 690, 691, 785, 786. Candidates in the TESL program may substitute ENGL 522 for ENGL 786.

2. Fifteen hours of graduate electives, chosen in consultation with an adviser, which reflect one or more areas of language study. The electives can be in such areas as literary criticism, bilingual education, or a foreign language, and may include six hours of thesis.

Students who have not already completed 12 hours of undergraduate credit (or its equivalent) in a foreign language must either do so or demonstrate equivalent proficiency by passing a translation test administered by the English department.

See section on "Certificates, Programs, and Additional Graduate Courses" for additional information on the TESL program.

Creative Writing, M.F.A.

Admission Requirements

In addition to fulfilling Graduate School admission requirements, applicants must submit two letters of recommendation, one copy of a 1,000-word nonfiction writing sample, and two copies of a portfolio of fiction and/or poetry. The nonfiction writing sample may be a paper written for an undergraduate class or any other work that gives evidence of basic writing skills. The additional portfolio should contain up to 20 pages of poetry or 50 pages of fiction.

Degree Requirements

Students must successfully complete 48 semester hours of graduate credit, including:

1. Three hours in ENGL 701

2. Twelve hours in literature, including at least three hours of Master's Seminar (ENGL 790, Topics in Literary History, or ENGL 791, Themes, Modes, and Genres)

3. Twelve to 18 hours of writing seminars in one genre, including either Form of Poetry or Form of
Fiction and at least 3 hours of Advanced Workshop (ENGL 750 or 751)

4. Three to nine hours in other genres

5. Three to six hours in nonliterary art

6. One to three hours in internship (optional)

7. Six hours in thesis. Students must give a public reading of their work at the end of the semester in which their thesis is approved.

Up to nine hours of electives may be chosen in consultation with the writing program staff.

Students must pass an M.F.A. exam based on the authors they have chosen. The authors are to be selected in collaboration with the Writing Faculty any time after the completion of 12 hours of course work and before the completion of 32 hours. The exam is to be completed at least one semester before submitting thesis.

Students who have not completed 12 hours of undergraduate credit (or its equivalent) in a foreign language must either do so or demonstrate equivalent proficiency by passing a translation test administered by the English department.

Basic Discipline in English as Part of Doctor of Arts in Education

Admission Requirements

In addition to material requested by the Graduate School and the Department of Education, applicants planning a Basic Discipline in English must present:

1. Scores from the aptitude section of the GRE

2. A writing sample of approximately 1,000 words

3. A letter of recommendation from a person with specific knowledge of the applicant’s work in English.

While a B.A. or an M.A. in English is desirable, an applicant must have earned the following minimum requirements:

1. Fifteen hours of graduate or upper-division undergraduate work in English or American literature

2. Three hours in graduate or upper-division undergraduate work in Linguistics or History of the Language

3. Three hours of graduate work in Bibliography and Research and three hours of graduate work in Critical Theory.

Applicants with a particular interest in a concentration in writing are also required to present evidence of advanced work in the field. Especially qualified students who lack certain requirements listed above may be admitted and allowed to enroll in the appropriate English courses on the graduate level. These courses will not be counted toward the Doctor of Arts in Education.

Degree Requirements

1. A minimum of six hours of ENGL 800, studying material relevant to the student’s individual goals.

2. Three hours of independent research, directed by the student’s D.A.Ed. adviser.

3. A substantial research paper (three hours), to be written under the direction of the D.A.Ed. adviser and at some stage shared and discussed with other students in the D.A.Ed. program.

Nondegree Status

Persons who are not yet certain about their plans for graduate study may apply for Nondegree Status. Only an undergraduate transcript is required for this application.

English Courses (ENGL)

503 Theory and Practice of Editing (3:3:0). Prereq 6 hr of English courses numbered above 300, incl one advanced writing course—309, 310, 397, 398, 458, 464, 489, 497 or PoD. Instruction in revising, editing, and preparing specialized writing for printing. Emphasis on methods of achieving clarity, accuracy, and completeness. Lecture and discussion on editing and printing techniques, practical exercise in revision, layout, and production.

504 Internship in Writing and Editing (3:3:0). Prereq Open to senior English majors and grad students pursuing the M.A. in English or the M.F.A. Contact the English Department one sem prior to enrollment. Internships are approved work-study positions in writing or editing established by the English Department with specific employers. Variable cr. Variable prereqs.

507 (EDCI 507) Internship in Applied Linguistics (3:0:0). Prereq ENGL 521 or EDCI 519. Contact the English Department one sem prior to enrollment. Internships provide experience working in a language teaching program or an educational research organization.

511 Styles and Modes in Literary History (3:3:0). An historical consideration (not a survey) of some of the principal styles, in prose and poetry, of English and American literature.

512 (PHIL 530) Issues in Literature and Philosophy (4:3:1). Prereq grad or senior stdg. 6 hours of upper-level English, 6 hours of philosophy and Pol. An interdisciplinary seminar that offers students an opportunity to arrive at a personal synthesis of work previously done in philosophy and literature. The topic will change yearly but will focus on themes or methodologies common to both disciplines.

513 Advanced Special Topics in English (3:3:0). Prereq 15 hours of advanced undergraduate English courses and PoD or possession of the baccalaureate degree. An intensive study of selected topics in English and American literature. May be repeated for cr with PoD.

514 (CL 500) Theories of Comparative Literature (3:3:0). Prereq CL 300 and senior standing, or baccalaureate degree, or Pol. An intensive study of the major theories of comparative literature with special emphasis on international movements and their characteristic themes. Students will work with texts in the foreign language of their competence; other texts will be studied in translation.

520 (620) Descriptive Linguistics (3:3:0). An intro to the terminology and methodology of modern linguistic science and a detailed structural analysis of English phonology, morphology, and syntax. This course may not be taken by anyone who has previously taken and satisfactorily completed ENGL 620.
521 (621) Applied Linguistics: Teaching English as Foreign Language (3:3:0). Prereq An introductory linguistics course (which may be taken concurrently). Theories and basic principles of the acquisition of a second language, especially as they relate to the English language, supplying students with methods of teaching English to speakers of other languages. The course may not be taken by anyone who has previously taken and satisfactorily completed ENGL 621.

522 Modern English Grammar (3:3:0). Prereq A or B in ENGL 391, 485, 520, or equiv. Overview of the structure of modern English beginning with word classes and ending with transformational analyses of complex sentences. Most topics are introduced as problems of language description; in solving them, principles of syntactic argumentation are demonstrated as well. Students learn to tap their own intuitions about English in order to analyze grammatical structure.

551 Literary Criticism (3:3:0). Studies of major critical theories and techniques with emphasis on the twentieth century.

556 (555) Literary Style (3:3:0). Theory and practical analysis of English literary style. Several methodologies, incl impressionistic, rhetorical, and linguistic, are examined and applied to the language of various literary texts, incl essays, poems, and novels.

557 Old English (3:3:0). Study of Old English language, incl its phonology, morphology, syntax and lexicon, aimed at preparing students to read Anglo-Saxon literature in its original form. For specific guidelines, consult the department's Course Description Booklet, the instructor, or the department secretaries.

564 Form of Poetry (3:3:0). Prereq ENGL 464 or equiv and Pol. Students must submit a typed manuscript of original poetry at least one week before they intend to register. For specific guidelines, consult the department's Course Description Booklet, the instructor, or the department secretaries. Intensive study of and practice in the formal elements of poetry through the analysis of models and weekly biweekly writing assignments. Intended for students already writing original poetry. Students study rhyme, meter, rhythm and other musical elements of poetry, lineation, stanza pattern, traditional and experimental forms, free verse and open-form composition, lyric, narrative, and dramatic modes.

566 (565) Form of Fiction (3:3:0). Prereq ENGL 465 or equiv and Pol. Students must submit a typed manuscript of original fiction at least one week before they intend to register. For specific guidelines, consult the department's Course Description Booklet, the instructor, or the department secretaries. Intensive study of and practice in the formal elements of fiction, through the analysis of models and weekly biweekly writing assignments. Intended for students already writing original fiction. Students study description, narration, plot, dialogue, voice, point of view, style, epiphany, and antifiction techniques.

581/PSYC 581 Psycholinguistics (3:3:0). Prereq An introductory linguistics or psychology course Pol. Study of mental and psychological aspects of human language, incl aphasia, association, autism, language acquisition, verbal concept formation, and perception.

582 (580) Applied Linguistics (3:3:0). Prereq A or B in ENGL 391, 485, 520, or equiv. Study of the scientific, scientific and various aspects to the teaching of English language. Attention is given to linguistic foundations of teaching English as a second language, findings of linguistics with regard to composition instruction, and ways in which linguistics can support the teaching of literature and literary style.

592 (392) History of the English Language (3:3:0). Intro to the history and development of the English Language, incl study of Indo-European language family and various stages of the English language from Old and Middle English to Early and Recent Modern English and American English; emphasis on historical principles and theory of language change as it affects phonology, morphology, syntax, and semantics.

610 Proseminar in Teaching the Reading of Literature (3:3:0). Methods of teaching literature. Incl study of methods of literary analysis and ways of developing student responses to literature, with some classroom practice. (Does not satisfy VA certification req in diagnostic or developmental reading.)

613 Technical and Scientific Writing (3:3:0). Prereq ENGL 616 or PoD. Intensive study of theory and practice of technical and scientific writing, with emphasis on writing for a variety of audiences. Focus on writing and evaluating formal reports, articles for lay as well as technical audiences, proposals, theses, manuals, and other forms of technical prose.

614 Internship in the Teaching of Writing (1:0:0). Prereq open to graduate students currently enrolled in ENGL 615-A. Subject to approval of the CTC Director or the Writing Place Director. Qualified students will serve as tutors for three hours a week in the University's Composition Tutorial Center under the guidance of the CTC Director or in the English Department Writing Place under the guidance of the Writing Place Director. A journal on the experience will be kept and a paper submitted at the end of the semester synthesizing what they have learned and describing their progress as teachers. Not repeatable for credit.

615 Proseminar in Composition Instruction (3:3:0). Methods of teaching expository writing. Incl consideration of planning of courses, practice in teaching and evaluating grading papers, and study of lab method of instruction.

616 The Writing of Nonfiction (3:3:0). Prereq Pol. Students must submit a typed manuscript at least one week before they intend to register. For specific guidelines, consult the department's Course Description Booklet, the instructor, or the department secretaries. Writing of original essays, biographies, documentaries, reports, and other forms of nonfiction.

617 Poetry Writing Workshop (3:3:0). Prereq ENGL 564 or equiv and Pol. Students must submit a typed manuscript at least one week prior to registration. For specific guidelines, consult the department's Course Description Booklet, the instructor or the department secretaries. Intensive practice in the craft of poetry and study of the creative process. Intended for students already familiar with traditional and contemporary poetic modes and already writing original poetry. At the discretion of the instructor, reading may be req. May be repeated for cr with PoD.

618 Fiction Writing Workshop (3:3:0). Prereq ENGL 566 (565) or equiv and Pol. Students must submit a typed manuscript at least one week prior to registration. For specific guidelines, consult the department's Course Description Booklet, the instructor or the department secretaries. Intensive practice in the craft of fiction and study of the creative process. Intended for students already familiar with traditional and contemporary fiction and already writing original fiction. At the discretion of the instructor, reading may be req. May be repeated for cr with PoD.

619 Special Topics in Writing (3:3:0). Prereq two grad writing courses and/or Pol. Students must submit a typed manuscript at least one week prior to registration. For specific guidelines, consult the department's Course Description Booklet, the instructor or the department secretaries. A workshop course; intensive—practice in creative writing and study of the creative process. Concentrates on a specialized literary type other than the short story or poetry (i.e., the essay, playwriting, filmwriting, children's literature, travel literature, autobiography, the gothic novel, translation) and the concentration will be announced in the Department's Course Description Booklet. Intended for students already writing original creative work. May be repeated for cr with PoD.

due to region, social class and sex. This course is intended primarily for nonlinguistics majors; it cannot be taken for credit by students who have taken both ENGL 520 (620) and ENGL 522.

625 Studies in English Medieval Literature (3:3:0). Selected literary authors, works or movements, generally excluding Chaucer, from between 1300 and 1500, studied in Middle English. Content varies. May be repeated for cr with PoD.

630 Studies in English Renaissance Literature (3:3:0). Selected literary authors, works, or movements, generally excluding Shakespeare and Milton, of the English Renaissance. Content varies. Recent offerings include: Women in Shakespeare; The Golden Age and Earthly Paradise; and The Pastoral Tradition. May be repeated for cr with the PoD.

631 (765) Seminar in Shakespeare (3:3:0). Intensive study of the achievement of Shakespeare and major critical approaches to his work. Usually Comedies and Histories taught one year, Tragedies and Romances the next. May be repeated for cr with PoD.

635 Studies in Eighteenth-Century English Literature (3:3:0). Selected English literary authors, works or movements of the eighteenth century. Content varies. Recent offerings include: Johnson and his Circle; Sympathy, Selfishness, and Self-Realization; and Sexual Motifs in Eighteenth-Century Poetry, Prose, and Drama. May be repeated for cr with the PoD.

640 Studies in Nineteenth-Century English Literature (3:3:0). Selected English literary authors, works or movements of the nineteenth century. Content varies. Recent offerings include: Romantic Visionary Poets; Youth and Identity; and Jane Austen, Charlotte Bronte, George Eliot. May be repeated for cr with the PoD.

645 Studies in Twentieth-Century English Literature (3:3:0). Selected English literary authors, works or movements of the twentieth century. Content varies. Recent offerings include: developments since WW II; Contemporary British Drama; British Novel to WW II. May be repeated for cr with the PoD.

650 Studies in Seventeenth- and Eighteenth-Century American Literature (3:3:0). Selected literary authors, works, or movements of colonial and early federalist America. Content varies. May be repeated for cr with the PoD.

655 Studies in Nineteenth-Century American Literature (3:3:0). Selected American literary authors, works or movements of the nineteenth century. Content varies. Recent offerings include: The American Renaissance and The Novel and American Society. May be repeated for cr with the PoD.

660 Studies in Twentieth-Century American Literature (3:3:0). Selected American literary authors, works, or movements of the twentieth century. Content varies. Recent offerings include: The Federal Theatre Project; Gothicism in Southern Literature; Physics and Metaphysics in the Modern Novel; and The Wasteland Theme. May be repeated for cr with PoD.

666 (770) Seminar in Major Figures of English Literature before 1800 (3:3:0). Intensive study of the work of one or two major figures of English literature before 1800. Content varies. Recent offerings include: Chaucer; Milton; Blake; Fielding and Sterne. May be repeated for cr with PoD.

667 (775) Seminar in Major Figures of English Literature after 1800 (3:3:0). Intensive study of the work of one or two major figures of English literature after 1800. Content varies. Recent offerings include: Yeats; V. Woolf; Dickens and Gissing; Joyce; Elizabeth Gaskell and C. Bronte. May be repeated for cr with PoD.

668 (780) Seminar in Major Figures of American Literature (3:3:0). Intensive study of the work of one or two major figures of American literature. Content varies. Recent offerings include: Stevens; Hemingway; Eliot and Pound; Melville; Whitman; Bellow and Singer. May be repeated for cr with PoD.

670 Film History and Theory (3:3:0). Prereq Intro film course or Pol. Advanced study of the history of film art and major theories concerning the nature of film. Specific topic varies. May be repeated for cr with PoD.

675 Feminist Criticism and Theory (3:3:0). Seminar designed for students who desire an intro to criticism and theory which studies the role of gender in literature and in the practice of interpretation.

685 Selected Topics, Movements or Genres of Literature in English (3:3:0). Content varies. May be repeated for cr with PoD.

690 (531) Generative Phonology (3:3:0). Prereq A or B in ENGL 391, 520 or Pol. Sound systems of English and other languages from the perspective of generative phonology. Topics include: phonetic basis of phonology, distinctive features and phonological notation, natural processes, and rule ordering.

691 (535) Theories of Language (3:3:0). Prereq A or B in ENGL 391, 485, 520 or Pol. Study of the history and development of the science of linguistics. Important theories of language are surveyed incl those of Saussure, Bloomfield, Chomsky, and others.

695/EDUC 695 Northern Virginia Writing Project Inservice Program (1,2,3:0-0). Prereq Admission to the grad prog or PoD. Offered at the request of a school division or other education agency. Content varies. May be repeated for cr with PoD, but no more than six sem hr of cr in ENGL 695/EDUC 695 and/or ENGL 699 may be applied toward a master's degree in English.

696/EDUC 696 Northern Virginia Writing Project Teacher/Research Seminar (3:0:0). Prereq ENGL 695/EDUC 695 or NVWP Summer Institute. Designed to acquaint classroom teachers with current findings related to the composing process and methods of studying writing in a school setting. Focus on development of a proposal investigating some aspect of the composing process. Teachers who have developed a proposal prior to enrolling will conduct the research during the course.

697/EDUC 697 Northern Virginia Writing Project Theory of Composition (3:3:0). Prereq ENGL/EDUC 695 or NVWP Summer Institute. Designed to acquaint classroom teachers with current theory relating to writing and the teaching of composition. Focus is on making explicit the theories of the participants, on reading the works of leading theorists, and on developing a statement describing the implications of theoretical consistency in the teaching of writing.

699 Workshop in English (1-3:0:0). Prereq Admission to the grad prog or PoD. Concentrated workshops, educational tours, and special seminars dealing with selected topics in writing, linguistics, film, the electronic media, and literature written in English. All tours are optional and may be replaced by specified work conducted on campus. May be repeated for cr with PoD, but no more than six sem hr of cr in ENGL 699 may be applied toward a master's degree in English.

701 Literary Scholarship (3:3:0). Methods and purposes of literary research, incl study of library methodology, use of critical bibliographies, techniques of textual criticism, and evaluation of various approaches to literary history.

705 Literary Theory and Criticism (3:3:0). Major theories of literature and methods of analyzing and evaluating literary works. Content varies. Recent offerings include: Recent Trends in Critical Theory. May be repeated for cr with PoD.

750 Advanced Workshop in Poetry Writing (3:3:0). Prereq ENGL 564 and ENGL 617 and Pol. Students must submit a typed manuscript at least one week prior to registration. For specific guidelines, consult the department's Course Description Booklet, the instructor, or the department secretaries. Intensive practice in the craft of poetry for experienced writers. May be repeated for cr with PoD.

751 Advanced Workshop in Fiction Writing (3:3:0). Prereq ENGL 566 and ENGL 618 and Pol. Students must submit a typed manuscript at least one week prior to registration. For specific guidelines, consult the department's Course Description Booklet, the instructor, or the department secretaries. Intensive practice in the craft of fiction for experienced writers. May be repeated for cr with PoD.
785 (623) Semantics and Pragmatics (3:3:0). Prereq A or B in ENGL 522 or Pol. Developments in theoretical linguistics which explore how language form is related to meaning and to context. Topics include reference, lexical semantics, logic for linguists, truth conditions and sentential meaning, presuppositions, and speech acts.

786 (624) Syntax (3:3:0). Prereq ENGL 520 (620), 491 (391), or Pol. The study of transformational grammar. This course is intended to acquaint students with a broad range of syntactic phenomena (mainly from English) and with the style of argumentation and the notation system used in contemporary syntactic analysis.

790 Master’s Seminar: Topics in Literary History (3:3:0). Prereq 9 hours of graduate English courses including 701 or PoD. Historical approaches to an understanding of literature and its relation to other elements of culture. Specific topics vary from term to term. May be represented for cr with PoD.

791 Master’s Seminar: Themes, Modes and Genres (3:3:0). Prereq 9 hours of graduate English courses including 701 or PoD. Nonhistorical approaches to an understanding of literature and its relation to other elements of culture. Specific topics vary from term to term. May be repeated for cr with PoD.

798 Directed Reading and Research (3:0:0). Prereq Open only to degree students who have completed 15 hr incl ENGL 701 and have prereq. Reading and research on a specific project under the direction of a department member. Oral or written report req. May be repeated for cr with PoD.

799 Thesis (3–6:0:0). Students who take ENGL 798 in order to develop a thesis topic and then elect the thesis option receive three cr for ENGL 799 upon completion of the thesis. Students who do not take ENGL 798, or who take it in order to work on a project unrelated to their thesis, receive up to six cr for ENGL 799 upon completion of the thesis.

800 Studies for the Doctor of Arts in Education (var cr). Prereq D.A.Ed. admission to study in English. Program of studies designed by student’s discipline director and approved by student’s doctoral committee which prepares the student to do research and writing in the current area of interest of the discipline director. The student presents a research paper in a subsequent D.A.Ed. summer seminar. May be repeated as req.

Foreign Languages and Literatures

Faculty

Aguera, Victorio G., Ph.D., The Catholic University of America, 1971; Professor

Berroa, Rei, Ph.D., University of Pittsburgh, 1983; Assistant Professor

Bufill, Jose A., Ph.D., George Washington University, 1986; Assistant Professor

Chamberlain, Jeffrey T., Ph.D., University of Illinois, 1982; Assistant Professor

Cordero, Anne D., Ph.D., The George Washington University, 1968; Associate Professor

Elsun, Esther N., Ph.D., Rice University, 1969; Professor

Francescato, Martha P., Ph.D., University of Illinois, 1970; Professor

Goldin, Mark G., Ph.D., Georgetown University, 1968; Associate Professor

Hazera, Lydia D., Ph.D., The George Washington University, 1971; Associate Professor

LePage, Raymond G., Ph.D., The George Washington University, 1972; Associate Professor

Lewis, Paula G., Ph.D., Columbia University, 1973; Professor

Marquez, Roberto, Ph.D., Harvard University, 1975; Professor

Meyer, Henry P., Ph.D., University of Maryland, 1970; Associate Professor

Ricouart, Janine, Ph.D., University of California at Davis, 1986; Assistant Professor

Wagner, Irmgard, Ph.D., Harvard University, 1970; Associate Professor

Wekerle, Inge B., Ph.D., The George Washington University, 1975; Assistant Professor

Willis, William S., Doctorat de l’Universite, University of Paris, 1951; Professor

Foreign Languages and Literatures, M.A.

The Master of Arts in Foreign Languages is designed to meet the needs and interests of prospective and
practicing teachers and other professionals, and to prepare students for doctoral study in foreign languages at other institutions. The program offers the possibility of concentrating in French, German, or Spanish, or in two of those languages. A third concentration is also available in Spanish/Bilingual-Multicultural Education.

**Admission Requirements**

In addition to satisfying the general admission requirements of the Graduate School, applicants seeking degree status must hold a baccalaureate degree with a major in French, German, or Spanish; have at least a 3.0 grade point average (on a 4.0 scale) in the major; and submit two letters of recommendation from persons familiar with their qualifications.

Applicants whose baccalaureate degrees were earned in other fields or who otherwise do not meet the above requirements, but who provide evidence of a capacity to pursue graduate study, are encouraged to apply and may be admitted to the program with provisional status. Applicants in this category may be asked to appear for a personal interview and to take the appropriate part(s) of the Graduate Record Examination. They may also have undergraduate deficiencies to make up before being advanced to degree status.

**Degree Requirements**

Candidates who elect a concentration in one language must complete a program of 30 semester hours of study. Those who concentrate in two languages must complete a program of 42 semester hours. The concentration in Spanish/Bilingual-Multicultural Education requires 36 semester hours. In all three concentrations, 6 of the total hours may be earned with a thesis. Regardless of the concentration selected, all students must meet the core and distribution requirements given below, and must pass a written comprehensive examination.

**Concentration in One Language**

Thirty semester hours, of which at least 18 must be earned in courses listed under a single rubric (FREN, GERM, or SPAN), to include the following distribution: at least 6 hours in literature courses covering two different periods and at least 6 hours in language/linguistics courses. The remaining 12 hours are electives, of which up to 6 may be used for directed reading (798) and thesis (799).

**Concentration in Two Languages**

Forty-two semester hours, of which 18 must be earned in each of two languages, in courses listed under a single rubric (FREN, GERM, or SPAN), to include the following distribution: at least 6 hours in literature courses covering two different periods; and at least 6 hours in language/linguistics courses. The remaining 6 hours are electives, which may be used for directed reading (798) and thesis (799).

**Concentration in Spanish/Bilingual-Multicultural Education**

Thirty-six semester hours, of which 18 must be earned in courses listed under the SPAN rubric, to include the following distribution: at least 6 hours in literature courses covering two different periods and at least 6 hours in language/linguistics courses; 6 hours of bilingual education seminars, selected from among EDUC 517, 518, 519. The remaining 12 hours are electives, of which up to 6 may be used for directed reading (SPAN 798) and thesis (SPAN 799).

**Foreign Languages and Literatures Courses (FRLN)**

- **510 Bibliography and Research Problems in Foreign Languages and Literatures (3:3:0).** Prereq grad stdg or Pol. Use of basic bibliographical tools and methodologies necessary to do scholarly research in French, German, and Spanish. Taught in cooperation with the University library staff. Conducted in English.

- **525 Literary Translation (3:3:0).** Prereq grad stdg or Pol. Advanced work in literary translation. The critical approach to and analysis of diverse literary texts ranging from poetry, drama, and essay to excerpts from novels.

- **565 Theory of Translation (3:3:0).** Lectures on the nature and function of the translating process. Evaluation of theories of translation with respect to text-typology. Critiques of selected translations from the target languages to English and vice versa.

- **590 Internship and Seminar in Translation (3:3:0).** Prereq admission to the Translation Certificate Program. Internships are nonpaying, work-study positions that focus on the practice of translation. Qualified students are placed with area institutions, interest groups, agencies or corporations. Placement depends upon availability of positions.

- **600 Workshop in Foreign Languages (1-6:0:0).** Prereq grad stdg or Pol. In-service workshops, tours, and seminars dealing with selected topics in literature, language, bilingualism, culture, methodology, etc. May not normally be applied toward the M.A. in foreign languages.

- **820 Literary Theory and Criticism (3:3:0).** Study of the nature of the literary work; analysis of contemporary critical approaches to literature. May not be taken for credit by students who previously received credit for FRLN 615.

- **645 (545) The Study and Teaching of Literature (3:3:0).** Current methodologies of literary analysis. Emphasis on role of literature in foreign language programs and on providing students with various methods of teaching literature. This course may not be taken by anyone who has previously taken and satisfactorily completed FRLN 545.

- **650 The Teaching of Culture in Foreign Language Programs (3:3:0).** Purpose and methods of the study of culture, with emphasis on strategies and techniques for teaching culture in foreign language programs.

- **660 Approaches to the Study of Language (3:3:0).** The discipline of linguistics and its relationship to other disciplines, incl study of generative grammar with syntactic problems drawn from commonly taught foreign languages.

**French (FREN)**

- **515 Medieval French Literature (3:3:0).** Intensive study of the outstanding literary works of the Middle Ages. Course work in French.

- **517 Studies in Seventeenth-Century Literature (3:3:0).** Selected writers, works, themes or trends of French
literature in the classical era. Content varies. Course work in French.

518 Studies in Eighteenth-Century Literature (3:3:0). Selected writers, works, themes, or trends of French literature in the eighteenth century. Content varies. Course work in French. May be repeated for cr with PoD.

519 Studies in Nineteenth-Century Literature (3:3:0). Selected works, themes, genres, and authors of nineteenth-century French literature. Content varies. Course work in French. May be repeated for cr with PoD.

525 Studies in Modern French Literature (3:3:0). Selected works, themes or trends of French literature in the modern era. Content varies. May be repeated for cr with PoD. A maximum of six hr of cr may be earned. Course work in French.

550, 551 Special Topics (3:3:0). Specialized topic relating to French culture and literature. Content varies. Course work in French.


561 Old French (3:3:0). Study of Old French phonology, morphology, syntax, and lexicon, aimed at preparing students to read medieval French literature in original versions. Linguistic study complemented by reading of Old French verse and prose texts from the ninth through the thirteenth centuries.

575 Grammatical Analysis (3:3:0). Study of characteristic features of contemporary French. Examination of spoken and written French, including syntactic analysis, distributional analysis, and generative-transformational grammar. Emphasis on problem areas for the American learner.

576 Advanced Translation (3:3:0). Advanced work in translation of topics selected from the humanities, the social and political sciences. Comparative terminology, sight translation, and precise writing. The importance, function, and techniques of documentation in translation. Translations from French to English and English to French.


598 Directed Reading and Research (3:0:0). Prereq Open only to degree students who have completed at least 18 cr hr. Reading and research on a specific project under the direction of a department member. Oral or written report req.

799 Thesis (3–6:0:0). Students who take GERM 798 and then elect the thesis option receive three cr for GERM 799 upon completion of the thesis. Students who do not take GERM 798 receive six cr for GERM 799 upon completion of the thesis.

800 Studies for the Doctor of Arts in Education (var cr). Prereq D.A.Ed. admission to study in German. Program of studies designed by the student’s discipline director and approved by the student’s doctoral committee which prepares the student to do research and writing in the current area of interest of the discipline director. The student presents a research paper in a subsequent D.A.Ed. summer seminar. May be repeated as req.

Also see FRLN course listings.

Spanish (SPAN)

500 History of the Spanish Language (3:3:0). Scientific study of the evolution of the Spanish language from its origin in vulgar Latin to its present forms.

501 Applied Spanish Grammar (3:3:0). Analysis of Spanish grammar as a basis for teaching language skills. Terminology and methodology for the teaching of syntax are stressed.

502 Hispanic Sociolinguistics (3:3:0). Intro to sociolinguistics with emphasis on bilingualism and language contact in the Spanish-speaking world incl the U.S.


520 Studies in Medieval Spanish Literature (3:3:0). Intensive study of a major work or a literary genre of this period.

525 Studies in Renaissance Literature (3:3:0). Study of a literary movement or selected authors of the Spanish Renaissance.


540 Studies in Nineteenth-Century Literature (3:3:0). Study of a writer, genre, theme, or movement of this period.

545 Studies in Hispanic Literature (3:3:0). Study of major writers in a particular generation or movement.

551 Special Topics in Spanish (3:3:0). Special studies in Spanish or Latin American language, literature, or culture. Specific topics are announced in advance. May be repeated for cr with PoD.


German (GERM)

518 Studies in Eighteenth- and Early Nineteenth-Century German Literature (3:3:0). Major authors, movements, and themes in eighteenth- and early nineteenth-century German literature. Literary theory and practice, historical background and critical reception. May be repeated for cr with PoD.

525 Studies in Modern German Literature (3:3:0). Writers, themes, or genres of modern German literature. May be repeated for cr with PoD.

550 Special Topics (3). Study of a special topic in German language, literature, or culture. Specific topics are announced in advance. May be repeated for cr with PoD.

560 History of the German Language (3:3:0). Development of the German language from the eighth century to the present. Phonological, morphological, and syntactic structures characteristic of the various stages of development.

798 Directed Reading and Research (3:0:0). Prereq Open only to degree students who have completed at least 18 cr hr. Reading and research on a specific project, under the direction of a department member. Oral or written report req.

799 Thesis (3–6:0:0). Students who take GERM 798 and then elect the thesis option receive three cr for GERM 799 upon completion of the thesis. Students who do not take GERM 798 receive six cr for GERM 799 upon completion of the thesis.

800 Studies for the Doctor of Arts in Education (var cr). Prereq D.A.Ed. admission to study in German. Program of studies designed by the student’s discipline director and approved by student’s doctoral committee which prepares the student to do research and writing in the current area of interest of the discipline director. The student presents a research paper in a subsequent D.A.Ed. summer seminar. May be repeated as req.

Also see FRLN course listings.
565 Studies in Spanish American Drama (3:3:0). Study of playwrights who have made a major contribution to the development of the genre.


635 Seminar in Don Quixote (3:3:0). Intensive study of Don Quixote and the major critical approaches to the work.

650 Seminar in Twentieth-Century Drama (3:3:0). Study of major dramatists in the Generation of 1898 and in the contemporary theater.

655 Seminar in Twentieth-Century Prose (3:3:0). Intensive study of a major writer, theme, or movement in the novel or the essay.


675 Seminar in Literature and Art (3:3:0). Comparative analysis of a literary theme or style in relation to other media (e.g., painting, architecture, film) for an integral understanding of the arts.

680 Seminar in Literature and Society (3:3:0). Intensive study of a literary topic, a genre, or selected authors in relation to a given economic, social, or political system in Spain or Latin America.

685 Seminar in Literature and Ideas (3:3:0). Study of major ideological-philosophical themes and their artistic expression in literature.

798 Directed Reading and Research (3:0:0). Prereq Open only to degree students who have completed at least 18 cr hr. Reading and research on a specific project, under the direction of a department member. Oral or written report req.

799 Thesis (3–6:0:0), (3:0:0). Students who take SPAN 798 and then elect the thesis option receive three cr for SPAN 799 upon completion of the thesis. Students who do not take SPAN 798 receive six cr for SPAN 799 upon completion of the thesis.

800 Studies for the D.A.Ed. (var cr). Prereq D.A.Ed. admission to study in Spanish. Studies designed by student's discipline director and approved by student's doctoral committee which prepare the student to do research and writing in the current area of interest of the discipline director. The student presents a research paper in a subsequent D.A.Ed. summer seminar. Enrollments may be repeated.

See FRLN listing also.

Geographic and Cartographic Sciences

Faculty

Andrews, Alice C., Ed.D., George Washington University, 1975; Associate Professor

Fonseca, James W., Ph.D., Clark University, 1974; Associate Professor

Haack, Barry N., Ph.D., University of Michigan, 1977; Associate Professor

Lindberg, Mark B., M.A., Kent State University, 1979; Instructor

Rundstrom, Robert, M.A., California State University at Northridge, 1980; Instructor

Geographic and Cartographic Sciences, M.S.

The Master of Science in Geographic and Cartographic Sciences is offered by the Department of Public Affairs. The program is designed to provide training for students with different professional goals. There is a thesis option for those who wish to complete a major research project, and for those who plan to continue their studies beyond the master's level. In addition, there is a nonthesis option for those who want advanced study in geography but do not intend to pursue a Ph.D.

Admission Requirements

In addition to meeting all Graduate School requirements for admission, students must have a bachelor's degree in geography, cartography, or equivalent. An applicant without an undergraduate degree in geography or cartography must have at least one course in each of the following: physical geography, human geography, regional geography, and cartography. All applicants must have a course in statistics. The program also requires GRE aptitude scores, three letters of recommendation, transcripts of all college course work, and a statement of interest in geography and cartography.

Degree Requirements

In general, the student must complete a program consisting of five required core courses and a number of optional electives that are selected in consultation with an adviser. The required core courses are:
Geographic and Cartographic Sciences (GECA) Courses

Department of Public Affairs

503 Problems in Environmental Management (3:3:0). Prereq 6 hr of geography, incl GEOG 102. Case studies of the impacts of human activities on atmospheric, hydrologic, geomorphic, and biotic processes.

505 Transportation Geography (3:3:0). Prereq 6 hr of geography. Structure, principles, location, and development of world transportation. Critical role of transportation in moving people, goods, and ideas at the international, national, regional, and urban levels.

520 Geography for Teachers (3:3:0). Prereq grad stdg or Pol. Emphasis on problems and techniques in teaching geography and current developments in research, methodology, and philosophy in the discipline.

540 Medical Geography (3:3:0). Prereq Graduate standing or PoD and a course in statistics. Spatial approaches to the study of health and disease. Topics covered include disease ecology, disease diffusion, and geographic perspectives on improved health care delivery.

551 Thematic Cartography (3:3:0). Prereq grad stdg or Pol. Analysis of the conceptual and perceptual properties of thematic maps. Emphasis on discussion of these properties in relation to problems in data manipulation, design, and map comparisons.

553 Geographic Information Systems (3:3:0). Prereq course in computer science and grad stdg, or PoD. Sources of digital geographic information, methods of storage and processing for cartographic display and geographical analysis.

554 History of Cartography (3:3:0). Prereq grad stdg or PoD. History of cartographic portrayal of the earth from ancient times through the nineteenth century, with emphasis on the interrelation of human culture, technological development, and geographical knowledge as reflected in maps.

562 Analytic Photogrammetry (3:3:0). Prereq GEOG 414, a course in matrix algebra and grad stdg, or PoD. Analytic treatment of photogrammetric problems, incl least squares adjustments, image coordination refinements, collinearity equation, resection, relative orientation, and analytic aerotriangulation.

579 Remote Sensing (3:3:0). Prereq course in physical geography or geology and course in aerial photo interpretation or Pol. Analysis of the nature of electromagnetic radiation, principles and operations of sensors, techniques and systems of correction, enhancement, and production of imagery. Interpretation and applications in geomorphic, atmospheric, hydrologic, vegetation, land use and regional analysis.

580 Digital Remote Sensing (3:3:0). Prereq GEOG 416 or GECA 579 or Pol. Examination of the theory and techniques of using digital remotely sensed data for obtaining geographic information of the earth's surface. This will include both image enhancement methods and classification strategies for a variety of physical and cultural features.

581 World Food and Population (3:3:0). Prereq grad stdg or Pol. Topics incl maldistribution of population, regional disparities in growth rates and income distribution, food production and world hunger. Discussion of population policies, with emphasis on Third World countries.

583 Spatial Dynamics of Political Systems (3:3:0). Prereq grad stdg or Pol. Topics incl territoriality, reapportionment, spatial allocation of public facilities, perception of boundaries. Emphasis on the spatial impact of political process upon land use.

585 Quantitative Methods (3:3:0). Prereq a course in statistics or PoD. Survey of quantitative methods commonly used in geographic research. Emphasis on spatial analysis techniques.

590 Selected Topics in Geography and Cartography (3:3:0). Prereq graduate standing or PoD. Designed to analyze topics of immediate interest. Content varies.

Graduate standing is prerequisite to all 600-level courses.

621 Human Ecology and the City (Same as SCI 621) (3:3:0). Prereq grad stdg. Intro to urban ecology. Origin and development of various types of cities; shape and structure of urban areas; inner and outer city and spatial patterning of urban institutions.

650 Mapping Foundations (3:3:0). Prereq GEOG 310 or equiv or Pol. Discussion of the philosophical, perceptual, and technical foundations of cartography.

652 Computer Applications (3:3:0). Prereq GEOG 310 or equiv and course in computer programming or Pol. Examination of computer applications for display and analysis of geographical data.

655 Map Design (3:3:0). Prereq GEOG 310 or equiv or Pol. Advanced examination of principles of map design, including discussions of map design research.

656 Terrain Mapping (3:3:0). Prereq GEOG 310 or equiv or Pol. Advanced methods of relief and landform portrayal, slope mapping, digital terrain models and other forms of terrain representation.

660 Geodetic Cartography (3:3:0). Prereq GEOG 310 or 413 or equiv and course in calculus or Pol. Intro to science of earth measurement, methods of establishing geodetic control for mapping and geodetic basis of map projections and coordinate systems.

661 Map Projections and Coordinate Systems (3:3:0). Prereq GEOG 310 or equiv and course in calculus or Pol. Development of various map projections and coordinate systems; analysis of their properties, distortions, and applications.

670 Applied Climatology (3:3:0). Prereq course in weather and climate or Pol. Application of climatic concepts to natural and man-modified environments. Analysis of climatic change.


696 Directed Readings and Research (1-3:0:0). Prereq Po program director and Pol. Reading and Research on a specific topic, under the direction of a faculty member. Written report is req; oral exam and report may be req. May be repeated.

785 Geographic Fieldwork (3:3:0). Prereq acceptance to degree status or PoD. Intro to the nature, scope, and objectives of geographic field methods and techniques, incl the use of base maps, acquisition of data, and field research design. The course will be taught, as much as possible, in field situations with the students required to develop and carry out relevant field research projects pertaining to both physical and cultural geography.

795 Seminar in Regional Analysis (3:3:0). Analysis and synthesis of physical and cultural elements of geography in a selected region. Should be taken near the end of the master’s degree program and should provide an opportunity for the student to apply selective knowledge gained in previous systematic courses to a specific region.

799 Thesis (3-6:0:0). Prereq degree candidacy and departmental approval of thesis proposal.

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Health Education

Faculty

Agne Traub, Charlene E., Ph.D., Texas Woman's University, 1981; Assistant Professor

Bever, David L., Ph.D., Purdue University, 1978; Associate Professor

Bunker, John F., D.Sc., Johns Hopkins University, 1983; Research Associate Professor

Cooper, John H., P.E.D., Indiana University, 1955; Professor

Metcalf, James A., Ph.D., University of Maryland, 1970; Associate Professor

Health Education, M.Ed.

The program leading to a master of education degree in health education is designed to serve teachers, community health agency personnel, and health promotion workers in business and industry.

Admission Requirements

In addition to fulfilling the Graduate School admission requirements, the applicant must hold a bachelor’s degree in health education or a related field and submit three letters of recommendation, transcripts of all college course work, and must have completed courses in biology, human anatomy, and physiology. Applicants who do not meet these requirements may be offered provisional or nondegree status in accordance with general regulations of the Graduate School.

Degree Requirements

In addition to fulfilling the Graduate School degree requirements, the candidate must complete the following program:

Core Courses

HEAL 511 History and Philosophy of Health Education (3)
HEAL 612 Scientific Foundations of Health and Fitness (3)
HEAL 513 Current Issues in Health Education (3)
HEAL 516 Program Development and Resources in Health Education (3)
HEAL 517 Health Education Process: School and Community (3)
HEAL 500 Workshop Courses (3-6)
PHED 610 Advanced Exercise Physiology (3)
PHED 630 Health and Fitness Program Development
Research or Statistics (3)

Electives (3–6)
HEAL 798 Special Project or
HEAL 799 Thesis (3–6)

Successful Completion of Written Comprehensive Examination

Total: 36

Graduate Assistantships

Administrative, research, and teaching related graduate assistantships are available in the health education program. To be eligible for an assistantship, a student must be admitted to degree status and take a minimum of six semester hours of graduate credit each semester.

Health Education Courses (HEAL)

500 Workshop in Health Education (1,2,3:0:0). Analysis of selected health problems and issues involving readings, research, and group attention. Six sem hr of HEAL 500 may be applied to degree cr.

511 History and Philosophy of Health Education (3:3:0). Focus on evaluation of significant historical events that affected and contributed to health education development. Emphasis on personalities, institutions, and philosophical ideas of each area.

513 Current Issues in Health Education (3:3:0). Analysis of topical and often controversial health issues with emphasis on selected problems of concern to society.

516 Program Development and Resources in Health Education (3:3:0). Prereq Baccalaureate degree in health education or related field or PoC. Procedures used in planning, development, and organization of health education programs in school and health agency settings.

517 Health Education Process: School and Community (3:3:0). Prereq Baccalaureate degree in health education or related field or PoC. Examination of the health education process in a variety of health promotion, disease prevention, and rehabilitative settings.

540 Advanced Driver and Traffic Safety Education (3:3:0). Prereq 3 hr basic course in driver education; course in general safety education on college level; valid operator's license. Advanced course in driver education for teachers, supervisors, and administrators of driver education and traffic safety programs.

599 Independent Study in Health Education (1–3:0:0). Prereq PoD. Study of a problem area in health education research, theory or practice under direction of faculty. May be repeated, but no more than three hr total cr may be given.

612 Scientific Foundations of Health and Fitness (3:3:0). An integrated study of human anatomy, physiology, chemistry, and microbiology, presenting a complete picture of how the body functions and the diseases and disorders that cause the body to malfunction.

798 Project (3:0:0). An individualized project applying appropriate methodology to a health problem or issue. Under supervision of graduate faculty member(s).

799 Thesis (3–6:0:0). Exploration of a health problem using appropriate research methodology under supervision of graduate faculty member(s). Proposal must be approved prior to enrollment for thesis credit.

History

Faculty

Bakhash, Shaul, Ph.D., Oxford University, 1972; Robinson Professor

Cassara, Ernest, Ph.D., Boston University, 1957; Professor

Censer, Jack R., Ph.D., Johns Hopkins University, 1973; Associate Professor

Cohen, Martin B., Ph.D., The George Washington University, 1975; Assistant Professor

D'Amico, John F., Ph.D., University of Rochester, 1977; Associate Professor

Deshmukh, Marion F., Ph.D., Columbia University, 1975; Associate Professor and Chair

Diner, Steven J., Ph.D., University of Chicago, 1972; Professor

Duara, Prasenjit, Ph.D., Harvard University, 1983; Assistant Professor

Gleissner, Richard A., Ph.D., University of Maryland, 1968; Associate Professor

Harsh, Joseph L., Ph.D., Rice University, 1970; Associate Professor

Hawkes, Robert T., Jr., Ph.D., University of Virginia, 1975; Assistant Professor

Henriques, Peter R., Ph.D., University of Virginia, 1971; Associate Professor

Holsinger, Donald C., Ph.D., Northwestern University, 1979; Associate Professor

Jensen, Ronald J., Ph.D., Indiana University, 1971; Associate Professor

Lytton, Randolph H., Ph.D., Pennsylvania State University, 1973; Associate Professor

Pacheco, Josephine F., Ph.D., University of Chicago, 1950; Professor

Pugh, Evelyn L., Ph.D., The American University, 1966; Professor

Rosenzweig, Roy A., Ph.D., Harvard University, 1978; Associate Professor

Saeed, Mian M., Ph.D., University of London, 1965; Associate Professor
Soder, John P., Jr., Ph.D., Georgetown University, 1970; Associate Professor

Spence, Vernon G., Ph.D., University of Colorado, 1968; Professor

Stewart, Jeffrey C., Ph.D., Yale University, 1979; Assistant Professor

Wade, Rex A., Ph.D., University of Nebraska, 1963; Professor

Walker, George E., Ph.D., Columbia University, 1975; Associate Professor

History, M.A.

This program is designed to help students understand the discipline of history and to master the methodology of the historian. The program is divided into four tracks and is designed to serve the following:

1. Individuals who wish to continue their education at the master's level, students having a particular desire to do thesis work, and students intending to pursue doctoral studies in history (see below, Track I)

2. Persons wishing to develop expertise in applied history or persons professionally employed as historians in business or government who desire to further their professional careers by earning an advanced degree in history (see below, Track II)

3. Individuals who wish to develop master's-level skills in history, whether as a vocation or avocation or for reasons of intellectual self-fulfillment (see below, Track III)

4. Teachers who want to extend their knowledge of current trends in historical thinking and improve their effectiveness in the classroom. Narrow specialization is avoided by allowing great latitude in choice of courses. Study in the methodology of teaching social studies is included in the programs (see below, Track IV)

These tracks, designed to serve different interests, also possess several significant common features. For example, a student may specialize in American, modern European, or Latin American history; a minor is offered in World Regions in the Modern Period; a student may take three hours of credit in related disciplines; in the last semester of course work, a student and professor will design an individualized reading course to round the student's general historical knowledge.

Admission Requirements

An applicant for admission to the Master of Arts in History program must fulfill the admission requirements of the Graduate School and the Department of History, including the following: (1) Scores in the GRE, including the subject examination in history. Even for those who have had little or no history, the area exam is required for the purposes of evaluating deficiencies. This requirement, at the discretion of the department, may be waived when a baccalaureate degree is 10 or more years old or when the applicant possesses another master's degree. (2) Two letters of recommendation from professors of history with whom the applicant has studied, or from others directly familiar with the applicant's professional competence and interests.

Degree Requirements

Track I, Predoctoral. This track is intended for students who desire the proper background for doctoral studies. To remedy possible deficiencies in a student's undergraduate study, up to 21 semester hours of foundation courses (HIST 550, 601-606, Themes in U.S., Latin American, or Modern European history) may be required. In addition, each candidate must successfully complete a minimum of 30 semester hours of graduate-level work with a GPA of not less than 3.00 as follows:

1. Three semester hours of HIST 610, The Study and Writing of History (to be taken within the first nine hours of course work)

2. Twelve semester hours in a major field of concentration (U.S., Latin American or Modern European History), including a research seminar and specialized readings

3. Nine semester hours in a second field of history. Minor fields in U.S., Latin America, Modern Europe, and World Regions in the Modern Period

The candidate must also:

1. Demonstrate reading proficiency in a modern foreign language

2. Pass a written comprehensive exam

3. Complete a thesis (six semester hours)

Track II, Applied History. This track is designed for the student who desires to develop expertise in such applied history fields as archival management, museum studies, historic preservation, and editing. This degree would also be suitable for persons professionally employed as historians in business or government who desire to further their professional careers. To remedy possible deficiencies in a student's undergraduate study, up to 21 semester hours of foundation courses (HIST 550, 601-606, Themes in U.S., Latin American, or Modern European history) may be required. In addition, all candidates must successfully complete a minimum of 30 semester hours of graduate-level work with a GPA of not less than 3.00 as follows:

1. Three semester hours of HIST 610, The Study and Writing of History (to be taken within the first nine hours of course work)

2. Fifteen semester hours in a major field of concentration (U.S., Latin American, or Modern European History), including a research seminar and specialized readings

3. Six semester hours in applied areas courses, e.g., museum studies, archives, historical editing

4. Six semester hours of internship
5. Pass a written comprehensive exam

Students must also demonstrate a proficiency in the use of one relevant research tool, i.e., modern foreign language, computer language or statistics.

Track III. Enrichment. This track is intended for a student who wishes to study history for vocational, avocational, or intellectual self-fulfillment. While a bachelor's degree is necessary to enter this program, it need not be in history. To remedy possible deficiencies in a student's undergraduate study, up to 21 semester hours of foundation courses (HIST 550, 601-606, Themes in U.S., Latin American, or Modern European history) may be required. In addition, all candidates must successfully complete a minimum of 30 semester hours of graduate-level work with a GPA of not less than 3.00 as follows:

1. Three semester hours, HIST 610, The Study and Writing of History (to be taken within the first nine hours of course work).

2. Fifteen semester hours in a major field of concentration (U.S., Latin American or Modern European history), including a research seminar and specialized readings.

3. Twelve hours of electives.

4. Six semester hours, HIST 799 (thesis) is optional. If a thesis is elected, then three hours in the major and three hours in electives will be assigned to it.

5. Pass a written comprehensive exam. No relevant research tool is required.

Track IV. M.A. in History, with Emphasis on Teaching (formerly M.A. in Teaching History). In addition to fulfilling the admission requirements of the Graduate School, applicants for this degree should have majored in history. Applicants with undergraduate majors in fields other than history may be admitted if their records demonstrate strong background in history and studies closely related to it. The department may require that undergraduate deficiencies be made up in courses (HIST 550, 601-606) without graduate credit. All candidates must successfully complete 36 semester hours of approved graduate-level course work with a grade-point average of not less than 3.00 as follows:

1. Twenty-four credits in history, including three credits in HIST 610, The Study and Writing of History (to be taken within the first nine hours of course work).

2. Twelve credits in education, including EDCI 567 and EDCI 793.

3. No language requirement

4. A written comprehensive examination administered by the faculty. Candidates intending to teach at the secondary level must also qualify for the Virginia Collegiate Professional Certificate (or its equivalent) in history.

History Courses (HIST)

520 (670) Social Revolution in Latin America (3:3:0).

Analysis of revolutionary forces that are challenging traditional institutions and transforming all aspects of society in contemporary Latin America. Selected countries are studied in depth. This course may not be taken by anyone who has satisfactorily completed HIST 670.

525 (675) Problems in Latin American History (3:3:0).

Analysis of selected problems in Latin American history. Emphasis on reading and discussion of historical interpretations and development of bibliography. Maximum of six hours may be earned.

528 (678) Latin American Cultural and Intellectual History, Nineteenth Century (3:3:0). Iberian background and other foreign influences; ideas of independence leaders; midcentury Romanticism, Liberalism, and Traditionalism; secular and religious Positivism; and Marxian socialism. Intellectual developments traced in major Latin American thinkers, writers, and artists. This course may not be taken by anyone who has satisfactorily completed HIST 678.

550 Interpretations of History (3:3:0). Study of development of historical writings in the West from ancient to modern times. Intro to historical methodology.

555 (655) Problems in Asian History (3:3:0). Subjects announced by instructor. Discussion of readings and historical interpretations and compilation of a comprehensive bibliography on given theme. Maximum of six hours may be earned.


Government, science, philosophy, religion, literature, arts and architecture of the Arabs of the Umayyad and Abbasid period, Persians of the Safavid period, Gnazivads of Afghanistan, grand Mughals of India and Pakistan, Timurids of Central Asia, Fatamids of Egypt, Moors of Spain, and the Turks. Important political and cultural movements in different parts of Islamic World are discussed.

585 (685) Problems in Middle Eastern History (3:3:0).

Analysis of selected problems in Middle Eastern history. Emphasis on reading and discussion of historical interpretations and development of bibliography. Course may be repeated once when content differs.

601 Themes in United States History I (3:3:0).

Survey of U.S. history prior to 1877. Designed for individuals entering the grad program who need to strengthen their preparation in this area or who seek to enhance their knowledge of the latest interpretations in the field. Factual knowledge and its interpretation will be stressed. This course may not be taken by anyone who has satisfactorily completed HIST 611.

602 Themes in United States History II (3:3:0).

Survey of U.S. history since 1877. Designed for individuals entering the grad program who need to strengthen their preparation in this area or who seek to enhance their knowledge of the latest interpretations in the field. Factual knowledge and its interpretation will be stressed. This course may not be taken by anyone who has satisfactorily completed HIST 612.

603 Themes in Latin American History I (3:3:0).

Survey of Latin American history from the pre-Columbian era through the wars for independence. Designed for individuals entering the grad prog who need to strengthen their preparation in this area or who seek to enhance their knowledge of the latest interpretations in the field. Factual knowledge and its interpretation will be stressed. This course may not be taken by anyone who has satisfactorily completed HIST 621.

604 Themes in Latin American History II (3:3:0).

Survey of Latin American history since the conclusion of the wars for independence in the early 1820s. Designed for individuals entering the grad prog who need to strengthen their preparation in this area and for those seeking to enhance their knowledge of the latest interpretations in the field. Factual knowledge and interpretation will be stressed. This course may not be taken by anyone who has satisfactorily completed HIST 622.
605 Themes in European History I (3:3:0). Survey of European history from 1500 to 1815. Designed for individuals entering the grad prog who need to strengthen their preparation in this area or who seek to enhance their knowledge of the latest interpretations in the field. Factual knowledge and its interpretation are stressed. This course may not be taken by anyone who has satisfactorily completed HIST 631.

606 Themes in European History II (3:3:0). Survey of European history from 1815 to present. Designed for individuals entering the grad prog who need to strengthen their preparation in this area or who seek to enhance their knowledge of the latest interpretations in the field. Factual knowledge and its interpretation are stressed. This course may not be taken by anyone who has satisfactorily completed HIST 632.

610 The Study and Writing of History (3:3:0). Methodology of the historian, incl techniques of research, use of documentation and other sources, development of bibliography, synthesis of material.


614 The Enlightenment in America (3:3:0). Study of Enlightenment as it was reflected in various aspects of American life in the eighteenth and early nineteenth centuries. Impact of the Enlightenment on development of new American nation.

615 Problems in American History (3:3:0). Readings and discussion of bibliographies, interpretations and research trends in topics selected by instructor. Maximum of six hours may be earned.

616 Attempts to Control the U.S. Westward Movement (3:3:0). Study of attempts by the East to control the West, how and by whom control was attempted, to what extent it was effective, to what extent the need for such control existed, and in what manner the West resisted Eastern domination.

617 Topics in the American Civil War Era (3:3:0). Joint project of instructor and students, into the various aspects of a common topic in the Civil War era with emphasis on historiography and historical method.

618 The Age of Jackson, 1828-1848 (3:3:0). Inquiries, interpretations, and discussions of those elusive qualities of Jacksonian democracy which made the 1820s, 1830s, and 1840s a separate and distinguishable part of the American past. This course, conducted as a seminar, includes readings, discussions, oral reports, and a term paper based upon the issues of that transitional period.

623 Topics in Recent U.S. History, 1845 to Present (3:3:0). Political, social, economic and cultural forces which shaped the post-World War II American experience. Consideration of interaction between foreign affairs and domestic politics and institutions and alternative interpretations.


626 Seminar in State and Local History (3:3:0). Prereq HIST 510 or Pol. Exposition of principles and techniques of local history followed by intensive investigation of selected aspects of the region utilizing area manuscript collections.

627 Urban Development of the United States (3:3:0). Examination of the growth of cities in the United States, the process of urbanization, and the significance of cities in American history. Students will become familiar with major issues and bibliography of American urban history.

635 Problems in European History (3:3:0). Investigation of selected problems in the history of Europe. Readings, discussions, development of bibliographies. Where possible, primary sources are utilized. Maximum of six hours may be earned.

636 Political Culture in Twentieth-Century Germany and Austria: Continuities and Discontinuities (3:3:0). Recent interpretations of key political events of the twentieth century. The focus will be on the question: Despite radical political changes, were there fundamental continuities in the structure of German and Austrian society that can be observed throughout the period under review?


639 Society and Politics in Western Europe, 1750-1914 (3:3:0). Focus on changes in social conditions and their ramifications in political life. Attention to urbanization of workers, changes in the peasantry, growth of middle classes, decline of nobility, as well as major political developments and expansion of liberal reforms.

645 The Russian Revolution and the Origins of the Soviet State (3:3:0). The period between 1890 and 1924 with concentration of the sources of Bolshevism, problems of the old regime as they led up to the revolutions of 1905 and 1917, establishment of the new regime and its survival in an environment of foreign and civil war.

679 Seminar on Inter-American Diplomacy (3:3:0). Prereq HIST 610 or Pol. Seminar on geographic, political, economic, military, and other forces that have influenced inter-American relations. Study of the special relationship between U.S. and Latin America. May be applied toward the major or minor concentration in either U.S. or Latin American history.

690 The Administration of Archives and Manuscripts (3:3:0). Prereq 6 hours of U.S. history or Pol. An intro to the principles and practices in the management of records and the administration of archival and manuscript collections, public and private. Designed for graduate students with a special interest in historical sources as well as for those specializing in applied history.

691 Museum Studies (3:3:0). Prereq 6 hours of U.S. history or Pol. General intro to museums of history and museum studies in the United States, intended for the interested citizen as well as for assistance to students in course and career choices. Course explores the development, present state, and future possibilities of museums in the United States, with some reference to international developments.

692 Historical Editing (3:3:0). Intro to the fundamentals of historical editing of documents, including the use of microform, word processing, and computer techniques. Designed for persons seeking an intro to various areas of applied history and for persons intending to edit historical documents for publication.

693 Historic Preservation (3:3:0). Prereq 6 hours of U.S. history or Pol. General intro to historic preservation in the United States, intended for the interested citizen as well as for assistance to students in course and career choices. Course explores the development, present state, and future possibilities of historic preservation in the United States, with some reference to international aspects of preservation.

694 Law, Society and Historical Resources (3:3:0). Prereq 6 hours in field of major historical concentration and 3 hours in applied studies field of concentration or Pol. General introduction to the processes by which cultural heritage programs are planned, funded, and carried out, and the dynamics of working in and with these processes. Particular attention will be given to the problems organizations face in managing and funding, legal techniques for creating and using interests in real and personal property, including literary, artistic, and intellectual property; liability for damage and injuries; and strategies for public and private sector support of programs.

695 History Symposium (3:3:0). Subject of academic and community interest pursued through discussions and lectures by distinguished guest instructors.
711 Research Seminar in United States History (3:3:0). 
Prereq HIST 610 or PoD. Research in specialized topics using primary sources. Maximum of six hours may be earned.

731 Research Seminar in European History (3:3:0). Prereq HIST 610 or PoD. Research in specialized topics using primary sources. Maximum of six hours may be earned.

771 Research Seminar in Latin American History (3:3:0). 
Prereq HIST 610 or PoD. Research in specialized topics using primary sources. Maximum of six hours may be earned.

790 Specialized Readings in United States History (3:3:0). 
(To be taken in the final sem of the program.) Designed to integrate the students' past work in the major field and to fill gaps in this area prior to comprehensive exam. After review of grad experience, student and instructor design a reading list to round out preparation for the exam.

791 Specialized Readings in Latin American History (3:3:0). 
(To be taken in the final sem of the program.) Designed to integrate the students' past work in the major field and to fill gaps in this area prior to comprehensive exam. After review of grad experience, student and instructor design a reading list to round out preparation for the exam.

792 Specialized Readings in European History Since 1500 (3:3:0). 
(To be taken in the final sem of the program.) Designed to integrate the students' past work in the major field and to fill gaps in this area prior to comprehensive exam. After review of grad experience, student and instructor design a reading list to round out preparation for the exam.

794 Internship in Applied History (3-6:0:0). 
Prereq 3 hours of applied history in appropriate area and 12 hours in major field or permission of internship director. All internship placements must be approved by the department to ensure their suitability to the student's program. An introduction to applied history through work and study at a historical museum, site, library archive, editing project, or other approved agency.

796 Directed Readings (3-6:0:0). Independent reading on a topic agreed to by student and faculty member. Maximum of six hours may be earned.

799 Thesis (6:0:0).

800 Studies for the Doctor of Arts in Education (var cr). 
Prereq D.A.Ed. admission to study in history. Program of studies designed by student's discipline director and approved by student's doctoral committee which brings the student to participate in research of discipline director and results in a paper reporting the original contributions of the student. Paper is presented in a subsequent D.A.Ed. summer seminar. Enrollments may be repeated.

Information Systems and Systems Engineering

Faculty

Adelman, Leonard, Ph.D., University of Colorado, 1976; Associate Professor

Andriole, Stephen, Ph.D., University of Maryland, 1974; Professor

Aseltine, John, Ph.D., University of California at Los Angeles, 1952; Visiting Professor

Baum, Richard, Ph.D., University of Michigan, 1969; Associate Professor

Beam, Walter, Ph.D., University of Maryland, 1953; Professor

Das-Gupta, Padmini, Ph.D., University of Pittsburgh, 1985; Assistant Professor

Fife, Dennis, Ph.D., University of Michigan, 1965; Associate Professor

Goicoechea, Ambrose, Ph.D., University of Arizona, 1977; Associate Professor

Kerschberg, Larry, Ph.D., Case Western Reserve University, 1969; Professor

Koll, Matthew, Ph.D., Syracuse University, 1979; Assistant Professor

Lehner, Paul, Ph.D., University of Michigan, 1981; Associate Professor

Palmer, James D., Ph.D., University of Oklahoma, 1963; BDM Professor of Information Technology, Associate Dean

Sage, Andrew, Ph.D., Purdue University, 1960; First American Bank Professor, Dean of School of Information Technology and Engineering

Sibley, Edgar, Sc.D., Massachusetts Institute of Technology, 1967; Professor

Siff, Frederick, Ph.D., New York University, 1974; Associate Professor

Information Systems, M.S.

The Master of Science in Information Systems program (MSIS) provides graduate-level instruction
in the design, development, and use of computer systems for information management organizations. Managerial, user interface, and technical aspects of information systems are considered, within application environments, in both private and public sector organizations. A graduate of the MSIS program will be able to pursue a career in information systems analysis and design, and in managing the development of computer-based management information systems. Through elective courses, the MSIS student may acquire skills in special technical areas, such as management science, information retrieval, decision support systems, computer languages, artificial intelligence, graphics, robotics, human factors, and simulation. The program is offered by the faculty of the Department of Information Systems and Systems Engineering. Many classes are offered in the late afternoon and evening to accommodate the professionally employed student.

**Foundation Requirements**

The MSIS program provides strong technical training and basic analysis tools coupled with practical management-oriented applications. To ensure that students have adequate grounding in management disciplines, mathematical methods, and the basic preparation in computer technology, five foundation courses are required. A student who needs to take any of these courses may apply for admission. Upon acceptance, the student will be advised of the necessary foundation courses to be satisfactorily completed, as articulated courses, to meet this requirement. Foundation courses do not earn credit toward the MSIS degree.

These foundation courses are exemplified by the following three George Mason University courses, or equivalent, which are required:

- INFS 610 Computer Systems for Management
- STAT 610 Statistical Foundation for Decision Making
- ACCT 610 Accounting and Reporting

In addition, students must have knowledge equivalent to two of the following courses:

- ECON 602 Economic Analysis
- FNAN 610 Financial Management
- MKTG 610 Marketing Concepts and Practices
- BULE 610 Legal Concepts and Trends Affecting Business
- MGMT 610 Management Theory and Practice

**Admission Requirements**

Applicants for the MSIS program should meet the following minimum entrance requirements:

1. Hold a baccalaureate degree from an accredited institution.
2. Show proof of a satisfactory score on the Graduate Management Admission Test (GMAT) or the Graduate Record Exam (GRE). The applicable test should have been taken within five years of applying for admission. The GRE/GMAT requirement is waived if the applicant already has a master’s degree.
3. Submit the appropriate application form with three letters of recommendation from persons directly knowledgeable of the applicant’s professional and academic competence. Note that the MSIS self-evaluation form is essential to evaluation of foundation requirements by the department faculty.

**Advising.** Each student admitted to the program is assigned a faculty adviser with whom the student confers on matters related to degree requirements. A plan of study for the MSIS degree should be completed and submitted by the student soon after admission to the program.

**Degree Requirements**

Completion of the MSIS program requires a minimum of 30 approved graduate semester hours (ten courses). This requirement is satisfied by the following:

**Required Courses.** To provide a common background in the fundamentals of information systems, the following courses are required of all students:

- DESC 611 Quantitative Analysis in Business and Operations Management
- ORAS 500 Mathematical Foundations for Management Science and Systems Analysis
- ORAS 540 Management Science
- INFS 690 Program Design and Data Structures
- INFS 790 Information Systems Policy and Administration

Students must also take at least three of the following four courses:

- INFS 710 Computer Architecture and Operating Systems
- INFS 712 Data Communications and Distributed Processing
- INFS 714 Database Management Systems
- INFS 722 Information Systems Analysis and Design

**Electives.** To allow for individual variations in interest, students may elect three courses in consultation with their adviser. A thesis option is available; students may elect to complete a thesis for six hours of elective credit.

The following courses are acceptable electives for the degree without prior adviser approval:

- INFS 711, 720, 723, 780, 791, 792, 796
- CS 540, 580, 612
- DESC 555
- IRM 760

To complete a master of science degree, students will complete an approved plan of study. The plan, which serves as a learning contract between the student and the University, must contain a minimum of 30 semester hours of graduate-level course work.

**Systems Engineering, M.S.**

The graduate program leading to a Master of Science in Systems Engineering is designed to equip students for research and professional practice associated with problem formulation, issue analysis,
and evaluation of the consequences of alternative courses of action. The program emphasizes the analytical and behavioral aspects of engineering complex systems of large scale and scope. Students are expected to become proficient in operations research and applied statistics, which supplies an important quantitative basis for systems analysis. Cognitive aspects of systems engineering, systems design methodology, and systems management are also essential studies.

To achieve this objective, the program includes four core courses, electives selected by the student with the aid of a faculty adviser, and a thesis or systems engineering project. To obtain the master of science degree, students will complete an approved plan of study. The plan, which serves as a learning contract between the student and the University, must contain at least 30 semester hours of graduate-level course work. Either a thesis or a research project is required for the degree. Articulation requirements for candidates needing additional work in mathematics or engineering will also be included in the plan of study.

Admission Requirements

In addition to the general admission requirements, the academic background requirements for entrance into the program include an undergraduate degree in engineering, mathematics, physical sciences, economics, psychology, or a related field in which the applicant has successfully completed foundation courses in calculus through differential equations, applied probability and statistics, and a scientific programming language. Acceptance to the degree program will be based on an assessment of the applicant’s capacity to successfully pursue the graduate program, and on factors such as the undergraduate record and professional work experience. Although the Graduate Record Examination (GRE) is not required, past test results will be used as an additional measurement of the applicant’s qualifications. Well-qualified students who present minor admissions deficiencies may be admitted subject to completing an articulation program. To this end, students applying to the program will be asked to complete a self-assessment form. The primary purpose of this is to ascertain prior background in quantitative methods for engineering systems analysis and design, related engineering problem-solving approaches, and fluency in computer usage. The articulation program, when required, will consist of up to three graduate courses that provide preparation for further graduate study through intensive study in these areas.

Degree Requirements

To obtain a Master of Science degree in Systems Engineering, students must complete an approved plan of study with a minimum of 30 semester hours of graduate-level courses and research. Required courses, constituting 18 credits, are as follows:

1. Two courses in systems engineering concepts and methods (6 semester hours)
2. Two courses in operations research and applied statistics (6 semester hours)
3. Project or thesis

Option A - SYST 798, Master’s Systems Engineering Project (6 hours), plus four elective graduate-level courses (12 hours)
Option B - SYST 799, Master’s independent research (6 hours), plus four elective graduate-level courses (12 hours)
Option C - SYST 798, Individual Project (3 hours), plus five elective graduate level courses (15 hours)

Option A, the master’s systems engineering project, is designed to permit the student to carry out systems engineering analysis and design, usually within a multidisciplinary group, under the guidance of faulty members. The emphasis is on bringing a range of skills to bear on a complex, realistic system problem. The final product of the work is a professionally accomplished technical report dealing with a predefined portion of the project activity, and is submitted to the project adviser. During the first semester, the student will operate in a supporting role on a phase of the project, and in the following semester will assume primary responsibility for a segment of the project. Although more than six semester hours registration in SYST 798 is possible, only six credits of this registration may be applied toward the degree.

Option B requires a master’s thesis and involves a significant independent research effort. The work is to be conducted under the guidance of a faculty adviser, and the final written thesis and oral defense are to be approved by a three-member faculty committee and submitted through the School of Information Technology and Engineering to the dean of the Graduate School. The thesis work is expected to be completed while taking six semester hours of SYST 799, Masters Thesis Research. Although more than six semester hours registration in SYST 799 is possible, only six credits of this registration may be applied toward the degree.

Option C is directed toward students who are employed in systems engineering work, and who consequently would benefit less from the group-intensive experience which is the objective of Option A. A project objective may be selected with the approval of the faculty adviser, usually directed toward analysis of system requirements, development of a prospective system architecture, or use and evaluation of system engineering methodologies. A project report will be submitted at the end of the semester while registered for SYST 798, and must be approved by the department faculty prior to award of the master’s degree.

Curriculum

Systems Engineering Core Courses (6 credits)
SYST 660 Systems Engineering I (Methodology, Analysis & Design)
SYST 661 Systems Engineering II (Economic Systems Analysis and Human Information Processing

Operations Research and Applied Statistics (6 credits)
STAT 610 Statistical Foundation for Decision Making (or approved alternative for advanced students)
OR 541 Operations Research I (or approved alternative, for advanced students)

Electives (12-15 credits)
The student should select electives based on personal objectives, developed with the aid and approval of the faculty adviser. It is suggested that no more than two areas of elective study be divided between the 12 semester hours, so that some depth of study in an area may be achieved.

Although many students will choose electives from within the SITE departments, selected courses offered by other academic units at GMU will also be appropriate.

Appropriate areas of specialization include, but are not limited to the following:

- Command and Control Systems Design
- Expert Systems and Decision Support Systems
- Software Systems Engineering
- System Level Architecture
- Systems Design and Systems Management
- Management

Of particular interest to students planning a Ph.D. program in Information Technology is the set of electives which compose the doctoral core study. Students may wish to include some of these courses in their systems engineering master’s plan of study.

**Information Systems Courses (INFS)**

- **610 Computer Systems for Management (3:3:0).** Prereq grad stdg. Examination of computer information systems and their interrelations with management processes. Emphasis on management information system life cycle from manager’s perspective. Lecture and computing lab, incl programming in a structured language. Fall, spring, summer.

- **690 Program Design and Data Structures (3:3:0).** Prereq Acceptance into MSIS program and INFS 610 (formerly BUAD 680). Study of the fundamentals of data structures and algorithms underlying system development. Stresses structured programming in a modern high-level language. Laboratory required. This is the first course in the MSIS program and a prerequisite for all other courses.

- **699 Advanced Topics in Information Systems (3:3:0).** Prereq Pol. Special topics not occurring in the regular INFS sequence will be presented. May be repeated for credit where distinct offerings of the course differ in subject.


- **711 Comparative Programming Languages for Business Applications (3:3:0).** Prereq INFS 710. Investigation of the variety of environments for computer applications to organizational and scientific problems. Selection of the appropriate computing language for a specific application is demonstrated through case studies. Examples of languages are PASCAL, COBOL, PL/I, FORTRAN, RPG, ADA. Computing lab.

- **712 Data Communications and Distributed Processing (3:3:0).** Prereq INFS 710, DESC 611. Concepts and applications of telecommunications technologies, networks and distributed information systems. Includes regulatory issues, network pricing and management. Case studies.

- **714 Database Management (3:3:0).** Prereq INFS 710. Generalized database management systems: their internal and external structure, development, implementation, management and use. Covers logical and physical database design and access methods. Several commercial systems are examined. Computing lab.

- **720 Systems and Information Analysis in Organizations (3:3:0).** Prereq INFS 690. Analysis of information flow in organizations and the operating context of the various computer-based subsystems of an organizational information system. Fundamental concepts of systems and information are integrated with those of organizational structure and management. Cases and computing lab.

- **722 Information Systems Analysis and Design (3:3:0).** Prereq INFS 714, with INFS 712 also recommended. Integration of computing technologies, systems analysis, system design practices and management criteria in the design of large scale information management and decision support systems. Cases and computing lab.

- **723 Information Retrieval (3).** Prereq INFS 714. This course examines information systems for textual and less well structured data bases; covering hardware, software and the design, implementation and evaluation of such systems. Laboratory (computer programming).

- **780 Technical and Administrative Issues in Office Automation (3:3:0).** Prereq INFS 690 (may be taken concurrently). Examines office automation as an issue in applying the concepts of MIS in an organization. Focuses on technical issues of hardware and software selection as well as administrative problems associated with successful integration of the appropriate technologies. Lecture and major class project.

- **790 Information Systems Policy and Administration (3:3:0).** Prereq Completion of all course work for the M.S. in Information Systems. Capstone course, integrates the technical and executive policy issues of information systems. Critical executive issues are examined through case studies and comprehensive individual project. Computing lab.

- **791 Special Topics in Group Project Design (3).** Prereq INFS 690 and INFS 710 (may be taken concurrently). Study of techniques for managing a software engineering or information systems design project. The student will select a project and prepare a detailed project plan with professional guidance. The plan developed in this course will be used in practice in the follow-on course, INFS 792.

- **792 Special Topics in Group Project Implementation (3).** Prereq INFS 690, INFS 710, INFS 791. The student will study the various techniques for managing a computer-based information system design project. Using the project plan developed in INFS 791, the student will implement the project with undergraduate students enrolled in INFS 492 as group members.

- **796 Directed Readings.** Prereq Grad degree students in Information Systems with at least 12 prior cr hr in INFS and CS courses. Research and analysis of a contemporary problem in information system development. Prior approval req by a faculty sponsor who will supervise the student’s work. Written report or thesis proposal to be prepared.

- **799 Thesis.** Prereq 18 hr of cr applicable toward M.S. in CS. Original or compirical work to be evaluated by a committee of three faculty members.

**Systems Engineering Courses (SYST)**

- **521 Modern Control Theory (3:3:0).** Prereq ENGR 421 or equiv. Analysis and design of control systems using state-space approach. Stability, controllability, and observability of linear and nonlinear control systems. Introduction to optimal control and system identification.

- **522 Computer Control Systems (3:3:0).** Prereq ENGR 421, 520 or Pol. Theory and industrial applications of the use of computers in analysis, design and implementation of feedback control systems. Topics include modeling of
systems and signals, computer aided design, optimal design methods, digital controllers, adaptive control and intro to computer aided manufacture and robotics.

570 Quality Control (3:3:0). Prereq Course in statistics. Statistical and managerial techniques applied to quality control and assurance in both manufacturing and nonmanufacturing applications. Topics include quality considerations in design, process vs. design tolerances, acceptance sampling, control chart methodology, and applications.

659 Judgment and Choice Processing and Decision Making (3:3:0). Intuitive nature of human judgment and decision making, and some methods currently being used for improving individual and group decision. The nature of judgment emphasizing limitations on human information processing abilities. The use of decision-analytic techniques to improve decision making.

660 Systems Engineering—Economic Analysis (3:3:0). Prereq ENGR 390, MATH 351, or Pol. An introduction to analysis, design, test, implementation, and management of systems. System life cycle, cost/benefit and analysis, comparison of alternatives, and human/social implications are examined.

661 Systems Engineering—Models and Control (3:3:0). Prereq MATH 351, MATH 304. An introduction to the construction of differential and difference equation models occurring in systems engineering and their solution by transform methods. Elements of system control are discussed.

675 Reliability Analysis (3:3:0). Prereq STAT 654 or equivalent. This course will introduce the student to the concept of system reliability and its relationship to product quality, maintenance costs, and safety engineering. A series of topics will be developed that will incorporate the statistical and mathematical point of view in reliability as a means of helping students develop the capability to design, model, and make inferences on complex systems.

760 Command Control and Communications Systems Engineering (3:3:0). Prereq SYST 661 and undergraduate or graduate course in communications engineering or Pol. Hardware, software, and human elements of C-cubed systems. Systems structures and connectivity. Analysis and modeling. Typical large military, civil, and commercial systems.

763 Special Topics in Command Control and Communications Systems Engineering (3:3:0). Prereq 760 or Pol. Individual topics selected by the student with professor's approval will be studied and discussed. A formal midterm progress report, including bibliography, will be submitted with a final report at the end of the semester.

798 Research Project (3:0:0). Prereq 9 hr of grad-level course work. Research project to be chosen and completed under the guidance of a graduate faculty member which results in an acceptable technical report.

799 Master's Thesis (3-6:0:0). Prereq 9 hr of grad-level course work and Pol. Research project to be chosen and completed under the guidance of a graduate faculty member, which results in a technical report acceptable to a three-faculty-member committee, and an oral defense.

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**Information Technology**

The general doctoral requirements of George Mason University apply to this program.

When the term Information Technology and Engineering is used at George Mason University to describe our school and its activities, it is intended to mean Information Technology and Information Engineering. These aspects of technology are emphasized in this geographic region and we will develop excellence in precisely these areas. Our focus is on the information and systems approaches to technology, which complement and enhance the more traditional approaches.

Information technology and engineering at GMU involves an external design function and an internal design function. Electrical and Computer Engineering and Computer Science involve the hardware and software aspects of the internal design function. The human element and the external design functions are also important for successful system design and operation. Our efforts in Information Systems and Systems Engineering primarily concern working with people to assist them in knowledge organization. These efforts involve systems, including information systems, and the entire life cycle of systems from initial conceptualization and specification of information and architectural requirements through system evaluation and redesign. They include the analysis capability that is needed to quantitatively determine operational characteristics of existing and future systems and processes. Our activities in Operations Research and Applied Statistics are focused on these important endeavors.

Our tasks in information technology and engineering vary from requirements definition and specification to conceptual and functional design and development of systems. They concern such topics as architectural definition and evaluation. These occur at considerably different points in the system life cycle and are needed for functional integration, maintainability, reliability, and the appropriate interfaces that ensure system design for human interaction. This human interaction with systems and processes, and the associated information processing activities, may take any of several diverse forms. It may involve human supervisory control of physical processes, such as the robots that are used in automated manufacturing. It may involve typically cognitive tasks at the operational levels of fault diagnosis, detection, and correction, or at the level of strategic planning.

A large number of new mathematical discoveries of the last three decades—especially in applied mathematics, statistics, and the mathematics of
operations research—also have much to offer. The challenge is to exploit this knowledge by developing new computer simulation models that humans can use to increase their intelligence through an increase in the perspectives through which they approach a given problem.

Admission Requirements

Doctoral students in Information Technology are selected on the basis of scholarship and potential from among applicants with appropriate degrees from institutions of high standing. Generally, a master’s degree in an information technology-related area is required for admission to the program. Students without an appropriate master’s degree who otherwise satisfy admission requirements will usually be encouraged to first seek such a degree in one of the five master’s programs offered through this school. Application packets are available from the Office of Admissions and from the Office of the Dean of SITE.

An undergraduate grade average of B and Graduate Record Examination aggregate scores of 1200 on the aptitude tests are minimum attributes of applicants for the program. The admissions process includes submission of the application for admission, undergraduate and graduate transcripts from previous colleges and universities attended, GRE test results when available, three letters of reference, a resume and detailed statement of career goals and aspirations, and a self-assessment of past background. All of an applicant’s background is examined prior to making an admissions decision.

Among appropriate fields of study that provide an immediate basis for doctoral study in information technology are engineering, computer science, operations research, statistics, mathematics, the physical sciences, economics, and psychology.

To ensure a common ground of fundamentals, students should have a background in topics such as calculus, differential equations, linear algebra, discrete structures, probability, and statistics. In addition, students entering the doctoral program in information technology must have a sound working knowledge in computing as demonstrated by examples of programs or applications developed and tested in at least one high-level programming language environment. Since much of the course work within this program requires computational proficiency, experience with a variety of languages and computer hardware will prove useful, as will an understanding of computer architecture. Highly qualified students who do not present evidence of appropriate course work for the program may be admitted and then required to take appropriate articulation courses.

Plan of Study

The Ph.D. program in information technology is made up of a core curriculum and in-depth study and research in the student’s field of concentration, followed by preparation of a dissertation. Generally, a student will have obtained a master’s degree in a field appropriate to information technology. This master’s program will often contain many of the doctoral core courses.

Under the guidance of the doctoral supervisory committee, the student will prepare a plan of study. This will list the intended courses and their expected timing in both the breadth and advanced specialty parts of doctoral study. The plan should also contain the intended date of the comprehensive examinations and the tentative subject of the dissertation research.

A student will be provided with an evaluation of previous efforts and how these satisfy both the fundamental entrance requirements and the breadth requirements for the Ph.D. degree.

Completion of the broad scope and in-depth advanced doctoral studies is followed by a comprehensive examination on the advanced work. In addition, preparation and oral presentation of a dissertation proposal is required. The doctoral program is completed with successful presentation and defense of a doctoral dissertation representing an important contribution to fundamental or applied knowledge in information technology.

Core Curriculum

Students must satisfy the breadth requirement in six subject areas. At least one area must be selected from each of the four departments within the School of Information Technology and Engineering. Each department offers up to five core or breadth subject areas.

Courses taken elsewhere in institutions of recognized standing may be used to satisfy portions of the breadth requirement when the course is equivalent to a GMU breadth course, the grade received in the course was an A or B, and the course was taken within five years of admission to GMU or the student has retained knowledge of the course material through professional experience.

The student grade-point average for courses taken at GMU to meet the breadth requirement must be at least 3.5. Students have the option of taking the final examination in a breadth course at GMU without taking the course itself, but may take this opportunity only once for a given breadth course.

Doctoral Supervisory Committee

Upon admission to the program, a student is assigned a temporary adviser. The student is responsible for working with the temporary adviser so an advisory committee may be appointed soon after the student’s admission to the program. This is especially important for students who have completed a considerable amount of graduate work elsewhere.

The doctoral supervisory committee includes a faculty member from the student’s intended major area, who is selected by the student to become chair of the doctoral supervisory committee. Other committee members are selected to form a committee of at least four people. At least two of the departments of the School of Information Technology and Engineering must be represented on this committee. Industrial representatives and faculty members from departments outside of the School are highly desirable but are not required on the
committee. The doctoral supervisory committee will administer the comprehensive examination, the dissertation proposal presentation, and the dissertation defense.

Advanced Specialty Area Requirement

Students must include in their plan of study a well-defined advanced specialty area. Successful completion of this requirement should enable the student to do basic or applied research in a significant contemporary area in information technology.

The doctoral plan of study generally includes at least 48 semester hours of graduate-level coursework beyond the master's degree, and at least 18 of these must be in the advanced specialty area of study.

Comprehensive Examination

The examination will be based upon an area(s) of interest described by the student in a memo written to the examining committee to become a permanent part of the student's record. The memo will describe an advanced specialty area(s) and will briefly comment upon the courses that the student has taken in the area and upon the independent study taken under the direction of a particular faculty member. The memo will also define the coverage for the comprehensive examination. The objective of the comprehensive examination is to allow the examining committee to assess a student's readiness for and ability to complete doctoral research in an area of specialization.

After completing the advanced specialty part of the studies, the student requests appointment of a comprehensive examination committee and the comprehensive examination. This request is transmitted through the supervisory committee to the Office of the Dean. Generally conducted by the doctoral supervisory committee, the examination covers the student's area of specialization and includes both a written and an oral part. The result of the comprehensive examination is a grade of pass or fail with recommendations for removing any deficiencies.

After satisfactorily completing the written portions of the comprehensive examinations, the student will arrange the oral portion. The entire advisory committee will meet with the student and ask him or her questions concerning basic and advanced areas of study.

Dissertation Proposal Presentation

Near the end of the course work each doctoral student will prepare a written dissertation proposal, which will be presented in an oral public presentation to the doctoral supervisory committee. After completing this portion of the doctoral effort, the student is formally admitted as a "candidate" for the Ph.D. degree. The application for candidacy will be on a standard form.

Dissertation and Final Defense

With concurrence of the advisory committee, the student proceeds with the doctoral research. When the central portions of the research have been completed to the point that the student is able to describe the original contributions of the dissertation effort, the final oral presentation of the dissertation research may be scheduled. A candidate submits the dissertation to the doctoral supervisory committee one month before the scheduled date of the dissertation defense. The dissertation is then presented to the committee in a public oral presentation.

Following a satisfactory evaluation of the oral defense of dissertation by the supervisory committee, the student must prepare, with supervision from the dissertation director, a final publishable dissertation that represents a definitive contribution to knowledge in information technology. This document must meet format guidelines specified by the Graduate School's Dissertation Guide.

If the candidate successfully defends the dissertation, the dissertation defense committee will recommend completion of the final form of the dissertation, and that the faculty of the School of Information Technology and Engineering and the Graduate Faculty of George Mason University confer on the candidate the doctor of philosophy degree.

Residence Requirement and Research in Industrial Laboratories

The term residence indicates that the student is "at home" intellectually with the faculty community. The student is expected to "reside" at George Mason University and associate with the GMU faculty for at least two full academic years. The advisory committee will determine the equivalent of two academic years of effort at GMU. The basis for residency, as here defined, is effort in the intellectual community at GMU to complete the basic or core study area requirements of the comprehensive examinations, completion of the advanced specialty areas of study and the associated advanced specialty portions of the comprehensive examinations, and preparation of a dissertation proposal that defines a definitive research contribution.

Student research in industrial and government laboratories is encouraged to the extent that these facilities support quality "independent" research by the doctoral student. The greater Washington area is home for the largest group of information technology professionals in the world, many of whom have made definitive contributions to research in this area. Area professionals with outstanding credentials and interests in information technology are solicited as Visiting Industrial Professors at GMU. They may serve on doctoral advisory committees and, where permitted by available time and interests, direct doctoral dissertations.

Approved Core Curriculum Courses

Computer Science:
CS 521 Software Design and Development
CS 540 Language Processors
CS 571 Operating Systems
CS 580 Introduction to Artificial Intelligence
CS 583 Data Structures and Analysis of Algorithms
Information Technology Courses (INFT)

Graduate courses listed under the departments of Computer Science, Electrical and Computer Engineering, Information Systems and Systems Engineering, and Operations Research and Applied Statistics are appropriately considered as courses forming an inherent part of this program.


812 Advanced Topics in Natural Language Processing (3:3:0). Prereq CS 680 or Pol. Advanced treatment of topics in syntax, semantics and generation of linguistic output. Implementation and applications will also be discussed.

815 Parallel Computation (3:3:0). Prereq At least one course numbered above 620 in CS or ECE. Introduction to parallel computation. Topics will illustrate some of the contemporary thinking on the relationships between the architectural, algorithmic, and language requirements for parallel computers.

821 Software Engineering Seminar (3:3:0). Prereq CS 621 or Pol. This seminar studies the application of software engineering principles, design methods, and support tools through real-life problems extracted from faculty-industry projects.

830 (formerly ECE 634) Detection and Estimation Theory (3:3:0). Prereq ECE 528. Introduction to detection and estimation theory with communication applications. Topics include M-hypotheses, Bayes, minimax, Neyman-Pearson criterion, detection of signals in AWGN and ACGN, estimation of Gaussian waveforms in Gaussian noise, linear MSE estimation, Kalman and Wiener filters.

831 Speech and Image Coding (3:3:0). Prereq ECE 535, ECE 632. Study of waveform coding concepts and algorithms and their applications to the analysis and design of data compression systems. Specific schemes involving speech and image coding are discussed. Topics include statistical properties of speech and image signals, rate distortion theory, predictive and adaptive coding techniques, optimum quantization and bit assignment algorithms.

832 Satellite Communication (3:3:0). Prereq ECE 631 or Pol. Introduction to the theory and applications of modern satellite communications. Topics include satellite channel characterization, channel impairment and transmission degradation, link calculations, modulation, coding, multiple access, broadcasting, random access schemes, demand assignment, synchronization, satellite switching and onboard processing, integrated service digital satellite networks, and satellite transponder, ground stations, packet switching, optical satellite communications.

835 Architectures for Knowledge-Based Vision Systems (3:3:0). Prereq ECE 644 or equiv. Introduction to knowledge-based vision systems. Topics include image analysis, vision system architectures (human visual system, homogeneous, heterogeneous, autonomous), vision system operations (focus and zooming), picture recognition languages, introduction to knowledge-based and expert systems, learning algorithmic schemes, applications. Course includes a design project.

840 (formerly ECE 651) Advanced Robotics (3:3:0). Prereq ECE 650 or Pol. Review of input-output models in theoretical and software aspects of robotics. Topics include compliance, flexible manipulators, intelligent task planning, collision avoidance, grasping and pushing, dexterous manipulation with multifingered hands, coordination of multiple manipulators, legged locomotion, autonomous navigation, robot languages, intelligent control, integration of sensory information, visual servoing, robot learning.

796, 797 Directed Reading and Research (1-3). Reading and research on a specific topic in information technology under the direction of a faculty member. May be repeated as needed.

800, 801 Doctoral Seminar in Information Technology (1). A weekly seminar in information technology with interactive participation by students, faculty, and invited specialists.

803, 804 Doctoral Tutorial in Information Technology (3). Individualized intensive study of particular aspects of information technology. May be repeated as needed.

841 State Estimation and Stochastic Control (3:3:0). Prereq ECE 521 and ECE 528 or Pol. Detailed treatment of stochastic control theory and its applications. Topics include state space models with random inputs, optimum state estimation, Kalman filtering, Linear Quadratic Gaussian problem, minimum variance control, computational issues, and various applications.

843 Computer-Aided Control System Design (3:3:0). Prereq ECE 620 or ECE 624. Investigation of available computer-aided design (CAD) methods and current research in application of artificial intelligence to the computer-aided design of dynamic systems will be emphasized. Applications in computer-aided control system design. Topics include control system design using existing CAD methods, representation of design knowledge, integration of algorithmic and heuristic approaches to system design, intelligent user interfaces for computer-aided design, and intelligent design tutors.

844 Pattern Recognition (3:3:0). Prereq ECE 521 and ECE 528 or equiv or Pol. Study of mathematical methods in pattern recognition. Topics include perceptions, categorization, induction, entropy minimization, covariance diagonalization, statistical decision making, discrimination, feature selection, learning, fuzzy objective function clustering, string and high dimensional pattern grammars, stochastic languages, error-correcting automata, grammatical inference.

845 High Frequency Electronics (3:3:0). Prereq ECE 520 or Pol. Study of devices and circuits used in high-speed communication systems. Topics include microwave bipolar transistors, GaAs MOSFETs, and high-speed integrated circuits; the design of linear and power amplifiers using S-parameter techniques and computer simulation.

846 Optical Signal Processing (3:3:0). Prereq ECE 565. Study of optical systems for processing temporal signals and images. Topics include use of coherent optical systems for image processing and pattern recognition, principles of holography, acousto-optic systems for radar signal processing, and optical computers.

878 Statistical Analysis of Signals (3:3:0). Prereq STAT 644 and 658 or equiv. Advanced course in the analysis of
discrete- and continuous-time signals using methods of stochastic differential equations and time series. Familiarity with the methods of harmonic analysis and time series modeling is presumed. Topics include state-space modeling and eigen-value processing, nonlinear modeling of signals, non-Gaussian stochastic process structure, detection and estimation, and signal detection, array processing and target tracking. Relevant computational architectures such as systolic arrays will also be discussed.

880 Queuing Modeling of Computer-Communication Networks (3:3:0). Prereq Doctoral standing or Pol. Study of analytical modeling of computer and communication networks and performance evaluations. Topics include Markovian systems, open networks, closed networks, approximations, decomposition, simulation, sensitivity analysis, and optimal operation of systems. Local area networks, manufacturing systems, and other applications.

881 Numerical Methods for Mathematical Optimization (3:3:0). Prereq OR 641 or 642 or 643 or 644 and knowledge of a scientific programming language (preferably FORTRAN). Study of computational issues related to the solution of linear, integer, and nonlinear programming problems. Topics include the use of list processing, AI, parallel processing, efficient inversion techniques, and numerical analysis procedures. Complexity analysis and the structure of algorithms. Recent results relating to the worst case and average case performance of algorithms. Survey of the leading software. Students will use, alter, and develop software throughout the course.

882 Advanced Topics in Combinatorial Optimizations (3:3:0). Prereq OR 641, 642, and admission to Ph.D. Program or Pol. Study of recent advances in the solution of large integer programming problems using the polyhedral structure of the problem. Topics include the facial structure of a variety of real-world problems, methodology for developing cutting planes based on this polyhedral structure, reformulation procedures, group-theoretic results, solving equations in integers, and the use of subadditive duality. Topics will stress the most recent developments in the field.

883 Advanced Topics in Nonlinear Programming (3:3:0). Prereq OR 644 and admission to SITE doctoral program or Pol. Study of algorithms for solving nonlinear constrained and unconstrained problems. Study of current literature on methods for globally solving nonconvex problem and factorable programming techniques. Other possible topics are quasi-convexity, recent duality results, complementary pivot theory, quadratic and stochastic programming, maxmin problems and some problems in optimal control.

910 Advanced Topics in Artificial Intelligence (3:3:0). Prereq CS 680 or other topics in artificial intelligence not occurring in the regular computer science sequence. Seminar format requires substantial student participation. Subject matter may include continuation of existing 600- or 700-level courses in artificial intelligence and/or other topics such as machine learning, intelligent tutoring systems, and mechanical theorem-proving. Course may be repeated for credit when subject matter differs.

915 Advanced Topics in Parallel Computation (3:3:0). Prereq INFT 815. Seminar discusses current research topics in parallel computation. Topics vary according to student and faculty interest. Possible topics include formal models of concurrency, specification and design of parallel programming languages, logic programming in a parallel environment, and parallel distributed processing (neural networks).

921 Advanced Software Engineering Seminar (3:3:0). Prereq INFT 721 and CS 580. Advanced software engineering topics currently in research laboratories, or which have received only empirical treatment. Topics may include special application areas (as opposed to nontraditional applications) such as artificial intelligence, as well as important industry-related software issues which have far reaching consequences, like software configuration management.

930 Multichannel Statistical Signal Processing (3:3:0). Prereq INFT 830. Study of topics in multichannel estimation and detection theory, with emphasis on the multivariate gaussian noise model. Multivariate distribution theory, including the Wishart, matric-t, and multivariate-beta distributions, considering radar and sonar signal processing applications. The general linear model and its application in adaptive and signal processing. Other topics include spectral analysis via principal components, tests for the dependence of several stochastic inputs, and analysis of covariance structures.

931 (formerly ECE 636) Secure Telecommunication Systems (3:3:0). Prereq ECE 632 and 633. Introduction to secure data and voice communications. Topics include theoretical basis of cryptography, random cipher systems, practical security schemes, linear and nonlinear shift registers and encryption algorithms, block encipher and NBS data encryption standard (DES), public key cryptography, RSA, knapsack algorithms, digital signatures and authentication, security of computer networks, cryptographic protocols, key management, speech security, voice scrambling.

932 (formerly ECE 637) Spread Spectrum Communications (3:3:0). Prereq ECE 631. Fundamentals of spread spectrum communications. Major topics include pseudonoise spread spectrum systems, acquisition, synchronization, time-hopping, frequency hopping, and multiple-access communication.

933 Modeling and Analysis of Integrated Services Digital Networks (3:3:0). Prereq ECE 631 and 642. Study of integrated services digital networks. Discussion of queuing, modeling, and analysis of digital circuit-switching systems; integrated data and voice multiple access schemes; ISDN layered architectures; ISDN protocols; transmission technologies and system implementations.

935 Knowledge-Based Systems for Text Translation (3:3:0). Prereq INFT 835 or equiv. Current topics for text processing, analysis and translation. Topics include automatic text reading and reconstruction systems; computational linguistics; syntax analysis; semantic analysis and interpretation; discourse analysis and information structuring; text generation; text abstractions; strategies in machine translation and R & D; sublanguages for automatic translation, knowledge-based machine translation; basic theory and methodologies in EUROTRA and GMTP projects; machine translation as an expert task; human-machine interaction in translation; reflections on knowledge needed to process formed languages.

936 Advanced Computer Architecture Seminar (3:3:0). Prereq ECE 641 or equiv. Current topics of advanced research in computer architecture. Topics include data flow architecture; high-level language (HLL) architectures; multiprocessor system architecture; system implementation; RISC vs. CISC Architecture; distributed systems. Discussion of commercial advanced architecture systems.

940 Advanced Topics in Control Robotics (3:3:0). Prereq Pol. Advanced and newly developed topics in control and robotics. Content varies depending on current faculty interests and student demand. Topics such as knowledge-based control, intelligent control, hierarchical and distributed control, robust control, and reasoning under uncertainty.

941 System Identification and Adaptive Control (3:3:0). Prereq ECE 528, ECE 624. Advanced treatment of identification and adaptive control. Topics include identification algorithms, their convergence and accuracy, computational implementation. Model reference and self-tuning adaptive control, transients, stability and robustness. Intelligent schemes to improve robustness. Students will also be required to study the literature individually and to complete a computer project.

943 Models of Approximate Reasoning (3:3:0). Prereq CS 580, STAT 644, or Pol. Survey of mathematical tools and algorithms for the modeling and utilization of uncertain knowledge in artificial intelligence systems. Topics include Bayesian theory, fuzzy logic, the Dempster-Shafer theory, evidential reasoning, probabilistic logic, multattribute utility theory, confirmation theory, theory of endorsements, nonmonotonic reasoning, default reasoning, measures of
information, knowledge fusion, propagation of beliefs in networks, and applications to knowledge support systems.

945 Advanced Topics in Microelectronics (3:3:0). Prereq ECE 671, ECE 684, and INFT 845. Current topics of advanced research in microelectronics. Topics include Very High Speed Integrated Circuits (VHSICs), Monolithic Microwave Integrated Circuits (MMICs), Optoelectronic Integrated Circuits (IOCs), novel device structures and advances in semiconductor device technology.

950 Design and Management Aspects of Information Systems (3:3:0). Prereq Admission to Ph.D. program in INFT, SYST 661, CS 521, MGMT 610, and ECON 602 or Pol. Impact of organizations and management of Information Systems (IS) and vice versa. Problems of introducing IS: effect on organizational economic and political framework. Participative design and new techniques for specification, analysis, design, and implementation of IS. Rapid prototyping and expert systems; possible conflicts. Methods in life cycle management; economic analysis.

951 Software Productivity (3:3:0). Prereq CS 580, SYS 660 or Pol. Analysis of the framework of applications of knowledge-based systems within information technology. Study of impact of KSS on systems such as computer integrated manufacturing, planning support systems, and distributed information systems. Comparison of procedural and non-procedural computer languages in support of decision processes in large scale systems.

952 Knowledge-Based Systems Applications (3:3:0). Prereq SYS 660, CS 580, or Pol. Analysis of the framework of applications of knowledge-based systems within information technology. Study of the state-of-the-art and state-of-the-expectation of basic and applied decision support systems technologies like requirements of technology, software engineering, analytical methods assessment, and structured evaluation.

960 Expert Database Systems (3:3:0). Prereq CS 580, INF 714, or Pol. Study of the concepts, tools, techniques, and architectures of expert database systems, which support the specification, design, prototyping, production and maintenance of applications requiring knowledge-directed processing of shared information stored in large databases.

979 Topics in Statistical Aspects of Information Technology (3:3:0). Prereq STAT 652 or equiv. Study of statistical science—the body of methods and techniques which convert raw data into information. Contents will vary. Such topics as high interaction statistical graphics, stochastic methods for parallel computing, cryptography and covert communications, order-restricted inference, treatments of imprecision, and the foundations of inference will be covered. Course may be repeated when topics are distinctly different.

998 Doctoral Dissertation Proposal (1-12:0:0). Prereq Admission to doctoral candidacy. Work on a research proposal which forms the basis for a doctoral dissertation. May be repeated. No more than 24 credit hours of INFT 998 and 999 may be applied to doctoral degree requirements.

999 Doctoral Dissertation (1-12). Formal record of commitment to doctoral dissertation research under the direction of a faculty member in information technology. May be repeated as needed.

Interdisciplinary Studies

Faculty

De Nys, Martin J., Philosophy and Religious Studies, Coordinator, Liberal Studies
McGuinness, Kathleen, Division of Continuing Education, Acting Director of Individualized Study Degree Programs.

Interdisciplinary Studies, M.A.I.S.

The Master of Arts in Interdisciplinary Studies (M.A.I.S.) differs from traditional graduate programs by offering individual study that emphasizes the integration of knowledge from various disciplines. With the help of an adviser, students in the program design a course of study tailored to their particular interests and needs.

The M.A.I.S. is divided into two tracks, Liberal Studies and Individualized Studies. The Liberal Studies (LS) track offers a broad course of study for those who wish to explore the fundamental ideas of Western culture within the context of contemporary society. In addition to appealing to students who wish to broaden the humanistic dimension of their knowledge, this track is also of value to business and professional people who feel the need for liberal studies in order to cope with the complex issues posed by modern society. Teachers, librarians, and other professionals often find that this program offers a useful alternative to graduate work in a single discipline. For the student with comprehensive goals, the program may be more satisfying than participating in a series of unrelated courses. A student in the LS track chooses one broad area of concentration from four interdisciplinary topics: (1) technology and culture; (2) the secular and the sacred; (3) the arts and society; and (4) personal, social and political values. Within the student's area of concentration, he/she pursues individually designed courses of study.

The Individualized Studies (IS) track is designed for students who have specific professional or career interests in interdisciplinary areas not served by traditional graduate programs. Students in this track may combine courses from various disciplines appropriate to their particular career needs. Since the IS track is for the professionally oriented student, applicants should demonstrate their career interests by prior work or educational experience in their proposed areas of concentration. Under the guidance of a faculty adviser, students entering the program develop an area of concentration tailored to
their particular interests. A major part of the IS program is the completion of a project that integrates knowledge gained from courses within the student's area of concentration. Students in the IS track may earn credit for prior experiential learning related to their field of concentration.

**Liberal Studies Track, M.A.I.S.**

The LS track of the M.A.I.S. offers a broad, interdisciplinary course of study that elucidates the fundamental ideas and values of Western culture and seeks to interpret these ideas and values within the context of contemporary society. This track is directed primarily toward employed adults possessing at least a baccalaureate degree, who wish to broaden the humanistic dimensions of their knowledge in an integrated and disciplined course of study.

**Admission Requirements.** In addition to fulfilling the admission requirements of the Graduate School, an applicant to the LS track is expected to provide three letters of recommendation and a written statement of 750–1,000 words detailing the reasons for choosing this degree program rather than a more traditional one. Care should be given to the preparation of the statement. The applicant should cover the following issues in the statement: (a) In terms of your goals and objectives, why the LS track of the M.A.I.S. is more appropriate than a traditional master's program; (b) In view of the four concentrations listed above, define the interests you wish to pursue within this degree; (c) How you see this degree relating to your previous education and life experience.

**Degree Requirements.** The program is designed to provide students with a common framework for examining and understanding the origins, historical development, and contemporary impact of ideas and values characteristic of Western culture and to provide an opportunity for individually designed courses of study leading to in-depth analysis of particular issues or problems of Western culture in contemporary society. The key factors in this design are core seminars, an interdisciplinary concentration in an approved topical area, supporting course work, and a master's thesis. Credit hours required for graduation total 36, including 6 hours in core seminars, and at least 30 hours in course work at the 500-level or above, including the master's thesis. A student must complete all requirements for the degree within six years of matriculation.

**Core Seminars.** Seminar I. An entering student is required to take an introductory three-hour graduate seminar during the first nine hours of the program. This seminar introduces the student to the study of human culture, as well as to the unique features of Western culture—its origins and continuing historical development.

Seminar II. This seminar is designed to be the last course that the student takes before commencing work on a thesis. Through the vehicle of a problem or theme chosen by the professor, the student will again turn to the question of culture. In this case, however, the student will apply the knowledge gained from the introductory seminar, as well as from courses completed, particularly those in the area of concentration.

**Interdisciplinary Concentration.** With the assistance of an adviser, a student will choose an interdisciplinary project and area of study from among the following general topics:

1. Technology and culture
2. The secular and the sacred
3. The arts and society
4. Personal, social, and political values

Since each of these topics can be studied successfully from the perspective of several of the traditional academic disciplines (humanities, social sciences, etc.), the students will be expected to choose courses from supporting departments in order to complete their fields of study.

**Course Work and Master's Thesis.** Courses relating to the student's area of study may be selected, with approval of the student's adviser, from among the graduate offerings of the departments in the College of Arts and Sciences. Courses from other areas may also be selected if they contribute to an understanding of the student's project. At least six of the courses presented for the degree must be in the student's area of concentration.

The thesis is planned as the last major activity in the student's course of study in the chosen area of concentration. The thesis will be an interdisciplinary study of a significant problem identified by the student, and approved by the adviser, arising out of the student's course work and research within the chosen area of concentration.

**Liberal Studies 510: The Phenomenon of Culture**

**Description:** An examination of various concepts of culture (e.g., anthropological, sociological, philosophical), with a view toward arriving at a concept of culture that allows us to account for the difference between cultures as well as the diversity that occurs within a culture. Using this understanding, we will explore the unique features of Western culture, paying particular attention to a single idea, e.g., the idea of evolution, and the ways in which it reflects and has influenced the values and ideals of the West.

**Individualized Studies Track, M.A.I.S.**

The Individualized Studies (IS) track of the Master of Arts in Interdisciplinary Studies degree is a program designed for adult students who desire to continue their graduate education in nontraditional areas of study. Nontraditional areas of study are those in which degree programs are not offered.

**Admission Requirements.** Application to the program is completed when a student has obtained counseling through the IS office, applied to the Graduate School and submitted appropriate transcripts and three letters of reference, and submitted the application to the IS Program at George Mason University.

**Degree Requirements.** This IS track is a professionally oriented master's program. Some experience in the area of proposed study concentration should be demonstrated prior to acceptance in the program. A provision for credit for experiential learning may be included for the student
who successfully demonstrates advanced learning in the field of study to a panel of full-time faculty members. Credit is available for graduate-level course work taken in formal education settings at nonuniversity institutions (provided that such course work has been evaluated appropriately by the American Council on Education).

The Individualized Studies (IS) track also requires that the student have demonstrated a commitment to graduate education by completing at least six hours of graduate-level work related to the proposed concentration prior to admission to the program. The student who has not yet completed six hours of course work may be admitted to provisional status.

The proposed course of study must be designed in conjunction with, and approved by, a full-time member of the George Mason University faculty. A three-credit individualized study project is required; or with approval of the faculty adviser and the chair of the adviser's department, a six-credit IS thesis may substitute for the IS project.

Human Resource Development Program (formerly Human Resource Management Program). This master's level program is designed for prospective HRM professionals, experienced individuals who wish to make a career change, and for those currently employed in HRM fields who wish to obtain a degree or acquire new skills and knowledge. The 36-semester-hour curriculum leading to the M.A.I.S. degree is designed to integrate knowledge from six academic disciplines to satisfy core and specialty requirements for those with specific career interests in training, management, organizational development, labor relations, and personnel. The focus of the program is on acquiring relevant knowledge while concurrently acquiring the skills to implement this learning.

For more information please contact Jack Levy or Ward Cates, Department of Education (323–2421), or Kathleen McGuinness, Division of Continuing Education (323–2342).

Transfer Credit Provisions of IS Track. The Individualized Studies (IS) track allows acceptance of up to 12 hours of transfer credit, provided that each course has a minimum grade of B and provided that the course work relates to the area of proposed concentration. In all cases a minimum of 18 hours of classroom course work at George Mason University must be completed with a minimum grade of B (excluding credit for experiential learning and IS project or thesis credits). In total, a minimum of 36 hours toward the M.A.I.S. degree must be completed. No more than 12 hours of course work in a single discipline may be taken at George Mason University and offered toward the 36-hour requirement in the IS Track. The extent to which transfer credit and credit earned at George Mason University in the same discipline may be offered toward the degree will be determined on an individual basis.

Course Work

798 Individualized Studies Project (3:3:0). Prereq Degree candidacy in Individualized Studies Track, M.A.I.S., completion of 27 semester hours of graduate course work, approval of faculty adviser, and approval of Director.

Individualized Study Degree Programs. Research project related to the student's individualized concentration taken under supervision of the faculty adviser.

799 Individualized Studies Thesis (6:0:0). Prereq Degree candidacy in the Individualized Studies Track, M.A.I.S., and acceptance by the Graduate School of a thesis proposal. An original research endeavor related to the student's M.A.I.S. Program concentration. Research must result in a document meeting the Graduate School's standards listed in the Guide for Preparing Graduate Theses, Dissertations, and Projects.
Mathematics

Faculty

Alligood, Kathleen T., Ph.D., University of Maryland, 1979; Assistant Professor

Fischer, Klaus G., Ph.D., Northwestern University, 1973; Associate Professor

Gabel, Michael R., Ph.D., Brandeis University, 1972; Associate Professor

Kiley, W. Thomas, Ph.D., Brown University, 1969; Associate Professor

Lawrence, James F., Ph.D., University of Washington, 1975; Assistant Professor

Levy, Ronald F., Ph.D., Washington University, 1974; Associate Professor

Lim, Tech-Cheong, Ph.D., Dalhousie University, 1974; Associate Professor

Lin, Jeng-Eng, Ph.D., Brown University, 1976; Assistant Professor

O'Brien, Gary F., Ph.D., State University of New York at Binghamton, 1981; Assistant Professor

Saperstone, Stephen H., Ph.D., University of Maryland, 1970; Professor

Shapiro, Jay A., Ph.D., Rutgers University, 1975; Associate Professor

Smith, John A., Ph.D., University of Maryland, 1970; Professor

Svendsen, Edward C., Ph.D., University of Illinois, 1968; Assistant Professor

Thomas, Romeo F., Ph.D., University of Warwick, 1979; Assistant Professor

Trenholme, Alice R., Ph.D., University of Maryland, 1982; Assistant Professor

Mathematics, M.S.

The Department of Mathematical Sciences offers courses in pure and applied mathematics leading to the M.S. in mathematics. The program trains students in areas relevant to the needs of business, industry, government, and the teaching profession and provides the necessary background for advanced graduate work. Two specializations within the program allow the students, if they wish, to concentrate their studies in either operations research or statistics. Limited financial aid is available in the form of a research or teaching assistantship.

Admission Requirements

In addition to fulfilling the Graduate School admission requirements, applicants must have the following:

1. Three letters of recommendation.

2. Extensive undergraduate training in mathematics that includes courses similar to MATH 315, 316: Advanced Calculus; MATH 322: Linear Algebra. MATH 611 and 612: Intermediate Analysis and Algebra present some of the highlights of these prerequisite courses and sharpen the skills necessary to enable a student to enter the degree program.

3. GRE exams are recommended but not required.

Degree Requirements

In addition to fulfilling the Graduate School degree requirements, the candidate must

1. Complete at least 30 semester hours of graduate work. With the approval of the department some of these hours may be from courses in related disciplines.

2. Complete Algebra I (MATH 621) and Linear Analysis I (MATH 675).

3. Complete a research component of the degree: Thesis 799/Seminar 795. This component must be at least three hours and may not exceed nine hours. No more than six hours of either thesis or seminar may be applied toward the 30-hour minimum requirement for the degree.

4. Pass the departmental examination. This oral exam is to be taken near the completion of the degree and tests the cumulative skills acquired by the student. The exam consists of a basic and advanced unit in each of the areas of pure mathematics, operations research, and statistics. A student must pass two units, one basic and one advanced. The two units are chosen by the student in consultation with the graduate coordinator.

Course Work

The department offers courses in pure and applied mathematics, including Real and Complex Analysis, Algebra, Topology, Geometry, and Differential Equations. These include all courses prefixed by MATH. A complete list appears below. Courses prefixed by OR and STAT are offered by and listed with the Department of Systems Engineering.

Options in Operations Research and Statistics

Students may specialize in operations research or statistics instead of the standard mathematics curriculum.

Operations Research

This specialization allows students to concentrate their studies on mathematical models and methods
that are used to analyze complex real-world decision problems in both the private and public sectors.

The following requirements apply to this specialization:

1. In addition to satisfying the general degree requirements of the department, students must complete a minimum of four courses prefixed by OR. Three of these must be at the 600 level or higher. Students must complete OR 541 and 542: Operations Research I and II.

2. The departmental examination must consist of the basic unit in operations research and the advanced unit in any area.

Statistics

This specialization allows students to concentrate their studies in the theory and practice of the methods and techniques of statistical analysis. The following requirements apply to this specialization:

1. In addition to satisfying the general degree requirements of the department, the student must complete MATH 651: Probability, and STAT 752: Mathematical Statistics.

2. The student must complete three of the following courses:

- STAT 653 Survey Sampling
- STAT 654 Applied Statistics
- STAT 655 Analysis of Variance
- STAT 656 Regression Analysis
- STAT 657 Nonparametric Statistics
- STAT 659 Topics in Statistics

3. The departmental examination must consist of the basic unit in the area of statistics and an advanced unit in any area.

Mathematical Sciences Courses (MATH)

A double number separated by a comma (MATH 771, 772) indicates that both grad courses normally constitute a sequence and that the first semester is prereq to the second. The prereq may be waived by PoC. See also STAT and OR courses.

601 Principles of Analysis I (2:2:0). Prereq The calculus sequence and Pol. A fast-paced development of calculus including differentiation, integration, numerical methods, Fourier series, vector analysis, multivariate calculus. Prior exposure to some of the topics is assumed. Although open to all graduate students, the course is intended for those entering the graduate programs in the School of Information Technology and Engineering. Credit is not applicable toward the M.S. degree in mathematics.

602 Principles of Analysis II (2:2:0). Prereq The undergraduate calculus sequence and Pol. A fast-paced development of topics from advanced calculus including ordinary differential equations, complex analysis, Laplace and Fourier transforms. Prior exposure to some of these topics is assumed. The course is intended for students entering the graduate programs in the School of Information Technology and Engineering. Credit is not applicable toward the M.S. degree in mathematics.

603 Principles of Linear Algebra (1:1:0). Prereq A course in linear algebra and Pol. A fast-paced development of linear algebra including linear equations, matrices, vector spaces, linear transformations, inner products, and norms. Prior exposure to some of the topics is assumed. The course is intended for those entering the graduate programs in the School of Information Technology and Engineering. Credit is not applicable toward the M.S. degree in mathematics.

604 Principles of Discrete Mathematics (1:1:0). Prereq Pol. A fast-paced development of discrete mathematics including combinatorics, difference equations, graphs, trees, and digital systems. Prior exposure to some of these topics is assumed. The course is intended for students entering the graduate programs in the School of Information Technology and Engineering. Credit is not applicable toward the M.S. degree in mathematics.

611 Intermediate Analysis (3:3:0). Development of the number system; review of the highlights of calculus, sequences, and series of functions. Cr not applicable toward the 30 cr req for the M.S. in mathematics, but can be counted toward the master of education.

612 Intermediate Algebra (3:3:0). Linear algebra, vector spaces, linear independence, linear transformations, and matrix operations. Cr not applicable toward the 30 cr req for the M.S. in mathematics but can be counted toward the master of education.

620 Applied Matrix Analysis (3:3:0). Prereq MATH 612, 303 or 322. Review of vector and matrix arithmetic, Gaussian elimination, linear programming, eigenvalues, the Jordan form, linear differential systems, positive definite matrices, Markov processes, game theory, applications to numerical analysis, optimization, economic and ecological systems. Emphasis on modeling using matrix algebra to give full view to its applicability.

621 Algebra I (3:3:0). Groups, linear algebra, matrix groups.

623 Algebraic Coding Theory (3:3:0). Prereq MATH 303 or Pol. An introduction to the mathematical theory of error-correcting codes including linear block codes such as Hamming, Golay, BCH, and Reed-Muller. Also included are the MacWilliams equations and t-designs.

625 Numerical Linear Algebra (3:3:0). Prereq A course in linear algebra and some programming ability. Computational procedures for linear systems, least-square problems, and eigenvalue problems, with an emphasis on error analysis.

629 Topics in Algebra (3:3:0). Prereq Pol. Special topics in pure or applied algebra not covered in the regular algebra sequence. May be repeated for cr.


637, 638 Non-Euclidean Geometry I, II (3:3:0), (3:3:0). Prereq Pol. Affine, projective, hyperbolic, elliptical, differential geometry; transformations and elementary combinatorics.

639 Topics in Topology and Geometry (3:3:0). Prereq Pol. Special topics in topology and geometry not covered in the regular topology and geometry sequence. May be repeated for cr.

641 Combinatorics and Graph Theory (3:3:0). Prereq Pol. Study of fundamental concepts in combinatorics and graph theory. Various methods of enumerative combinatorics, including the principle of inclusion-exclusion, the multinomial theorem, generating functions, recurrence relations, graphs and subgraphs, trees, connectivity, planar graphs, coloring, and matching.


651 Probability Theory (3:3:0). Axioms for a probability space, conditional probability, random variables, distribution functions, moments, characteristic functions, modes of convergence, limit theorems.

671 Fourier Analysis (3:3:0). The study of fundamental ideas in Fourier Analysis. Topics will include orthonormal
systems, Fourier series, continuous and discrete Fourier transform theory, generalized functions, and an introduction to spectral analysis. Applications to the physical sciences, linear systems theory, and signal processing will be used to motivate and integrate these topics.


676 Linear Analysis II (3:3:0). Prereq MATH 675 or Pol. Analysis of bounded and unbounded operators, spectral theorems, differential operators, applications. A brief account of Lebesque integration theory may be included.


678 Partial Differential Equations (3:3:0). Prereq MATH 303 and 304. Physical examples, characteristics, boundary-value problems, integral transforms, and other topics, such as variational, perturbation, and asymptotic methods.

679 Topics in Analysis (3:3:0). Prereq Pol. Special topics in analysis not covered in the regular analysis sequence. May be repeated for cr.


685 Numerical Analysis (3:3:0). Prereq Linear algebra, advanced calculus or its equivalent, and some programming ability. A study of computational methods with an emphasis on error analysis in linear algebra, approximation theory, nonlinear equations, and numerical differentiation and integration.


689 Topics in Applied Mathematics (3:3:0). Prereq Pol. Special topics in applied math not covered in the regular applied math sequence. May be repeated for cr.

697 Independent Reading and Research (1-3:0:0). Prereq Grad stdg and Pol. In areas of importance, but insufficient demand to justify a regular course, an individual student may undertake a course of study under the supervision of a consenting faculty member. A written statement of the content of the course and a tentative reading list will normally be submitted by the student as part of the request for approval to take the course. A literature review, project report, or other written product is normally required. May be repeated for a maximum of nine credits.

722 Algebra II (3:3:0). Prereq MATH 621 or Pol. Rings, fields, Galois theory.

752 Mathematical Statistics (3:3:0). Prereq MATH 651. Sampling distributions, point and interval estimation (Cramer-Rao theorem), testing of hypotheses (Neyman-Pearson tests, uniformly most powerful tests, sequential tests), linear models, distribution free methods.

795, 796 Seminar (3:3:0), (3:3:0).

799 Thesis (1-6:0:0). Original or compilatory work to be evaluated by a committee of three faculty members.

800 Studies for the Doctor of Arts in Education (var cr). Prereq D.A.Ed. admission to study in mathematics. Program of studies designed by student’s discipline director and approved by student’s doctoral committee which brings the student to participate in the current research of the discipline director and results in a paper reporting the original contributions of the student. The paper is presented in a subsequent D.A.Ed. summer seminar. Enrollments may be repeated.
Music

Faculty

Brawley, Thomas M., Ph.D., Northwestern University, 1975; Associate Professor

Burton, Stephen D., M.M., Peabody Conservatory of Music, 1974; Professor

di Bonaventura, Sam, D.M.A., Peabody Conservatory of Music, 1964; Professor

Gabriel, Arnald D., M.S., Ithaca College, 1953; Professor

Harrison, Judith L., Ed.D., University of North Carolina at Greensboro, 1980; Assistant Professor

Hill, Thomas H., D.M.A., The Catholic University of America, 1970; Associate Professor

Kanyan, Joseph M., D.M.A., The Catholic University of America, 1972; Associate Professor

Maiello, Anthony J., M.S., Ithaca College, 1967; Professor

Smith, Glenn E., D.Mus., Indiana University, 1973; Associate Professor

Smith, James G., D.M.A., University of Illinois, 1973; Professor

Music, M.A.

The expansion of professional education in the arts is paramount for the growth and development of a rich and vital cultural community and a supporting network of individual artists. The dynamics of contemporary society suggest that the impact of the arts on public life will continue to expand well into the twenty-first century. Each year, despite the sagging economic situation, there are increased opportunities for creative work by performers, composers, sculptors, painters, dancers, actors, historians, theoreticians, and musicologists.

The Master of Arts with Specialization in Music has been developed by the Department of Performing Arts as one of those educational channels of opportunity to meet the intellectual and career needs of qualified students. It is a comprehensive and advanced program of study with a choice of concentrations in performance, music education, composition, conducting, and accompanying.

Admission Requirements

In addition to fulfilling the admission requirements of the Graduate School, the applicant is expected to hold a baccalaureate degree in music. Before admission to degree status, students must submit two letters of recommendation.

The following concentration admission requirements must also be met:

- Performance: Audition
- Music Education: Certification to teach music in the public schools
- Composition: Submission of a portfolio of compositions and an interview with a faculty committee
- Conducting: Audition
- Accompanying: Audition

Degree Requirements

A student must successfully complete 30 hours of credit in graduate music courses. With the approval of the department, three hours of nonmusic graduate credit may be taken.

The student must satisfy the following requirements:

- General Requirements (11 credits):
  - Introduction to Research in Music (3)
  - Analytical Techniques (3)
  - History and Literature of Music (3)
  - Ensemble (2)

- Additional requirements for the concentration in Performance (19 credits):
  - Graduate Private Music Instruction—Instrumental/Vocal (9)
  - History and Literature of Music (3)
  - Graduate Recital (1)
  - Electives (6)

- Additional requirements for the concentration in Music Education (19 credits):
  - Psychology of Music Teaching and Learning (3)
  - Aesthetics of Music Education (3)
  - Thesis (6) or Orff Schulwerk certification (9)
  - Electives (4–7)

Before receiving the degree, students in this concentration must complete the equivalent of one year of full-time public/private school music teaching. Before beginning the thesis or upon completion of Orff Schulwerk certification, students must pass a comprehensive examination in music education.

- Additional requirements for the concentration in Composition (19 credits):
  - Graduate Private Music Instruction—Composition (9)
  - History and Literature of Music (3)
  - Graduate Recital (1)
  - Electives (3)

- Additional requirements for the concentration in Conducting (19 credits):
  - Graduate Private Music Instruction—Conducting (6)
  - Advanced Topics in Conducting (3)
  - Orchestration (3)
  - Graduate Recital (1)
  - Electives (6)
The number of students accepted as graduate conducting majors will be limited by the extent to which it is possible to provide them with practical experience in conducting. In most cases, each student accepted will be offered an opportunity to gain conducting experience by serving as assistant conductor of a GMU ensemble.

Additional requirements for the concentration in Accompanying (19 credits):
- Graduate Private Music Instruction—Accompanying (9)
- History and Literature of Music (3)
- Chamber Ensembles (1)
- Graduate Recital (Vocal Accompanying) (1)
- Graduate Recital (Instrumental Accompanying or Chamber Music) (1)
- Electives (4)

The entering graduate student in this concentration must show evidence of having completed one semester of study (or its equivalent) in each of the following foreign languages: French, German, Italian. Deficiencies in this area can be remedied by completing one semester of undergraduate study for each of the languages not previously studied. The recommended music history and literature courses are in the vocal, operatic, or chamber music areas.

Music Courses (MUSI)

511 Analytical Techniques (3:3:0). Prereq Baccalaureate degree in music or Pol. A detailed formal and stylistic examination of music selected from the major style periods. Development of the analytical skills necessary for theoretical study at the graduate level.

512 Advanced Orchestration (3:3:0). Prereq Baccalaureate degree in music with a minimum of three hrs of study in orchestration or Pol. Intensive study through analysis and arranging, of advanced methods of instrumentation. Scoring for large forces. Twentieth-century vocal and instrumental techniques such as multiphonics. Unusual instruments. New methods of notation. Late twentieth-century performance practices.

513 Advanced Topics in Music Theory (3:3:0). Prereq Baccalaureate degree in music or Pol. An intensive study and analysis of music from the theoretical point of view, comparing trends in compositional techniques through various works. May be repeated for credit as topics change.

531 Advanced Topics in Music History and Literature (3:3:0). Prereq Baccalaureate degree in music or Pol. A thorough examination of a specific musical style, genre, composer, compositional school, or historical development. A historical and analytical study of the concepts which produced the musical form and its extensive literature, from the seventeenth through the eighteenth centuries.

541 Chamber Music Literature (3:3:0). Prereq Baccalaureate degree in music or Pol. A historical and analytical study of the extensive literature for chamber ensembles (trios through octets) in various instrumental combinations, from the seventeenth to the eighteenth centuries.

543 Concerto Literature (3:3:0). Prereq Baccalaureate degree in music or Pol. A historical and analytical study of the concepts which produced the concerto form and its extensive literature, from the seventeenth through the eighteenth centuries.

561 Advanced Topics in Music Education (1-3:1-3:0). Prereq Degree in music education or Pol. Intensive examination of specific areas of concern to music educators engaged in teaching vocal, instrumental, and general music at all levels or functioning as private studio teachers. Individual research, group discussions, and participation in related activities. Field experience may be required.

562 The Psychology of Music Teaching and Learning (3:3:0). Prereq Baccalaureate degree in music or Pol. A study of the learner's musical behaviors (affective, cognitive, and psychomotor) in an effort to devise an empirically based teaching method founded on learning principles.

581 Graduate Choral Ensembles (1:0:3). Prereq Audition. Performance of works from the choral repertoire. Public concerts are given. May be taken for credit four times.

583 Symphonic Winds (1:0:3). Prereq Audition. Performance of works from the band repertoire. Public concerts are given. May be taken for credit four times.

585 Chamber Ensembles (1:0:3). Prereq Audition. Performance of works from the chamber music repertoire. Public performances are given. May be taken for credit four times.

587 Symphony Orchestra (1:0:3). Prereq Audition. Performance of works from the symphony orchestra repertoire. Public concerts are given. May be taken for credit four times.

597 Advanced Topics in Conducting (3:3:0). Prereq Baccalaureate degree in music with a minimum of two sem study in conducting or Pol. Intensive study of an advanced topic in conducting chosen according to interests of students and instructor from such topics as the following: (1) Choral Music Performance Techniques and Score Preparation; (2) Wind Ensemble Performance Techniques and Score Preparation; (3) Orchestral Performance Techniques and Score Preparation; (4) Performance Practices in Choral Music before 1750; (5) Rhythmic Analysis as a Guide to Score Interpretation in Music of All Periods. Maximum of six cr may be earned.

662 Introduction to Research in Music Education (3:3:0). Prereq Baccalaureate degree in music with certification to teach music or Pol. Development of skills, attitudes and understanding necessary in doing and reporting research in the teaching of music, incl philosophical bases, scope and organization, stylistic practices in writing the research report, the study of materials and resources in music, education, music education, and the proper use of library and other research services.

663 Aesthetics of Music Education (3:3:0). Prereq Baccalaureate degree with certification to teach music or Pol. A study of the philosophical foundations of contemporary music education, as well as a critical examination of music programs and activities in aesthetic education, and efforts by the music education establishment to enhance them.

671, etc Graduate Private Music Instruction. See descriptions at end of music section.

684 Graduate Lecture—Recital (1-3:0:0). Coreq Graduate Private Music Instruction at the three-credit level. A combination of musical performance and scholarly presentation on a well-defined topic. A public presentation is required. Preparation of the program will be directed by a member of the full-time music faculty in consultation with the student's private music instructor. May be taken for a maximum of six credits.

688 Advanced Musical Theatre Techniques (1-3:1:2-6). Prereq Audition and Pol. Preparation and presentation of works or parts of works from the musical theatre repertoire (opera, operetta, musical comedy). One hour of lecture per week and (for each credit pursued) two hours of practicum per week. Students will investigate applicable techniques through topically organized lectures and assignments, and in goal-oriented practicum sessions and rehearsals. Public performance(s) will be given.

699 Independent Study (1-3:0:0). Prereq Baccalaureate degree in music and Pol, the music faculty and the department chair. Individual research and study in one of the areas of concentration available in the Master of Arts degree with a major in music. May be taken for a maximum of six credits.

798 Graduate Recital (1:0:0). Prereq At least three credits in Graduate Private Music Instruction in the area of
concentration at the three-cr level. Coreq Concurrent enrollment in Graduate Private Music Instruction at the three-credit level. A public performance in the area of concentration.

800 Studies for the Doctor of Arts in Education (var cr). Prereq Open only to D.A.Ed. students admitted to study in music. Program of studies designed by student's discipline director and approved by student's doctoral committee that brings the student to participate in the research, performing, or creative activity of the discipline director and results in a paper reporting the original contributions of the student. The paper is presented in a subsequent D.A.Ed. summer seminar. Enrollment may be repeated.

Graduate Private Music Instruction

To earn two or three credits per sem, a student takes 14 one-hour private music lessons. In Graduate Private Music Instruction—Accompanying, a number of these may be spent in a group-practicum situation at the instructor's discretion. The three-credit sequence is designed for students who will work toward the M.A. degree with a concentration in performance, composition, conducting, or accompanying. Instruction is offered on the following: piano, organ, harp, classic guitar, voice, the standard band and orchestral instruments, composition, conducting and accompanying. The Private Music Instruction Fee applies.

621, 622, 623, 624 Graduate Private Music Instruction—Composition (2:0:1 for each).
625, 626, 627, 628 Graduate Private Music Instruction—Composition (3:0:1 for each). Prereq for MUSI 621 and 625: Portfolio of compositions submitted to the faculty and an interview with a faculty committee.
641, 642, 643, 644 Graduate Private Music Instruction—Accompanying (2:0:1 for each).
671, 672, 673, 674 Graduate Private Music Instruction—Instrumental/Vocal (2:0:1 for each).
675, 676, 677, 678 Graduate Private Music Instruction—Instrumental/Vocal (3:0:1 for each). Prereq for MUSI 671 and 675: Audition.
691, 692, 693, 694 Graduate Private Music Instruction—Conducting (2:0:1 for each).

Nursing

Faculty

Ailinger, Rita L., Ph.D., The Catholic University of America, 1974; Associate Professor
Carty, Rita M., D.N.Sc., The Catholic University of America, 1977; Professor
Cherry, Brenda J., Ph.D., University of Nebraska, Lincoln, 1981; Associate Professor
Connelly, Catherine E., D.N.Sc., The Catholic University of America, 1979; Associate Professor
Conti, Roberta M., M.S.N., University of Maryland, 1969; Assistant Professor
Dienemann, Jacqueline A., Ph.D., The Catholic University of America, 1983; Assistant Professor
Harper, Doreen C., Ph.D., University of Maryland, 1980; Associate Professor
Johnson-Brown, Hazel J., Ph.D., The Catholic University of America, 1978; Professor
Kopac, Catharine A., Ph.D., University of Maryland, 1985; Assistant Professor
Lambert, Vickie A., D.N.Sc., University of California at San Francisco, 1981; Associate Professor
Liu, Yuen Chou, Ph.D., New York University, School of Education, 1972; Associate Professor
Silva, Mary E., Ph.D., University of Maryland, 1976; Professor
Vail, James D., D.N.Sc., The Catholic University of America, 1980; Associate Professor
Walker, Dorothy J., J.D., Boston College Law School, 1979; Professor

Nursing, M.S.N.

The NLN-accredited Master of Science in Nursing program prepares nurses for a variety of leadership roles in the health care delivery system. The major in Advanced Clinical Nursing prepares nurses to provide and manage care of individuals, families, and groups, including the chronically ill, the elderly, and others with self-care limitations. The major in Gerontological Nursing prepares nurses to apply the
nursing process to the care of the elderly. The major in Nursing Administration prepares nurses to function in management positions in hospitals, nursing homes, community health agencies, and other health care facilities. A variety of health care settings are used for clinical practice experiences.

Admission Requirements

In addition to meeting the Graduate School admission requirements, an applicant to this program must have a cumulative grade point average of 3.00 (on a 4.00 scale) for the last 60 hours of undergraduate work, hold an active license as a registered nurse, submit three letters of recommendation and submit the results of the general test of the Graduate Record Examination. Applicants must have successfully completed undergraduate statistics and research courses.

The Graduate School may offer provisional admission to a degree-seeking applicant even though all admission requirements for degree status have not yet been met, if there is sufficient evidence to suggest the capacity to pursue graduate work. Students admitted provisionally must resolve all deficits and be moved to degree status by completion of 12 semester hours of graduate-level study.

Degree Requirements

The master’s program in nursing requires 36 semester hours of graduate credit. Of these, a 9-hour core consists of course work in the theoretical foundations of nursing, approaches to data analysis in nursing research, and a seminar in concepts of nursing research. Twelve hours must be completed in the concentration areas of nursing administration, gerontology, or long-term care. The student has the option of writing a thesis or working on a research project.

Core Courses—Required of all students

NURS 755 Theoretical Foundations Related to Nursing (3)  
NURS 759 Approaches to Data Analysis in Nursing Research (3)  
NURS 790 Seminar in Concepts of Nursing Research (3)  
NURS 791 Projects in Nursing Research (3)  
or
NURS 799 Thesis (3–6)

Nursing Majors - Select one major

Major in Gerontological Nursing

NURS 783 Gerontological Nursing Practice I (3)  
NURS 785 Practicum in Gerontological Nursing I (3)  
NURS 786 Gerontological Nursing Practice II (3)  
NURS 788 Practicum in Gerontological Nursing Practice II (3)

Major in Advanced Clinical Nursing

NURS 773 Advanced Clinical Nursing I (3)  
NURS 775 Advanced Specialty Practice I (3)  
NURS 776 Advanced Clinical Nursing II (3)  
NURS 778 Advanced Specialty Practice II (3)

Major in Nursing Administration

NURS 763 Seminar in Nursing Administration I (3)  
NURS 765 Practicum in Nursing Administration I (3)  
NURS 766 Seminar in Nursing Administration II (3)  
NURS 768 Practicum in Nursing Administration II (3)

Nursing Electives six semester hours — Required of all students

Related Disciplines six semester hours — Required of all students

D.N.Sc. in Nursing Administration

The Doctor of Nursing Science (D.N.Sc.) program in Nursing Administration prepares nurses for executive roles in a variety of educational and health-related settings. The student chooses a concentration in nursing education or nursing service. Objectives of the D.N.Sc. in the Nursing Administration program are to prepare nurse executives who will: (1) demonstrate administrative skills which enable effective executive function in the chosen area of concentration, (2) synthesize research knowledge with decision making regarding participation in activities leading to the advancement of nursing science, and (3) analyze societal and governmental functioning to enable the exercise of leadership in the formulation and implementation of public policy in health care.

Admission Requirements

In addition to fulfilling the admission requirements of the Graduate School for degree status, the applicant must have earned a master's degree from an accredited program and have a minimum grade point average of 3.25 on a 4.00 scale in the master's program. The applicant must submit evidence of three years of nursing experience, at least one year of which must have been postbaccalaureate and in the selected area of concentration, nursing education, or nursing service. Graduate Record Exam (GRE) scores in the quantitative, verbal, and analytic areas must be submitted, along with evidence of current licensure to practice professional nursing. (Students on a foreign student visa must present evidence of professional standing in their respective countries.) The applicant must also provide evidence of professional liability insurance coverage and submit three letters of recommendation: one from an academic source, one from an administrative superior in the most recent position, and one from an administrative superior in the selected area of concentration. (If the latter two requirements are met by the same letter, the applicant must submit a third letter of recommendation from a professional nursing employment source.)

The Graduate School may offer provisional admission to a degree-seeking applicant, even though all admission requirements for degree status have not been met, if there is sufficient evidence to suggest capacity to pursue graduate work. Students admitted provisionally must resolve all deficits and be moved to degree status by completion of 12 semester hours of doctoral-level study.

Degree Requirements

In addition to Graduate School doctoral degree requirements, students must satisfy the specific
D.N.Sc. degree requirements. To earn the D.N.Sc. degree at George Mason University the doctoral candidate must have earned a minimum of 90 graduate-level semester credits beyond the baccalaureate degree and a minimum of 60 graduate-level semester credits beyond the master’s degree. A minimum of 48 graduate-level semester credits after admission to degree or provisional status in the D.N.Sc. program at George Mason University are required, 36 of which must have been earned at George Mason University. The candidate may transfer a maximum of 12 graduate-level credit hours toward the D.N.Sc. degree, but may present only graduate-level credits in which satisfactory grades have been earned and which meet the requirements of the D.N.Sc. curriculum.

A written qualifying examination must be successfully completed in addition to the program of studies outlined in the curriculum of the D.N.Sc. program in Nursing Administration. Successful completion of a dissertation for which 12 credits are awarded, but to which no grade is assigned, and the final oral doctoral examination are required.

Program of Study
The curriculum of the D.N.Sc. program in Nursing Administration includes the nursing core (30 semester hours), cognate core (3 semester hours), research core (15 semester hours), and nursing and related discipline electives (12 semester hours). The Student Doctoral Advisory Committee, composed of three graduate faculty, at least two of whom will be faculty in the School of Nursing, will be appointed during the first half of the semester in which the student is enrolled in the fifteen–eighteenth graduate-level credits. The Committee will approve the student’s program of study for the D.N.Sc. degree, which also must be approved by the dean of the Graduate School by the end of the semester in which the committee is appointed.

Internship in Nursing Administration
Students are required to enroll in a two-semester internship, NURS 865-868, Internship in Nursing Administration (6,6), for experiential learning in nursing administration which spans two consecutive semesters and includes planned seminars. For the internship, students are assigned to a nurse executive who serves as the preceptor in the student’s area of concentration.

Qualifying Examinations
The written qualifying examinations serve as the candidacy examination in the D.N.Sc. program. The qualifying examinations are taken after the student has completed all course work or in the semester in which the student will complete all planned course work, excluding electives.

Advancement to Candidacy
After successful completion of the qualifying examinations, the Student Doctoral Supervisory Committee will recommend advancement to candidacy for approval by the dean of the Graduate School.

Doctoral Dissertation
Students must have participated in the NURS 990 Advanced Empirical Nursing Research Seminar prior to submitting the doctoral dissertation proposal. The proposal must focus on a topic in nursing administration and must be approved by the Student Supervisory Committee and the dean of the Graduate School. The dissertation proposal and written dissertation must be consistent with the guidelines of the Graduate School of the University outlined in Guide for Preparing Graduate Theses, Dissertations and Projects.

Final Oral Doctoral Examination
The Chair of the Student Supervisory Committee, upon preliminary approval of the doctoral dissertation by the committee, petitions the dean of the Graduate School to schedule the final oral doctoral examination, which includes a defense of the doctoral dissertation. The final oral doctoral examination will also demonstrate the D.N.Sc. candidate’s intellectual command and maturity of judgment in the area of concentration chosen by the D.N.Sc. candidate and approved by the Student Supervisory Committee. At the close of the final oral doctoral examination, the Student Supervisory Committee will make final judgment regarding approval of the doctoral dissertation and successful completion of the D.N.Sc. degree requirements. The original and one copy of the approved doctoral dissertation must be submitted to Graduate School for approval by the graduate dean.

Time Requirements
The student must complete all planned course work, excluding electives and the qualifying examinations, and must advance to candidacy within five years of admission to degree or provisional status in the D.N.Sc. program. The student must successfully complete the doctoral dissertation, final oral doctoral examination, and all D.N.Sc. degree requirements withing five years of advancement to candidacy.

Continuing Nursing Education
See Certificates and Additional Graduate Courses.

Nursing Courses (NURS)

516 Cancer: Theoretical Foundations and Nursing Interventions (3:3:0). Focus on current knowledge available about the nature of cancer and present treatment modalities. Emphasis on development of a concept of nursing clients with cancer, on an understanding of cancer as a major chronic illness, and on assistance available to clients with cancer and their families.

517 Design of Complex Nursing Systems for Individuals and Groups Affected by Cancer (3:3:0). Prereq NURS 516. Concerns and problems confronted by client, family, and nurse in providing effective health care. Emphasis on impact of identified physiologic and psychosocial problems on each of these agents and range of strategies available for comprehensive intervention.

570 Cultural Dimension of Aging (3:3:0). Impact of cultural definitions of aging, research methodologies, and findings of cross-cultural studies. Implications for health care and nursing.

611 Anthropology of Health (3:3:0). Cross-cultural issues of health and illness are explored from the standpoint of medical anthropology theory. Cultural dimensions of the developmental cycle and health care systems.
612 Health Care and the Political Process (3:3:0). Explores issues of power, political and legislative action as they relate to nursing. Effects of political establishment on nursing practice.

615 Survey of Research in Human Development: Implications for Nursing Intervention (3:3:0). Seminar presentation of selected research in human development across the life span. Discussion of research findings focuses on application to individuals and families with long-term health problems and implications for nursing intervention.

621 Components of Health Appraisal (3:2:3). Principles, skills and techniques in health appraisal of clients of all ages. Methods of recording, interpreting, and auditing problem-oriented profiles provide a framework for development of a health appraisal data base.

622 Clinical Management in Primary Care Nursing (3). Prereq NURS 652 and NURS 621. Students should be current or have completed, the courses in their nursing major. Students with an M.S.N. from an accredited nursing program will be considered on an individual basis. Analysis of the scope of the advanced nurse clinician role in the management of primary care nursing. An integrated approach to the assessment and management of common physiological and psychological health problems. Advanced skills in biopsychosocial assessment and development of plans for health maintenance.

625 Entrepreneurial Nursing Practice (3:3:0). Overview of designs for independent practice and their conceptual frameworks. Problems inherent in pioneering a private nursing practice are delineated with opportunities to explore innovative approaches and alternatives for independent nursing practice.

635 Gerontologic Nursing (3:3:0). Multidimensional process of aging, its effects on functional capacity of the elderly, and implications for nursing intervention. Focus on nursing interventions strengthening the available friend/family and community support systems and promoting elderly clients’ capacity for self-care.

636 Gerontologic Nursing II: Health Deviations (3:3:0). Study of health deviations common to aging, their effects on functional capacity and implications for nursing intervention. Restorative and rehabilitative nursing interventions focus on the client’s capacity for self-care.

640 Interpersonal Dimensions in Nursing (3:3:0). Examination of interpersonal relationships in which nurses are involved in various aspects of nursing leadership and administration. Professional practice. Relates theoretical foundations to the effective development of relationships within the framework of the nursing process.


650 Health Care and Law (3:3:0). This is a survey course designed to introduce students to the impact of courts and legislatures on rights and responsibilities of health care consumers and health care providers. Focus is on definitions of standard of care, legal theories of liability, and legally effective consent.

652 Pathophysiologic Bases for Major Health Deviations of Individuals (3:3:0). Health deviations in individuals occurring in U.S. which require long-term and/or terminal health care interventions. Presented within developmental framework, as they influence physiologic integrity at the cellular level. Focus on the human being as a whole open system. Complex health programs from the perspective of maintaining homeodynamics.

655 Quality Assurance in Health Care (3:3:0). Issues, trends, and methodologies in nursing quality assurance with particular emphasis on roles and responsibilities of the nurse in health-related agencies.

656 Seminar in Supervision in Health Care Agencies (3:3:0). Prereq Completion of MGMT 301, MGMT 610, or equiv. Synthesis of role and functions of the professional nurse supervisor and the process of supervision in facilitating the provision of nursing care to clients in health care agencies.

657 Overview in Nursing Education (3:3:0). Prereq Admission to the graduate nursing program or postmaster’s status. Focus on history and philosophy of nursing education; principles and methods of teaching and learning used in nursing; and current issues, trends, and research in nursing education.

658 Practicum in Seminar in Nursing Education (3-6:2-7). Prereq Admission to the graduate nursing program or postmaster’s status; NURS 657 is pre- or coreq. Analysis and application of the dynamics of nursing education. Emphasis on selected curriculum designs with application of instructional strategies appropriate to implementing selected programs.


690 Independent Study in Nursing (1-3:0:0). Prereq Admission to graduate nursing program and permission of associate dean for graduate programs. In-depth study of a selected area of nursing theory, research or practice under the direction of faculty. May be repeated but the total credit hours earned may not exceed three.

698 International Nursing: Theoretical and Practical Dimensions (3:3:0). International nursing organizations, programs, and projects in relation to comparative health care systems. Theoretical conceptualization, research approaches, and methodological issues in the development of international nursing.

699 Practicum in International Nursing (3). Pre- or coreq: NURS 688, International Nursing: Theoretical and Practical Dimensions. Practicum in International Nursing in a selected international health agency. The nursing programs are analyzed using a health care systems framework.

750 Legal Issues Relevant to Health Care Administration (3:3:0). An examination of federal, state, and local statutes and regulations that impinge upon the operation of health care agencies and health-care education enterprises.


759 Approaches to Data Analysis in Nursing Research (3:3:0). Prereq Admission to grad nursing program. Examination of uni- and bivariate procedures appropriate for analyzing nursing research data. Emphasis on selection and application of procedures in relation to level of data type and size of sample in nursing research.

760 Health Care Financial Management (3:3:0).Prereq Admission to the graduate school or master's degree. Investigation of selected theory decision analysis and techniques of accounting and financial management in health care administration. Develops the knowledge and skills prerequisite to effective participation in a health institution’s financial planning and analysis. Course includes lecture, seminar, case study, and microcomputing experience.

763 Seminar in Nursing Administration I (3:3:0). Prereq Admission to grad nursing prog; NURS 755 and MGMT 610. or equiv are pre- or coreq. Utilization of administrative theory and management principles and processes as related to roles and functions of the nurse in management in health-related agencies.

765 Practicum in Nursing Administration (3:3:0). Prereq Admission to grad nursing prog; NURS 755. NURS 763 is pre- or coreq. Application of administrative theory and management principles and processes in a selected health-related agency. Roles and functions of the nurse in management.

766 Seminar in Nursing Administration II (3:3:0). Prereq NURS 763. Roles and functions of the nurse in management.
as the nurse manager develops patterns of nursing care, articulating nursing education and nursing service.

768 Practicum in Nursing Administration II (3:3:0). Prereq NURS 763, 765; NURS 766 is pre- or coreq. Implementation and integration of the roles and functions of the nurse in management. Emphasis on utilization of appropriate management principles and processes in a selected health-related agency. Lab arranged.

773 Advanced Clinical Nursing I (3:3:0). Prereq Admission to grad nursing prog; course in health assessment, NURS 755. Foundational theory relevant to the biophysical, psychological, and cultural self-care needs of individuals and families who have long-term care needs. Emphasis on potential long-term problems across the life span; includes elderly and chronically ill.

775 Advanced Specialty Practice I (3:0:0). Prereq Admission to grad nursing prog; NURS 755, course in health assessment, pre- or coreq NURS 773. Opportunity to apply the nursing process as it relates to the care of individuals and families with existing or potential long-term health problems in a selected clinical setting. Lab arranged.

776 Advanced Clinical Nursing II (3:3:0). Prereq NURS 773. Expansion of selected content in long-term care as it relates to advanced clinical nursing practice. Collaboration with other health care providers in groups and communities is examined. Emphasis on evaluation of nursing care and advanced standards of practice.

778 Advanced Specialty Practice II (3:9:0). Prereq NURS 773, 775; NURS 776 is pre- or coreq. Opportunity to apply roles of an advanced nurse clinician in a selected clinical setting. Lab arranged.

783 Gerontological Nursing Practice I (3:3:0). Prereq Admission to grad nursing prog, course in health assessment, NURS 755. Principles and theory of gerontological nursing practice; focus on normal aging process. A holistic approach will be taken to the variety of assessment techniques and interventions available to the nurse clinician focusing on health maintenance and illness prevention in older adults.

785 Practicum in Gerontological Nursing Practice I (3:3:0). Prereq Admission to grad nursing prog, course in health assessment, NURS 755; NURS 783 is pre- or coreq. Application of the principles and theory of gerontological nursing practice with a focus on the normal aging process. Theoretical foundation for this practicum will be provided in the content on NURS 783.

786 Gerontological Nursing Practice II (3:3:0). Prereq NURS 783. Principles and theory of gerontological nursing practice with a focus on the health deviations common to the aged. The nursing process, as it applies to the ill elderly, is explored with regard to rehabilitation, comprehensive care, evaluation, resources, crises intervention, and interdisciplinary collaboration.

788 Practicum in Gerontological Nursing Practice II (3:3:0). Prereq NURS 783, 785; NURS 786 is pre- or coreq. Application of roles of advanced nurse clinician in selected clinical settings. Lab arranged.

790 Principles and Methods of Nursing Research (3:3:0). Prereq Admission to grad nursing prog; NURS 755, 759. NURS 763, 773, 783 are pre- or coreq. Principles and methods of nursing research applied to problem identification, research design, and data collection and measurement.

791 Projects in Nursing Research (3:0:0). Prereq NURS 790. Research projects by students, individually or in groups, under direction of faculty.

799 Thesis (3–6:0:0). Prereq NURS 790. Exploration of a nursing problem using appropriate research methodology under supervision of graduate faculty member(s).

800 Contemporary Health Care Issues Seminar (3:3:0). Focus is on executive decision making related to contemporary issues affecting administration in nursing education and nursing service.

863 Health Care Administration (3:3:0). Focus is on creating awareness of the principal underlying forces that will influence the role of the nurse executive in the care delivery system, including educational and service environments.

865, 868 Internship in Health Care Administration (6:1:0), (6:1:0) Experiential learning in nursing administration in an educational or service enterprise (depending on concentration chosen). The internship spans two consecutive semesters and includes planned seminars.

866 Health Care Public Policy (3:3:0). Focus on the process of formulating health care policy and analyzing its implications for nursing administration in nursing education and nursing service. Current and impending health issues, the legislative process, and program implementation evaluation will be examined.

955 Nursing Science (3:2:0). A critical assessment and synthesis of the process of development and testing of theoretical foundation of nursing science.

960 Advanced Empirical Nursing Research Seminar (3:3:0). An in-depth examination of advanced principles of empirical research methodologies from the formulation of the research question to preparation of data for analysis. The student is expected to develop and defend an appropriate proposal in nursing administration.

999 Doctoral Dissertation (9:0:0). This course provides continued faculty assistance on an individual basis toward the completion of the approved dissertation.

Continuing Nursing Education

See Certificates and Additional Graduate Courses.
Operations Research and Applied Statistics

Faculty

Bolstein, A. Richard, Ph.D., Purdue University, 1967; Associate Professor
Gantz, Donald T., Ph.D., University of Rochester, 1974; Associate Professor
Greenberg, Irwin, Eng.Sc.D., New York University, 1964; Professor
Harris, Carl M., Ph.D., Polytechnic Institute of New York, 1966; Professor
Hoffman, Karla L., Sc.D., The George Washington University, 1975; Associate Professor
Jo, Kyung Y., Ph.D., North Carolina State University, 1982; Assistant Professor
Miller, John J., Ph.D., Stanford University, 1974; Associate Professor
Paik, Minja K., Ph.D., University of California, 1971; Assistant Professor
Richey, Michael, Ph.D., Georgia Institute of Technology, 1985; Assistant Professor
Roque, Diego, Sc.D., The George Washington University, 1982; Assistant Professor
Sage, Andrew P., Ph.D., Purdue University, 1960; First American Professor of Information Technology
Schum, David A., Ph.D., Ohio State University, 1964; Professor
Sofer, Ariela, Sc.D., The George Washington University, 1984; Assistant Professor
Wegman, Edward J., Ph.D., University of Iowa, 1968; Dunn Professor

Operations Research and Management Science, M.S.

The graduate program leading to a Master of Science in Operations Research and Management Science is designed to equip students for research and professional practice associated with the formulation and analysis of mathematical models for decision making, and their computer implementation. Major components of the program include mathematical programming, queuing and network theories, computer simulation and modeling, applied and computational probability and statistics, and the application of these to realistic and relevant operational analysis problems. Students are expected to become proficient in these areas as well as in supporting areas of information technology necessary to implement OR/MS and statistical methods.

To achieve this objective, the program includes core courses and electives selected by the student with the aid of a faculty adviser. To obtain the master of science degree, students will complete an approved plan of study that contains a minimum of 33 semester hours of graduate-level course work.

Students may avail themselves of course opportunities through the Cooperative Graduate Engineering Program, in affiliation with the University of Virginia and Virginia Tech. Appropriate courses may be transferred, with adviser approval, into this GMU Degree Program. Refer to section on Certificates, Programs, and Additional Graduate Courses in this catalog.

Admissions Requirements

To be admitted to the program, a candidate must

1. Fulfill all admission requirements of the Graduate School;
2. Hold a baccalaureate degree and have taken the following courses or their equivalents:
   MATH 113, 114, 213: Calculus, including calculus of several variables
   STAT 344: Applied Probability
   MATH 303 or 322: Matrix Algebra or Linear Algebra;
3. Have a knowledge of at least one scientific computer programming language;
4. Have three letters or recommendation submitted by former professors or supervisors.

A student with deficiencies in preparation may be accepted provisionally pending removal of the deficiencies. Courses taken to remove admission deficiencies cannot be counted toward the degree.

Degree Requirements

The program consists of 33 credits, divided as follows. The core curriculum will consist of the following five courses (15 credits):
OR 541 Operations Research I
OR 542 Operations Research II
OR 743 Seminar in Applications of Management Science
STAT 644 Applied Probability
STAT 654 Applied Statistics

Three additional 600-level methodology courses (nine credits) designated OR must be chosen. At least one course must be selected from the group 641, 642, 643, 644; and one from the group 645, 647, 648, 746.

Three additional elective courses will be chosen with the concurrence of the student’s adviser. These
courses may be taken in an area appropriate to the student’s interest, such as statistics, business administration, computer science, information systems, systems engineering, electrical and computer engineering, economics, psychology, mathematics, and public administration.

With the permission of their advisers, qualified students may elect to write a thesis in place of three credits of course work from the methodological or applications area.

Students whose primary interest is in statistics may choose a program leading to the M.S. degree in OR/MS with specialization in statistics. In addition to the core curriculum, students must complete three courses with a STAT designation, including STAT 651 plus two electives. One stochastic OR elective must also be selected, together with two more general electives chosen in concurrence with the student’s adviser.

A third option is available to students particularly interested in systems applications. For this, the three required OR methodology courses must be chosen from OR 655, 641, 643, 647, 648, and 675. Furthermore, the three additional electives must include STAT 570, plus any two other courses selected with adviser’s approval from the offerings of the other departments in the School of Information Technology and Engineering.

Of particular importance to students planning a Ph.D. program in Information Technology are the core courses intended to satisfy the breadth requirement for the Ph.D. in Information Technology.

### Operations Research Courses (OR)

540 Management Science (3:3:0). Prereq MATH 108 and 110, or equivalent. Operations research techniques and application to managerial decision making. Mathematical programming, Markov processes, queuing theory, inventory models, PERT and CPM, and simulation. Use of contemporary computer software for problem solving. OR/MS majors will not receive credit.


635 Discrete System Simulation (3:3:0). Prereq STAT 354 and OR 542, or equivalents, and knowledge of a scientific programming language. Computer simulation as a scientific methodology in operations analysis, with emphasis on model development, implementation, and analysis of results. Discrete-event models, specialized languages, experimental design and output statistics. Lecture, project, and lab.

641 Linear Programming (3:3:0). Prereq OR 541 or Pol. First, an in-depth look at the simplex method. Next, computa-
in Markov decision processes, semi-Markov decision processes, Brownian motion, random walks and martingales, stochastic order relations, queuing networks. Recent developments in the area will also be presented.

Statistics Courses (STAT)

570/SYST 570 Quality Control (3:3:0). Prereq course in statistics. Statistical and managerial techniques applied to quality control and assurance in both manufacturing and nonmanufacturing applications. Topics include quality considerations in design, process vs. design tolerances, acceptance sampling, control chart methodology, and applications.

610 Statistical Foundations for Technical Decision Making (3:3:0). Prereq six cr of math. The use of statistical methods as scientific tools in the analysis of practical problems. Topics include descriptive statistics, probability theory; probability distributions; sampling, inference-estimation and hypothesis testing; elementary decision theory; time series analysis; linear regression and correlation; the analysis of variance. Credits not applicable toward M.S. (OR/MS).

612/CS 612 The Use of Computer Statistical Packages (3:3:0). Prereq Course in statistics. Intro to use of computer packages in the statistical analysis of data. Emphasizes techniques common to use of all statistical packages, incl. data checking, cleaning, manipulation, and transformation. Both simple and complex statistical analyses are covered. Techniques are illustrated by concentrating on one of the major statistical packages such as SAS or SPSS. Other packages are discussed and compared. Students are expected to perform computer statistical analyses of data relevant to their respective fields of study. Cr are not applicable toward the 30 cr req for the M.S. in mathematics nor CS, but may be applicable toward a degree in some other fields.

644 Applied Probability (3:3:0). Prereq STAT 344 or MATH 351. A course in probability with applications in computer science, engineering, operations research, and systems engineering. Random variables and expectation, conditional expectation, random vectors, special distributions, parameter estimation, limit theorems, stochastic processes. Problems in engineering, operations research, and computer systems.

652 Statistical Inference (3:3:0). Prereq STAT 644, ECE 528, or equiv. Critical aspects of probability, random variables and distributions, characteristic functions, and stochastic convergence. Optimal estimation, maximum-likelihood estimation, asymptotic theory, Bayesian methods, likelihood-ratio tests, statistical decision theory, sequential methods.

653 Survey Sampling (3:3:0). Prereq A course in probability or statistics. Review of probability and statistics, basic definitions of sampling, simple random sampling, stratified sampling, systematic sampling, cluster sampling, estimation problems. Emphasizes practical problems encountered in conducting a survey as well as the theoretical background.

654 Applied Statistics (3:3:0) Prereq STAT 344, MATH 351, or equiv. Sampling theory, estimation, hypothesis testing, comparison of data, various classical tests, linear models and analysis of variance, decision theory.

655 Analysis of Variance (3:3:0) Prereq STAT 654 and a working knowledge of matrix algebra. Single and multifactor analysis of variance, planning sample sizes, intro to the design of experiments, random block and Latin square designs, analysis of covariance.

656 Regression Analysis (3:3:0). Prereq STAT 654 and a working knowledge of matrix algebra. Simple and multiple linear regression and correlation, polynomial regression, general regression, search techniques for best regression equation, multicollinearity, autocorrelation, normal correlation models.

657 Nonparametric Statistics (3:3:0). Prereq STAT 654 or equiv. Nonparametric procedures for two or more samples
Physical Education

Faculty
Bever, David, Ph.D., Purdue University, 1978; Associate Professor
Cooper, John H., P.E.D., Indiana University, 1955; Professor
Crawford, Scott A.G.M., Ph.D., University of Queensland, 1985; Associate Professor
Metcalfe, James A., Ph.D., University of Maryland, 1970; Associate Professor
Schack, Frederick K., Ph.D., Ohio State University, 1976; Associate Professor
Stein, Julian U., Ed.D., George Peabody College, 1966; Professor

Physical Education, M.S.

This program is designed to serve needs of those currently employed in teaching, sport, or fitness fields; those with baccalaureate degrees in physical education who desire to improve their skills before entering a career; and those who wish to earn a master's degree as a prelude to additional graduate work in physical education, exercise science, or related areas. Students may emphasize teaching or exercise science in selecting a degree program.

Admission Requirements
In addition to fulfilling Graduate School admission requirements, the applicant must:

1. Hold a bachelor's degree in physical education or a related field
2. Submit three letters of recommendation
3. Submit transcripts of all college course work
4. Have completed courses in human anatomy and physiology, kinesiology, and exercise physiology. Applicants who do not meet these requirements may be offered provisional or nondegree status in accordance with the general regulations of the Graduate School.

Departmental Program Options and Degree Requirements with Emphasis on Teaching
In addition to fulfilling the Graduate School degree requirements, the candidate must complete the following program:

Core Courses (Semester Hours) (12 hours required of all students)
EDUC 590 Educational Research (3)
EDUC 591 Educational Statistics (3)
PHED 508 Seminar in Special Physical Education (3)
PHED 604 History of Sport and Physical Education through the Middle Ages (3) (or
PHED 605 History of Sport and Physical Education from Renaissance to Present (3).

Support Area Courses (12–18 hours)
HEAL 612 Scientific Foundations of Health and Fitness (3)
PHED 650 Scientific Principles of Motor Learning (3)
PHED 660 Management and Administration of Physical Education and Sports (3)
PHED 671 Teaching Physical Education in the Secondary School (3)
PHED 673 Program Development in Physical Education and Sport (3)
PHED 680 Seminar in Current Issues in Physical Education and Sport (3)
PHED 706 Comparative Physical Education and Sport (3)
PHED 610 Advanced Exercise Physiology and Sports Medicine (3)
PHED 616 Motor Behavior and Development (3)
PHED 630 Health and Fitness Program Development (3).
PHED 799 Thesis (6)

Comprehensive examinations (written) must be completed successfully at the end of course work and prior to beginning the thesis. Students selecting the thesis option are also required to make oral presentation about their thesis.

Two program patterns are available:
Non-Thesis Option
Core 12 hours
Support Area 18 hours
Total 30 hours

Thesis Option
Core 12 hours
Support Area 12 hours
Thesis 6 hours
Total 30 hours

Two major options are available:
Teaching including such areas as teaching, administration, supervision, curriculum development, developmental/adapted physical education. Representative of Support Area courses for this option are:
PHED 660 Management and Administration of Physical Education and Sports (3)
PHED 671 Teaching Physical Education in the Secondary School (3)
PHED 673 Program Development in Physical Education
Exercise Science including such areas as exercise science itself, exercise physiology, sport management, fitness and wellness instruction and/or management, sport communication including both journalism and media, sports medicine, athletic training, sport psychology, sport sociology. Representative of Support Area courses for this option are:
PHED 610 Advanced Exercise Physiology and Sports Medicine (3)
PHED 630 Exercise, Health, and Fitness Program Development (3)
PHED 612 Scientific Foundations of Health and Fitness (3)

These patterns and options enable students to identify their personal exercises and professional directions more precisely through 12 hours of core courses and 12-18 hours of support area courses according to personal interests and professional directions of each student.

Graduate Assistantships

Administrative, research, and teaching-related graduate assistantships are available in the Department of Health, Sport, and Leisure Studies. Persons awarded assistantships may be assigned to one or more of the various programs, services, or faculty in the department. To be eligible for an assistantship, a student must be admitted to degree status and take a minimum of six semester hours of graduate credit each semester. Interested students should contact the Department of Health, Sport, and Leisure Studies office for applications. Information about other types of graduate financial assistance can be found in the Student Information section of this catalog.

Physical Education Courses (PHED)

500 Workshop in Physical Education (1-3:0:0). Prereq: graduate standing or Pol. Concentrated full-time workshops, weekend seminars and workshops dealing with selected topics in physical education and ancillary fields. May be repeated. No more than six sem hr may be applied for degree cr.

508 Seminar in Special Physical Education (3:3:0). Prereq: graduate standing or Pol. Discussion of current problems, issues, and research in special physical education. Practica may be included.

599 Independent Study in Physical Education (1-3:0:0). Prereq: graduate standing or Pol. Study of a problem area in physical education research, theory, or practice under the direction of faculty. May be repeated, but no more than three hr total cr may be given.

604 History of Sport and Physical Education through the Middle Ages (3:3:0). Prereq: graduate standing or Pol. Role of sport and physical education in ancient civilizations through the Middle Ages.

605 History of Sport and Physical Education from Renaissance to Present (3:3:0). Prereq: graduate standing or Pol. Role of sport and physical education in Europe and its impact on developments in America.

610 Advanced Exercise Physiology and Sports Medicine (3:3:0). Prereq: PHED 450, graduate standing or equiv or Pol. Lecture, demonstration, lab research and seminar experiences in the application of research findings to the understanding of physiological function and exercise in prevention and rehabilitation of injuries.

616 Motor Behavior and Development (3:3:0). Prereq: graduate standing or Pol. Human motor behavior development and theory with application to evaluation of skill acquisition.

630 Exercise, Health and Fitness Program Development (3:3:0). Prereq: graduate standing or PoD. Health and exercise program development related to fitness and health of special adult populations. Three to six hours of field experience.

650 Scientific Principles of Motor Learning (3:3:0). Prereq: graduate standing or Pol. Analysis and application of scientific principles of movement to instructing sport skills in physical education and sport programs.

660 Management and Administration of Physical Education and Sports (3:3:0). Prereq: graduate standing or Pol. Advanced study in fiscal management, legal liability, facility planning, and policy development.

671 Teaching Physical Education in the Secondary School (3:3:0). Prereq: graduate standing or Pol. Advanced study of methods, materials, content and organization of physical education programs. Emphasis on curriculum planning, current methodologies, and trends.

673 Program Development in Physical Education and Sport (3:3:0). Prereq: graduate standing or Pol. Curriculum design and program development with attention to organization and implementation of physical education and sports programs.

680 Seminar in Current Issues in Physical Education and Sport (3:3:0). Prereq: graduate standing or Pol. Identify and analyze current issues in physical education and sport.

706 Comparative Physical Education and Sport (3:3:0). Prereq: graduate standing or Pol. Study of present-day physical education and sport programs in selected countries.

799 Thesis (3-6:0:0). Prereq: graduate standing or Pol. Exploration of a physical education problem using appropriate research methodology under supervision of graduate faculty member(s).
Physics

Faculty

Ceperley, Peter, Ph.D., Stanford University, 1973; Associate Professor

Dworzecka, Maria, Ph.D., Warsaw University, Poland, 1969; Associate Professor

Ehrlich, Robert, Ph.D., Columbia University, 1964; Professor

Ellsworth, Robert, Ph.D., University of Rochester, 1965; Associate Professor

Kafatos, Minas, Ph.D., Massachusetts Institute of Technology, 1972; Professor

Applied and Engineering Physics, M.S.

The Master of Science in Applied and Engineering Physics is a two-track program. The applied physics track is intended for those who wish to apply the techniques and subject areas of physics to multifaceted problems encountered in the workplace, particularly in physics, engineering, computer science, and other related areas. The engineering physics track, jointly administered with the Department of Electrical and Computer Engineering, allows more flexibility in selecting a larger fraction of courses in electrical engineering.

All courses are offered during late afternoon or evening hours to allow full-time employed persons to attend easily. Persons employed at area high technology organizations may take up to six credits (out of 33) for work done "on the job" under the guidance of a faculty member. This employment-related research may be conducted either under an optional three-credit research project or an optional six-credit master's thesis. Master's students who are not employed full time may apply for financial aid or for a limited number of research assistantships.

Admission Requirements

Those holding a baccalaureate degree in physics or a related field received from an accredited institution who obtained a GPA of 2.75 (out of 4.00) in their last 60 hours are invited to apply for admission. If the baccalaureate degree is in a field other than physics, the applicant should have taken several courses beyond the introductory physics courses, such as junior-level classical mechanics, electricity, and magnetism or electronics. An applicant may be required to make up one or two deficiencies, based on a graduate physics adviser's assessment, and still be permitted to enroll in the program. Two letters of recommendation must be submitted, preferably from former professors. The Graduate Record General exam and the GRE subject test in physics are recommended for applicants who received their baccalaureate degree within the last five years. A less recent bachelor's recipient may wish to present a statement of his/her work experience in lieu of the GRE.

Degree Requirements

Candidates for the degree must successfully complete 33 credits as follows:

1. For both tracks of the program, a nine-credit core consisting of

   PHYS 502 Quantum Mechanics I
   PHYS 513 Electromagnetic Theory
   PHYS 613 Physical Modeling and Simulation

   Students who completed PHYS 502 or its equivalent as undergraduates will be required to take PHYS 514 Quantum Mechanics II in its place. (Before 1986 a somewhat different set of core requirements applied—see catalog.)

2. For the applied physics track only, any three of the following five courses:

   PHYS 510 Continuum Mechanics
   PHYS 511 Statistical Mechanics
   PHYS 512 Solid State Physics
   PHYS 514 Quantum Mechanics II
   PHYS 610 Modern Instrumentation

3. Electives to complete the 33-credit program chosen from courses in physics, engineering, mathematics, or computer science subject to the following conditions:

   a. For the engineering physics track, at least nine credits of engineering are required.

   b. For either the applied physics or engineering physics track, no more than six credits may be chosen from areas outside engineering or physics.

   c. Credit may be received for either ECE/PHYS 798: Research Project (3 cr) or ECE/PHYS 799: Master's Thesis (6 cr), but not both. The research project may be performed at a student's place of employment with the concurrence of a faculty adviser. The thesis is a more substantial piece of work performed under the supervision of a major professor and requires the student to make an oral defense. ECE/PHYS 798 may be taken only once.

   All candidates for the degree must pass a comprehensive examination administered once a year in May.

Astronomy Course (ASTR)

505 Fundamentals of Astronomy (3:3:0). Prereq grad stdg or Pol. Emphasis on the connection of astronomy to other
disciplines as well as the recent developments in astronomy. Planet earth, its origin and past history and the origin of life. Ancient, Renaissance, and modern astronomers. Basic physics. Tools of the astronomer. The solar system, the sun, stars and our galaxy. Quasars, general relativity and cosmology. Rec for teachers of general science.

Physics Courses (PHYS)

500 Physics for High School Teachers (3:3:0). Prereq Certification as a secondary school physics instructor or PoD. Techniques of teaching high school physics. Intro to modern physics with emphasis on concepts rather than mathematical formalism. Recent developments in physics.

501 Physics Laboratory Techniques for High School Teachers (3:3:0). Prereq grad stdg. Theory and performance of experiments applicable to high school teaching with practical sessions on use of lab apparatus and computer. Recommended for high school teachers of physics.

502 Introduction to Quantum Mechanics and Atomic Physics (3:3:0) (Same as PHYS 402). Prereq PHYS 303 or Pol. Experimental basis of quantum mechanics; the wave function; systems in one, two, and three dimensions.

510 Mechanics of Continuous Media (3:3:0). Prereq PHYS 303 and 305. Study of continuous media. Incl physical perspective, mathematical formulation, and solution of problems in ideal fluids, viscous fluids, waves in fluid media, turbulence, thermal convection, stability considerations, elastic deformations, stress-strain tensor and body waves in elastic media.


512 Solid State Physics and Applications (3:3:0). Prereq PHYS 402 or 502. Crystal structures, binding, lattice vibrations, the free electron model, metals, semiconductors and semiconductor devices, superconductivity, magnetism.


520 The Physics of Energy and Environmental Technology (3:3:0). Prereq B.A. or B.S. degree in natural science or mathematics or Pol. Contemporary problems of energy and the environment with emphasis on the underlying principles of physics within the constraints of engineering and economics. Intended for those pursuing careers in energy research and development, business administration, economics, ecology, and high school science instruction.

530 Astrophysics (3:3:0). PHYS 342 or 351 and MATH 113 or 115. Topics include physical concepts, magnitudes of stars, Hertzsprung-Russell diagram, stellar radiation, interstellar matter, dust, molecules, and other topics.

531 Relativity and Cosmology (3:3:0). Prereq PHYS 352; MATH 214 or 216; and PHYS 303, 305; or Pol. Special relativity, 4 dimensional space-time, general relativity, non-Euclidian geometries, geodesic and field equations, tests of general theory of relativity, black holes, cosmology, models of the universe, blackbody radiation, big bang cosmology, thermodynamics and the universe.


540 Nuclear and Particle Physics (3:3:0). Prereq PHYS 502. Accelerators, detectors and related electronics; nuclear and elementary particle structure; symmetries and conservation laws; the electromagnetic, weak, and hadronic interactions; nuclear models; the quark model; nuclear science and technology.


590 Selected Topics in Physics (3:3:0). Prereq grad stdg or PoD. Selected topics from recent theoretical developments and applications. Designed to satisfy the needs of the professional community to keep abreast of current developments.

610 Modern Instrumentation (3:3:0). Prereq PHYS 513 and an electronics course. Topics include: sensors for radiation, particles, electric and magnetic fields, pressure, and motion; electronic instruments, computer data collection, instrumentation techniques, noise and signal reduction methods, and specialized instrumentation systems for various areas of applied physics.


612 Physics of Modern Imaging (3:3:0). Prereq PHYS 513. Study of imaging methods using acoustic and electromagnetic waves to probe extended objects, and mathematical transformations to produce images from the scattered waves. Topics include: classical imaging, physical optics, Fourier transform, holography, tomography, seismic mapping, underwater acoustic imaging and mapping, side-looking radar, antenna arrays, and applicable computer methods.

613 Physical Modeling and Simulation (3:3:0). A study of algorithms used to solve problems in physics and engineering and their computer implementation, data handling and data processing techniques in physics and engineering.

620 Radiation Hydrodynamics (3:3:0). Prereq PHYS 303 and 305, PHYS 510 recommended or equivalent course in hydrodynamics. Study of high-temperature plasma flows in which radiative processes contribute significantly to the transfer of energy and momentum. Course will include review of tensor calculus and hydrodynamics formulation, dynamics of viscous and heat conducting fluids, relativistic fluid flow, waves, shocks, winds, radiative transfer, radiative contributions to plasma flows. Some applications to computer methods in modeling radiating plasma flows will be included.

798 Research Project (3:0:0). Prereq 9 hr of grad-level course work and Pol. Project to be chosen and completed under the guidance of a grad faculty member and which results in an acceptable technical report.

799 Master's Thesis (3-6:0:0). Prereq 9 hr of grad-level course work and Pol. Project to be chosen and completed under the guidance of a grad faculty member and which results in an acceptable technical report and an oral defense.

800 Studies for the Doctor of Arts in Education (var cr). Prereq D.A.Ed. admission to study in physics. Program designed by student's discipline director and approved by student's doctoral committee which brings the student to participate in the current research of the discipline director and results in a paper reporting the original contributions of the student. The paper is presented in a subsequent D.A.Ed. summer seminar. Enrollments may be repeated.
Psychology

Faculty

Allen, John A., Ph.D., North Carolina State University, 1971; Associate Professor

Ballas, James A., Ph.D., The Catholic University of America, 1980; Research Assistant Professor

Barocas, Ralph, Ph.D., Pennsylvania State University, 1964; Professor (Director of Clinical Doctoral Program)

Berney, Elizabeth, Ph.D., University of Maryland, 1985; Assistant Professor

Blaha, John, Ph.D., Ohio State University, Associate Professor

Boehm-Davis, Deborah A., Ph.D., University of California, 1980; Assistant Professor

Boneau, Alan C., Ph.D., Duke University, 1957; Professor

Buffardi, Louis C., Ph.D., Kansas State University, 1970; Associate Professor (Director of Applied Experimental Doctoral Program)

Denham, Susanne, Ph.D., University of Maryland, 1985; Assistant Professor

Erdwins, Carol J., Ph.D., Washington University, 1975; Associate Professor

Fleishman, Edwin A., Ph.D., Ohio State University, 1951; D.Sc. (Honorary), University of Edinburgh, 1982; University Professor of Psychology

Flinn, Jane M., Ph.D., The George Washington University, 1974; Associate Professor (Chair)

Friedman, Lee, Ph.D., Rice University, 1986; Assistant Professor

Gessner, Theodore L., Ph.D., University of Maryland, 1971; Associate Professor

Goplerud, Eric, Ph.D., State University of New York at Buffalo, 1979; Assistant Professor

Holt, Robert W., Ph.D., University of Illinois, 1978; Associate Professor

King, David J., Ph.D., University of Maryland, 1958; Professor

Lehman, Elyse B., Ph.D., The George Washington University, 1970; Associate Professor (Master's Program Coordinator)

Maddux, James E., Ph.D., University of Alabama, 1982; Associate Professor

Mandes, Evans J., Ph.D., The George Washington University, 1966; Professor

Manning, Martha M., Ph.D., Catholic University of America, 1981; Assistant Professor

Mellinger, Jeanne C., Ph.D., University of Chicago, 1952; Associate Professor

Moretz, Walter J., Ph.D., Florida State University, 1970; Associate Professor

Pasnak, Robert, Ph.D., Pennsylvania State University, 1969; Professor

Pence, Earl, Ph.D., Virginia Polytechnic Institute, 1980; Adjunct Assistant Professor

Riskind, John H., Ph.D., Yale University, 1977; Associate Professor

Rugel, Robert P., Ph.D., Florida State University, 1971; Assistant Professor

Sanford, James F., Ph.D., Kansas State University, 1971; Associate Professor

Smith, Robert F., Ph.D., University of Wisconsin, 1976; Associate Professor

Smith, Virginia, Ph.D., University of Maryland, 1981; Adjunct Assistant Professor

Tyer, Zita E., Ph.D., Texas Tech University, 1968; Professor

Wahl, Otto F., Ph.D., University of Pennsylvania, 1974; Associate Professor

Weisman, David S., Ed.D., The Catholic University of America, 1979; Adjunct Associate Professor of Psychology

Psychology, M.A.

The Department of Psychology offers an M.A. degree in industrial, school, life-span development, or general psychology. The department does not offer an M.A. in clinical or counseling psychology; therefore, most M.A. students may not enroll in the clinical skills courses such as psychological assessment and psychotherapy courses.

The industrial psychology specialization is designed to provide training in two areas. Students may specialize in industrial/organizational psychology, which focuses on the application of psychological knowledge and methods to industry, government, or other organizations. The second area of specialization within the industrial psychology specialization is human factors, which focuses on psychological knowledge regarding man-machine interfaces.

The school psychology specialization is designed to prepare students for endorsement as fully certified
school psychologists in Virginia and in most other states. It is approved by the Virginia Department of Education and meets the standards of the National Association of School Psychologists and the Division of School Psychology of the American Psychological Association.

The life-span development specialization provides training in two areas. Students may specialize in either child development or gerontology. These specializations focus on the psychological knowledge in these two areas. Students interested in gerontology may also earn a certificate in this area (see section on Certificates in this catalog).

The general master's program is designed to provide students with a knowledge of the basic content areas in psychology. It emphasizes flexibility so that students may enroll in courses fitting their specific needs.

Admission Requirements

In addition to fulfilling the admission requirements of the Graduate School, applicants to the program are expected to have 15 hours in psychology including a course in statistics and a laboratory course in psychology. Results of the Graduate Record Examination, three letters of reference from professors or supervisors, and a departmental application are also required. In addition, applicants are asked to submit a biographical statement outlining their background and experience and describing their future goals in psychology. Generally, an overall GPA of 3.00 for the last 60 undergraduate hours and a minimum of 3.25 in undergraduate psychology courses are required. Work experience, publications, or special recommendations may compensate for deficiencies in other qualifications.

Applicants must have admissions requirements completed by February 15 if they wish an early decision regarding admission to the program for the fall semester.

Master of Arts in Industrial Psychology Specializing in Industrial/Organizational Psychology

Students must complete the following requirements:

- 30 semester hours of graduate credit
- 3 hours from PSYC 701 or 703
- 4 hours of PSYC 553
- 3 hours of PSYC 653
- 9 hours minimum of specialized courses including PSYC 636 and one of PSYC 631, 637, or 638; and one of PSYC 533, 632, or 635
- Practicum or Thesis: 6 hours, thesis only with permission of chair
- Elective: no more than 6 hours of department-approved electives from outside the department

Master of Arts in Industrial Psychology with Specialization in Human Factors Engineering

Students must complete the following requirements:

- 30 semester hours of graduate credit
- 3 hours from PSYC 701 or 702
- 4 hours of PSYC 553
- 3 hours of PSYC 653
- 9 hours minimum of specialization courses from PSYC 530, 634, 636, 637, and 638
- Practicum or Thesis: 6 hours, thesis only with permission of chair
- Elective: no more than 6 hours of department-approved electives from outside the department

Master of Arts in School Psychology

Students must complete the following requirements. Specific course requirements are delineated during advising after admittance to the school psychology program.

- 60 hours of graduate credit
- 50 hours of required courses. Students must pass core courses with a grade of B or better. These courses must be passed prior to the internship and the awarding of the master's degree.
- Two practica are required during the second year of training. The first is completed at the Psychological Clinic of the University and the second is completed in the school system.

At the conclusion of course work, students may choose to complete a thesis or practical research project concurrent with the internship.

All students must complete a full year of internship.

Master of Arts in Life-Span Development with Specialization in Child Development

Students must complete the following requirements:

- 30 semester hours of graduate credit
- PSYC 702 and 703
- PSYC 553
- PSYC 704 and 6 hours of specialization courses from PSYC 508, 513, 565, and 669
- Electives: 12 or 6 hours from PSYC 581, 617, 633, 650, 653, 654, 666, 668, and 740; and no more than 6 hours of department-approved electives from outside the department
- Elective: no more than 6 hours, thesis only with permission of chair (optional)

Master of Arts in Life-Span Development with Specialization in Gerontology

Students must complete the following requirements:

- 30 semester hours of graduate credit
- PSYC 702 and 703
- PSYC 553
- PSYC 614, 704, and 786
- Electives: 12 hours from PSYC 616, 631, 632, 633, 634, 635, 650, 653, 684, and 740; and no more than 6 hours of department-approved electives from outside the department
- Elective: no more than 6 hours, thesis only with permission of chair (optional)

Master of Arts in General Psychology

Students must complete the following requirements:

- 30 semester hours of graduate credit
- 12 hours of general psychology including PSYC 553 and 9 hours from PSYC 701, 702, 703, 704, and 705
- Elective: no more than 6 hours, thesis only with permission of chair

Master of Arts in Human Factors Engineering

Students must complete the following requirements:

- 30 semester hours of graduate credit
- 3 hours from PSYC 701 or 702
- 4 hours of PSYC 553
- 3 hours of PSYC 653
- 9 hours minimum of specialization courses from PSYC 530, 634, 636, 637, and 638
- Elective: no more than 6 hours of department-approved electives from outside the department

Master of Arts in Human Factors Engineering with Specialization in Human Factors Engineering

Students must complete the following requirements:

- 30 semester hours of graduate credit
- 3 hours from PSYC 701 or 702
- 4 hours of PSYC 553
- 3 hours of PSYC 653
- 9 hours minimum of specialization courses from PSYC 530, 634, 636, 637, and 638
- Elective: no more than 6 hours of department-approved electives from outside the department

Nondegree Status

Applicants who qualify for degree status, but who are not applicants for a degree at the University may...
be admitted to nondegree status. Nondegree status is not intended to be used as a qualifying program for degree status. While consideration may later be given to the application of credits earned toward a degree program while in nondegree status, there is no assurance that such requests will be granted. If granted, however, no more than 12 semester hours of credit earned in nondegree status may be applied to a degree program.

Provisional Students

Provisional students must take 12 semester hours in psychology before applying for degree status. Provisional students must obtain a minimum GPA of 3.25 in those courses. The grade-point average is a major (but not sole) factor in determining acceptance to the degree program. The courses needed before a student requests a change to degree status are PSYC 553 and 9 additional graduate hours, excluding Individualized Study.

Psychology, Psy.D.

The goal of the doctoral program is to train students in the principles and applications of psychology. To accomplish this, the program has been developed to provide the student with both a knowledge of the basic content areas in psychology and the practical experience required to apply these principles to problems arising in nonacademic work settings. The program contents are applied experimental and clinical psychology. The applied experimental program with specialization in industrial organizational and human factors engineering is focused on educating psychologists in the use of psychological knowledge and methods employed in settings such as industry, government, consulting organizations, and research and development organizations. Students develop skills in such areas as human-computer interface design, training, personnel selection, and organizational psychology.

The clinical program focuses on educating clinical psychologists to deal with the unique demands of mental health systems and private practice. A student in the first year of training in the clinical specialization is required to complete a minimum of 30 credits during the calendar year.

Financial Assistance

Financial assistance is available through graduate assistantships; Doctoral fellowships; and various forms of grants, loans, or employment. For information and forms contact the Psychology Department (graduate assistantships and department scholarships), Graduate School (doctoral fellowships), and the Financial Aid Office (other forms of assistance). The application deadline for financial aid is February 15.

Admission Requirements

All applicants must provide the Graduate School with the following materials by February 15 to be considered for admission in the fall semester:

1. A completed Graduate School Admission application to be obtained from Graduate Admissions.
2. A completed Virginia Domicile Classification form, if applicable
3. A completed Department of Psychology application form to be obtained from the Psychology Department
4. All undergraduate and graduate transcripts
5. Three letters of recommendation. (These letters should be requested from individuals who have a first-hand knowledge of the applicant’s work experience and/or academic capabilities)
6. Two- or three-page typewritten personal statement, describing professional goals, past training history, and reasons for seeking the Psy.D.
7. GRE scores taken within the past five years
8. A writing sample (optional). This may be selected from either academic papers, publications, or professional reports.

In addition to fulfilling the admission requirements, applicants in the program are expected to have the following:

For the Psy.D. in Applied Experimental, at least 15 hours in psychology including a statistics course and a laboratory course. A tests and measurements course is recommended.

For the Psy.D. in Clinical Psychology, at least 15 hours in psychology including a statistics course, a laboratory course, and courses in personality and abnormal psychology. Courses in developmental, physiological, and tests and measurements are desirable.

An applicant in the final pool will be required to participate in an interview as part of the admissions process.

Admission Criteria

Space in the program is limited to 20 new students per year, of which no more than 10 will be in the clinical specialization and no more than 10 in the applied experimental specialization. No particular set of qualifications can guarantee admission. However, an applicant is expected to meet minimum criteria of a 3.00 undergraduate GPA and a 3.25 GPA in psychology course work.

Transfer Credits

Transfer credits will be reviewed by a committee only after acceptance to the Psy.D. program.

Degree Requirements

The program of doctoral training in psychology can be perceived as having four educational components: (1) core courses, (2) upper-level specialty courses, (3) supervised practica, and (4) a dissertation.

Core Courses

The core requirement consists of four proseminars, two quantitative courses, and a course in history and
systems. The 12-semester-hour proseminar sequence covers the basic subject matter identified by the American Psychological Association as the *sine qua non* of doctoral training: biological bases of behavior, social bases of behavior, cognitive-affective bases of behavior, and individual behavior. After successful completion of 30 hours (including core courses), a student is awarded an M.A. in psychology.

**Specialty Courses**

The 700-, 800-, and 900-level courses are designed to provide doctoral candidates with greater depth of study in specific content areas. These advanced courses focus on the comprehensive study of theoretical, applied, and methodological issues within the different specialty areas.

**Practica**

Both applied experimental and clinical students will be expected to perform at a satisfactory level in all practicum placements. The purpose of these practica is to provide a broad range of experiences in settings related to the students' fields of specialization. For example, individuals in the clinical specialization might take practica in adult assessment, child assessment, individual psychotherapy, and group psychotherapy. An individual in industrial might take practica in survey research, and human factors in applied perception, or training program development. One practicum for applied experimental students will be in-house and will culminate in a formal paper.

**Dissertation**

The dissertation requirement is designed to demonstrate the student's ability to apply psychological principles to practical problems. The dissertation may involve an experimental approach to a basic or an applied problem or may organize and summarize in a scholarly fashion a project done in a practicum or internship placement.

**Student Evaluation**

A student in the doctoral program will be evaluated on the basis of grades, comprehensive examinations, and communication skills. In doctoral courses, A and B are the only acceptable grades. In addition to satisfactory course performance, students in the doctoral program must successfully complete comprehensive examinations after they have completed the core requirements. These exams are administered each year in August and January. A student who successfully completes the comprehensive examinations is admitted to doctoral degree candidacy and is then permitted to begin work on a dissertation. The applied emphasis of this program requires the development of communication skills. Written and oral communication skills will be assessed by faculty continuously throughout the program in the form of papers and reports. Students judged deficient in either communication area will be informed of the deficiency; they may be required to leave the program if the deficiency cannot be remedied.

**Psy.D. in Human Factors Engineering**

Students must complete 88 hours of graduate credit to include the following requirements:

- 15 hours of proseminars from PSYC 701, 702, 703, 704, and 705
- 7 hours of quantitative and methods courses: PSYC 553 and 653
- 9–12 hours of advanced quantitative and specialized methods including PSYC 637 and 755 and one of the following: PSYC 652, 654 or 756
- 9–12 hours of theoretical seminars including PSYC 636 and two of the following: PSYC 564, 662, 666, or 668
- 9–12 hours of applied seminars including PSYC 530 and one of the following: PSYC 634 or 638
- 12–15 hours of practica and research from PSYC 730 or 897
- 6–9 hours of interdisciplinary courses taken outside the department from a department-approved list
- 3 hours of special topics in professional issues: PSYC 892
- 12 hours of dissertation proposal and dissertation: PSYC 998 and 999 (minimum of 3 hours of 998 and 6 hours of 999)
- 0–12 hours of electives, 9 of which may be taken outside the department from a department-approved list

**Psy.D. in Industrial/Organizational**

Students must complete 88 hours of graduate credit to include the following requirements:

- 15 hours of proseminars from PSYC 701, 702, 703, 704, and 705
- 7 hours of quantitative and methods courses: PSYC 553 and 653
- 9–12 hours of advanced quantitative and specialized methods including PSYC 654 and 754 and one of the following: PSYC 541, 633, 637, 652, 755, or 756
- 9–12 hours of theoretical seminars including PSYC 636 and two of the following: PSYC 533, 632, or 667
- 9–12 hours of applied seminars including one of PSYC 631 or 638 and one of PSYC 635 or 639
- 12–15 hours of practica and research from PSYC 730 or 897
- 6–9 hours of interdisciplinary courses taken outside the department from a department-approved list
- 3 hours of special topics in professional issues: PSYC 892
- 12 hours of dissertation proposal and dissertation: PSYC 998 and 999 (minimum of 3 hours of 998 and 6 hours of 999)
- 0–12 hours of electives, 9 of which may be taken outside the department from a department-approved list

**Psy.D. in Clinical Psychology**

Students must complete the following requirements:

- 12 hours of proseminars: PSYC 701, 702, 703, and 705
- 7 hours of quantitative and methods courses: PSYC 553 and 650
- 11 hours of assessment and basic skills: PSYC 810, 811, and 880
- 6 hours of supervision: PSYC 883 and 884
- 9 hours of Theory and Techniques of Psychotherapy: PSYC 830, 831, and 832
- 6 hours of Community PSYC: PSYC 840 and 841
- 6 hours of Psychopathology: PSYC 822 and 823
- 6 hours of Externship: PSYC 865
- 6 hours of Professional Seminar: PSYC 890, thesis and electives
Psychology Courses (PSYC)

506 Theories of Personality (3:3:0). Prereq PSYC 220. Comparative review of prevalent theories of personality with special emphasis on their fundamental models and their similarities and differences.

508 Theories of Development (3:3:0). Prereq PSYC 313 or 211. Major theories of infant and child development incl works of Piaget, Freud, Erikson, and Spitz.

513 Infant Development (3:3:0). Prereq PSYC 313 or Pol. Examination of current issues, research methods, and clinical evaluation techniques in the field of infant development.

530 Human Factors Engineering (3:3:0). Prereq An experimental lab course or Pol. Investigation of complex man-machine interactions found in industry today. Extensive empirical research findings are examined.

533 Seminar in Industrial/Organizational Psychology (3:3:0). Prereq PSYC 230 or PSYC 636 or Pol. Rotating topics (e.g., leadership theories and management development, performance appraisal) to be announced in advance. May be repeated for credit.

541 Survey Research (3:3:0). Prereq PSYC 300 or SOC/221 or equiv. This course is designed to acquaint students with the theory, method, and practice of survey research. The course requires students to complete a survey research project.

548, 549 Practicum in Gerontology (3:0:0). Prereq Completion of two of the required core courses in the gerontology certificate program. Practical experience in a gerontological setting under supervision of a qualified professional. 150 contact hr per three sem hr cr.

553 Quantitative Methods I: Advanced Statistics (4:3:2). Prereq A screening test will be given on the first evening of the class. This test must be passed in order to take the course. Topics in intro psychological statistics from an advanced perspective. Additional topics are incl. Lab provides introduction to use of computer packages in data handling and analysis. Req for degree students. Req may be satisfied by demonstrating competence on an independent examination.

559 Drugs, Hormones, and Behavior (3:3:0). Prereq PSYC 372 or equiv or Pol. Overview of the chemistry of behavior, incl neurotransmitters, mechanisms of action of therapeutic drugs such as antidepressants, actions of hallucinogens and other psychoactive drugs, chemical theories of memory and effects of hormones on behavior.


564 Sensory Processes (3:3:0). Prereq PSYC 309. Intensive exploration of the neural foundations of sensory experience, with special emphasis on the processing mechanisms at different levels of the various sensory pathways.

565 Cognitive and Perceptual Development (3:3:0). Prereq six hr of developmental psychology or Pol. Experimental study of child development. Topics incl biogenetic factors in development, sensory processes, learning, perception, motivation, language, and cognitive development.

581/ENGL 581 Survey of Psycholinguistics (3:3:0). Prereq ENGL 391, or PSYC 305, or Pol. Study of the psychological basis of human language acquisition and competence, incl research on aphasia, association, autism, second language learning, grammatical transformations and the psychological reality of transformational rules.

592 Special Topics (3:3:0). Pol. Special topics reflecting interest in specialized areas.

614 The Psychology of Aging (3:3:0). Prereq Undergrad or grad course in aging. Review of the experimental literature in psychology of aging, incl intellectual functioning, personality and adjustment, minor and major adjustment problems, and role changes in later life.

616 General Psychopathology (3:3:0). Prereq PSYC 325. Intensive survey of the current psychiatric nomenclature (DSM-III) of major types of psychopathological disturbances.

617 Child Psychopathology (3:3:0). Prereq PSYC 313 or 211 and 325. Intensive survey of major types of psychopathological disturbances of infancy and childhood.


633 Evaluative Research in Psychology (3:3:0). Prereq PSYC 300 or Pol. Examination of research techniques that are specifically designed to evaluate the human effectiveness of organizations and mental health programs.

634 Seminar in Human Factors Engineering (3:3:0). Prereq PSYC 530 or grad experimental course in psychology or PSYC 701. Rotating topics (e.g. systems theory, human factors in computer systems, office automation) to be announced in advance. May be repeated for credit.

635 Topics in Organizational Psychology (3:3:0). Prereq PSYC 230 or 632, or MGMT 610. Selected topics reflecting interest in a specialized area of organizational psychology, announced in advance. Emphasis on recent experimental research literature related to the selected topic.

636 Survey of Applied Psychology (3:3:0). Prereq PSYC 300 or Pol. Intensive survey of the historical and current issues in the major areas of applied (nonclinical) psychology—personnel, social-organizational, human factors/engineering psychology.

637 Techniques in Applied Psychology (3:3:0). Prereq PSYC 300 and PoD. A skills-oriented course in the development and use of job analysis, task analysis, performance appraisal, interview, and questionnaire techniques. Emphasis on group/individual projects.

638 Training: Psychological Contributions to Theory, Design, and Evaluation (3:3:0). Prereq PSYC 636 or Pol. Focus on the application of learning principles derived from psychological research in the development of training models and techniques of skill acquisition. Discussion of research designs and empirical results appropriate to training evaluation.

639 Organizational Processes (3:3:0). Prereq PSYC 230 or PSYC 632. This course trains students at both a theoretical and an experimental level in organizational processes. Processes include intrapsychic, interpersonal, intragroup, and intergroup behavior as they exist in the context of organizational settings.

650 Clinical Research Methods (3:3:0). Open only to degree students. Prereq PSYC 553 or Pol. Overview and discussion of research design and strategy for the conduct of research on human adjustment processes.

651 Quantitative Analysis of Experiments (3:3:0). Prereq PSYC 300. Intermediate of statistical techniques and introduction to computer packages. Req may be satisfied by demonstrating competence on examination.

652 Quantitative Methods II: Analysis of Variance (3:3:0). Prereq PSYC 300 and either 304, 305, or 309. Basic concepts in experimental design, fundamental assumptions in analysis of variance, analysis of variance and covariance designs and multiple comparison tests are also reviewed.

653 Research Methods I: Experimental and Research Design (3:3:0). Open only to degree students. Prereq PSYC 300 and either 304, 305, or 309. An overview of the various research designs used in psychology. The use of these designs in applied settings will be discussed.

654 Naturalistic Methods in Psychology (3:3:0). Prereq PSYC 300 and either 304, 305, or 309. Theory and
techniques involved in studying people in their natural environment. Primary emphasis is on quasi-experimental designs and methods of systematic observation.

662 Human Learning and Cognition (3:3:0). Prereq PSYC 304 or 305. Literature in verbal learning, transfer, and retention is reviewed with special emphasis on recent research. Topics incl paired-associate and serial learning, free recall, organization in memory, concept identification, and psycholinguistics.

668 Perception (3:3:0). Prereq PSYC 309. Important issues related to neurophysiological, sensory, and cognitive aspects of perception are surveyed. Topics incl the general theories of Gibson, Brunswick, and the Gestaltists, and some specialized models developed in recent years, especially information-processing models.

667 Small Group Behavior (3:3:0). Prereq PSYC 231 and 653. Theories, methods and topics relevant to individual behavior in a small group setting. Effects of individual on the group, effects of the group on the individual, and interaction effects among individuals.

668 Seminar in Cognition (3:3:0). Prereq PSYC 304, 305, or 309. Discussion of current theories and research on the content of cognition, such as symbols, abstractions and cultural tools; and the nature and processes that enable the acquisition, organization, and use of knowledge, such as attending, remembering and thinking.

669 Social and Personality Development (3:3:0). Prereq six hours of developmental psychology or Pol. Survey of socialization theory and research relevant to infant-society relationships, development of aggressive and altruistic behaviors, sex-role development, moral development, parent and adult influences, social class, and cultural influences.

671 Role and Function of the School Psychologist (3:3:0). Open only to school M.A. students or Pol. Roles and functions of the school psychologist within the educational environment. Certification and ethical standards of the school psychologist are also considered together with current issues and trends.

678 Topics in School Psychology (1-6:0:0). Open to practicing school psychologists and advanced students in school psychology or Pol. Selected topics reflecting interest in a specialized area of school psychology. Content varies.

684 Psychological Counseling Techniques (3:3:0). Graduate standing or Pol. Application of various counseling techniques generated by current approaches to counseling. Students will be given experience in techniques used in contemporary practice.

687 Intervention Strategies in Alcohol and Polydrug Dependency (3:3:0). Prereq PSYC 616 or equiv and PSYC 684 or equiv, or Pol. Review of multidisciplinary theory and practice in treatment of the alcohol or polydrug dependent client. Emphasis on coordination of relationship counseling and psychotherapy with interventions derived from corrective education and vocational rehabilitation. Problems of transition from institutional to open community settings.

701 Cognitive and Affective Bases of Behavior (3:3:0). Open only to degree students. A survey of concepts in learning, cognitive, and affective processes, including theories and supporting data and their influences on behavior.

702 Biological Bases of Behavior (3:3:0). Open only to degree students. A survey of physiological bases of behavior, incl such topics as neural conduction and role of specific neuro transmitters.

703 Social Bases of Behavior (3:3:0). Open only to degree students. Survey of social influences on behavior, incl group processes, person perception, and attitude formation.

704 Life-Span Development (3:3:0). Open only to degree students. A survey of theories and research regarding life-span development, and personality formation.

705 Historical and Philosophical Issues in Psychology (3:3:0). Open only to degree students. Important historical and systematic approaches to psychology and their relationship to the philosophy of science, structure of theory and philosophical issues in psychology.

709 (formerly 715) The Measurement of Intelligence (4:3:2). Open only to Psy.D. or M.A. school students. PoD req. Prereq PSYC 617 or 822 and PSYC 320 or equiv. Administration, scoring and interpretation of the major infant, child and adult intelligence tests, with emphasis on individual tests. Development of IQ tests; theories of intelligence; and current trends and developments in intellectual assessment.

710 (formerly 711) Psychological Assessment (4:3:2). Open only to Psy.D. or M.A. students. Prereq or coreq PSYC 709 (formerly 715) or 822 or PSYC 810 and PoD. Study of major instruments used in clinical assessment; their nature, problems and predictive value; administration and scoring of the major techniques for evaluation of personality and organicy; principles of interpretation of these procedures.

722 Advanced Child Assessment (4:3:2). Open only to Psy.D. or M.A. school students. Prereq PSYC 709 (formerly 715) and 710 (formerly 711) or PSYC 810 and 811 and five intellectual assessments at the Psychological Clinic. PoD req. Problems involved in diagnostic assessment of children with various handicapping conditions such as brain dysfunction, learning disabilities, retardation, and emotional disturbances.

730 Practicum in Applied Psychology (1-6:0:0). Open only to degree students in Psychology and PoD required. Apply in writing to the area coordinator 60 days prior to the beginning of the semester. Practical experience in an organizational setting as assigned. Psy.D. students may repeat this course to a maximum of 15 hours; M.A. students to a maximum of six hours. Course is graded S, NC.

740 Seminar in Psychosocial Issues (3:3:0). Prereq Pol. Intensive examination of selected aspects of the law-psychotherapy interface. Focus on how psychology contributes to the legal process and how law affects the application of psychology. Students select issues relevant to their career goals, search the literature and present their findings to the class.

750 Psychological Practicum (1-6:0:0). Open only to M.A. school students. Prereq assessment courses: PSYC 705 (formerly 715), 710 (formerly 711), and 722; and testing experience in the Psychological Clinic. Apply (in writing) for PoD 60 days prior to the beginning of the semester. Practical experience in a school setting as assigned.

754 Quantitative Methods III: Psychological Applications of Regression Techniques (3:3:0). Prereq PSYC 553. Psychological applications of regression techniques will be reviewed in a variety of contexts including experimental, field, and survey settings.

755 Statistical Packages for Psychology (3:3:0). Prereq PSYC 553, 652 or 653, or equiv. Intro to manipulation techniques of statistical analysis appropriate for applied problems in psychology with three widely used statistical packages—BMD, SPSS and SOUAP.

756 Quantitative Methods IV: Multivariate Techniques in Psychology (3:3:0). Prereq PSYC 553 or equiv; PSYC 755 rec. Survey of multivariate statistical techniques as applied to psychological research. Emphasizing analysis of complex designs and interpretation of multivariate data analyses resulting from computer processing.

765 School Psychology Internship (3, 6, 9, 12:0:0). Prereq Completion of req courses in school psychology and Pa program coordinator. One-school-year supervised field experience where the advanced school psychology student functions as a full-time staff member within a school system. Student completes a paper on a practical research project which involves an alternative school psychology role in the school system. Enrollment is for a total of 9 hours (thesis option) or 12 hours (nonthesis option) in increments of 3 hours according to placement. Students enrolled in PSYC 798 are not required to complete the practical research project.

772 Seminar in Behavioral Assessment of Toxic Effects (3:3:0). Prereq grad course in physiological psychology or
animal behavior, and a course in drugs and behavior or environmental factors. Interventions have to methodology of behavioral assessment of adverse drug or chemical effects. In-depth discussion of major research in behavioral toxicology, such as the effects of heavy metals, inhalants, gases, and abused drugs on behavior.

786 Assessment and Treatment in Gerontology (3:3:0). Prereq A course in the psychology of aging, PSYC 320 and PSYC 423, or equiv courses. Functional assessment of older adults incl the conceptual and methodological problems involved. Intervention strategies with older adults are examined, incl interviewing, group work with older persons, milieu therapy, reality therapy, and the design of supportive environments.

791 School Psychology Practicum (3:0:0). Prereq PSYC 709, 710, 722, 750, and PoD. Fieldwork with a practicing school psychologist in a school system two days a week. Introduces student to observation, assessment, and consultation within a school system. This pre-internship experience is supervised by University faculty and serves as a prelude to an internship with the same school system the following academic year.

798 Practical Research in School Psychology (4:0:0). Prereq courses in school psychology prog and Po program coordinator. Practical project in the school system under the supervision of a faculty member. The student completes a paper on a project and has it approved by advisor at least one other faculty member. Not available to students enrolled EDUC 589 or PSYC 799.

799 Thesis (3-6:0:0). Research on approved thesis topic under the direction of a thesis committee with approval of the chair.

800 Studies for the Doctor of Arts in Education (var cr). Prereq D.A.Ed. admission to study in psychology. Program of studies designed by student's discipline director and approved by student's doctoral committee which brings the student to participate in the research of the discipline director and results in a paper reporting the original contributions of the student. The paper is presented in a subsequent D.A.Ed. summer seminar. Enrollments may be repeated.

810 Intellectual Assessment (4:3:2). Open only to Psy.D. students. Course covers administration, scoring, and interpretation of individual adult and child assessment procedures. Problems of assessment and theories of intelligence are reviewed.

811 Personality Assessment (4:3:2). Open only to Psy.D. students. Prereq PSYC 810. Course covers administration, scoring, and interpretation of adult and child projective and objective tests of personality functioning.

812 Advanced Assessment (4:3:2). Open only to Psy.D. students. Prereq PSYC 810 and PSYC 811. Course covers the interpretation and integration of multiple test findings for purposes of differential diagnosis of mental disorders.

816 (formerly 716) Neuropsychological Assessment (3:3:0). Prereq PSYC 702, 810, 811. Course explores the nature of brain-behavior relationships in adults and children. It will concentrate on the major assessment techniques including Luria Nebraska, Halstead-Reitan, and Michigan Neuropsychological batteries.

822, 823 (formerly 723) Seminar in Experimental Psychopathology I, II (3:3:0) (3:3:0). Open only to Psy.D. students. A seminar which provides an intensive integration of the psychopathology literature with mastery of the current psychiatric nosology.

830 (formerly 775) Theories of Psychotherapy (3:3:0). Open only to Psy.D. students. Prereq 822 and 823. A review of the major approaches to psychotherapy, including the psychoanalytic, humanistic-existential, and cognitive-behavioral approaches. Students will study individual, group, and family therapy from each of these perspectives.

831 (formerly 729) Behavior Therapy (3:3:0). Open only to Psy.D. students. Investigation of specific procedures for altering emotional distress and behavioral dysfunction as they are implemented within the conceptual framework of clinical psychology.

832 (formerly 727) Group and Family Psychotherapy (3:3:0). Prereq Open only to Psy.D. students, PSYC 822, 823 (formerly 723), and 830 (formerly 773). A review of major approaches to group and family psychotherapy. Group therapy approaches include the psychoanalytic approaches of Slavson and Ezriel, Yalom's interactionist approach, and Bion's Tavistock model and the encounter approaches of Schultz and Perls. Family therapy approaches include Bowen's systems approach, the communication models of Haley and Satir, Minuchin's structural theory, and Ackerman's psychoanalytic approach.

840, 841 (formerly 731, 732) Community Psychology: Theory and Practice (3:3:0) (3:3:0). Open only to Psy.D. students. An introduction to the history, concepts and practice of community psychology. Course work and practice will focus on community mental health theory, consultation, prevention, program planning and evaluation and human service management.

880 (formerly 618) Clinical Foundations (3:3:0). Open only to Psy.D. students. Focus on basic clinical/interactional skills, incl basic therapy skills, psychodiagnostic interviewing, mental status exam, and interview management skills. Incl exposure to a variety of clinical settings and clients.

883 (formerly 793) Psychological Assessment Practicum and Supervision (3:0:0). Prereq Open only to Psy.D. students and Po Clinical Director. The course entails the administration, scoring, and interpretation of psychological tests for adults and children in a professional setting under supervision.

884 (formerly 794) Psychotherapy Practicum and Supervision (3:0:0). Prereq Successful completion of PSYC 883 (formerly 793). open only to Psy.D. students. The course entails the supervised practice of individual psychotherapy with adults in a professional setting.

885 (formerly 795) Clinical Externship (3:3:0). Open only to Psy.D. students in the third year of training. Students are placed in a local mental health facility, where they will have the opportunity to develop their psychodiagnostic and psychotherapy skills under the supervision of a clinical psychologist. Presentation of clinical material at department seminars is also required.

890 (formerly 790) Seminar in Professional Psychology (1:1:0). Open only to Psy.D. students. Clinical students are required to enroll for each semester they are in the program. Focuses on the role of psychologists in various work settings. Consideration given to the functions performed by psychologists in those settings; to contributions by psychologists to the overall goals of those settings; to relationships with other professionals, managers, and personnel; and to management and policy issues arising in the various settings. Ethical issues addressed. Course is graded S, NC.

892 (formerly 792) Special Topics in Psychology (3:3:0). Open only to Psy.D. students. Selected topics reflecting specialized areas in psychology. Content varies. May be repeated.

897 (formerly 797) Directed Reading and Research (1-3:3:0). Independent reading on a topic agreed to by a student and a faculty member. May be repeated once, except it may not be repeated for degree cr by students who also register for PSYC 799.

998 Doctoral Dissertation Proposal (cr. vary). Work on a research proposal which forms the basis for a doctoral dissertation. May be repeated. No more than 24 credit hours of PSYC 998 and 999 may be applied to doctoral degree requirements.

999 Doctoral Dissertation (cr. vary). Research on an approved dissertation topic under the direction of dissertation committee. May be repeated. No more than 24 credit hours of PSYC 998 and 999 may be applied to doctoral degree requirements.
Public Administration

Faculty

Alexander, Lenora, Ph.D., State University of New York, Buffalo, 1974; Visiting Commonwealth Professor of Public Affairs

Anderson, Wayne F., M.S., University of Wisconsin, Madison, 1949; Distinguished Professor

Brown, Brack, Ph.D., Syracuse University, 1977; Associate Professor

Clark, Robert P., Ph.D., Johns Hopkins University, 1966; Professor

Cole, John D. R., M.A., University of Redlands, 1951; M.P.A., University of Southern California, 1983; Research Professor

Dawisha, Adeed, Ph.D., London School of Economics, 1974; Professor of Government and Politics

Fisher, Joseph L., Ph.D., Harvard University, 1947; Visiting Distinguished Professor

Friedlander, Melvin A., Ph.D., The American University, 1982; Assistant Professor

Gortner, Harold F., Ph.D., Indiana University, 1971; Associate Professor (Department Chair)

He culo, Hugh, Ph.D., Yale University, 1970; Robinson Professor

Knight, Barbara B., Ph.D., The George Washington University, 1971; Associate Professor

Mahler, Julianne G., Ph.D., State University of New York at Buffalo, 1976; Assistant Professor

Nguyen, Hung M., Ph.D., University of Virginia, 1965; Associate Professor

Ostrowski, John W., Ph.D., Kent State University, 1980; Assistant Professor

Paden, John, Ph.D., Harvard University, 1968; Robinson Professor

Pfiffner, James P., Ph.D., University of Wisconsin, Madison, 1975; Associate Professor

Plant, Jeremy F., Ph.D., University of Virginia, 1975; Associate Professor (Director, Doctoral Program in Public Administration)

Sacco, John F., Ph.D., Pennsylvania State University, 1973; Associate Professor

Sandole, Dennis J.D., Ph.D., University of Strathclyde, 1979; Associate Professor

Stillman, Richard J., II, Ph.D., Syracuse University, 1971; Professor

Thomas, Edith, Ph.D., Indiana University, 1977; Visiting Research Professor of Public Affairs

White, Louise G., Ph.D., The American University, 1974; Associate Professor (Director, M.P.A.: International Management)

Master of Public Administration, M.P.A.

The Master of Public Administration program falls within the Public Affairs Department. The program is designed to increase the students' competence in public service careers by improving their understanding of the processes of management and policy analysis within the public bureaucracy and the public policy system. As the standard professional credential in the public service field, the M.P.A. is designed to serve the career needs of those filling or expecting to assume responsible managerial and staff positions in public service in a wide variety of organizational settings.

The student-to-faculty ratio in the classroom is less than 20 to one. While most courses are taught by a distinguished full-time faculty, part-time instructors who hold advanced degrees and positions of responsibility in the public sector teach some classes. Thus, a good balance between theory and practice is maintained, which is valuable to everyone in the M.P.A. program.

Admission Requirements

In general, a degree applicant should meet the following minimum admission requirements:

1. A bachelor's degree from an accredited institution (Applications are accepted from the full range of baccalaureate degrees. No application is processed until all official transcripts are received by the GMU Graduate Admissions office.)

2. A grade point average of at least 3.00 on a 4.00 scale the last 60 hours of undergraduate work or the major field of study

3. Three letters of recommendation (letters should assess the applicant’s academic and career potentials)

4. A resume detailing work and civic activities undertaken if the applicant is employed

5. Training certificates or other work-related or postbaccalaureate training information. (No credit need be given for this experience, but the information will be used in helping to plan the student's education program.)

6. GRE General Test scores (not required of persons who have completed another graduate degree, e.g., master's, J.D.). GMAT or LSAT scores may be substituted for the GRE.
Degree Requirements

The M.P.A. program requires 42 semester hours of graduate course work. In addition, a student must demonstrate proficiency in statistics and accounting. A student may demonstrate proficiency in statistics or accounting by completing an appropriate course in those subjects. Or a student may satisfy the M.P.A. faculty that his or her work experience clearly demonstrates proficiency in the appropriate topics. The structure of the program is based on four levels of course work: core courses (18 hours), distributive requirements (6 hours), concentration courses (12 hours), and elective courses (6 hours). Four concentrations—public management, policy analysis, public financial management, and public personnel administration—predominate in the program, but others may be tailored to meet the needs of students with special interests. A concentration in international management became available in 1985-86.

Courses Outside the Public Administration Program

Courses from another graduate program of this University may be allowed, provided they are from a related field and prior approval is received from the faculty adviser and director of the public administration program.

With the approval of the student's adviser, the chair of the Department of Public Affairs, and the dean of the Graduate School, graduate credits earned at other accredited colleges or universities may be accepted for transfer. Normally, six hours of graduate credit may be transferred at the time of admission. With prior approval, an additional six hours may be earned at other institutions while enrolled in the program. In a few cases, equivalency credit (six credits maximum) may be granted for training received outside of an academic setting if it can be proved that the training is equal in quality to graduate course work. A maximum of 12 semester hours from all sources (including Extended Studies) will be accepted.

M.P.A.—Management and Analysis Track

All students are required to take eight M.P.A. core courses that provide a common body of knowledge about public administration, its political environment, and the special tools required in its study and practice. These courses are:

- PUAD 502 Theory and Practice of Public Administration
- PUAD 610 Computer Uses in Managing Public Organizations
- PUAD 611 Methods of Analysis for Public Managers I
- PUAD 612 Methods of Analysis for Public Managers II
- PUAD 615 Administrative Law
- PUAD 620 Organization Theory and Management Behavior
- PUAD 640 Public Policy Process
- PUAD 700 Ethical Dimensions of Public Administration

Each student is expected to complete, with the help of his or her adviser, an education plan after completing the first 12 hours of the M.P.A. course work. This plan may be revised as needed, but it must be completed prior to enrollment for further courses. The education plan covers the courses to be taken in addition to completing the core courses, and includes three courses chosen from the following list, one issues seminar, and two electives.

Choose three courses from:
- PUAD 621 Principles and Practices in Government Organization and Management
- PUAD 622 Program Planning and Implementation
- PUAD 641 Policy Analysis
- PUAD 642 Program Evaluation
- PUAD 650 Intergovernmental Relations in the United States
- PUAD 660 Public Financial Management
- PUAD 661 Public Budgeting Systems
- PUAD 662 State and Local Financial Management
- PUAD 670 Personnel Administration in the Public Sector
- PUAD 671 Public Employee Labor Relations
- PUAD 672 Methods in Public Personnel Administration

Choose one issues seminar:
- PUAD 729 Issues in Public Management
- PUAD 749 Issues in Public Policy Analysis

The two elective courses are to be chosen, with the help of an adviser, building upon the student's concentration whenever possible, and looking outside the public administration program when appropriate courses are available. A thesis option is available and encouraged as one way of fulfilling the last six hours of the program. An internship is encouraged for preprofessional students.

M.P.A.—International Management Track

The International Management Track in the M.P.A. is designed to serve those individuals who are working for, or wish to work for, government agencies, third-sector organizations, or businesses that are active in the international arena. The program requires 42 hours distributed in the following manner:

Core Courses
- PUAD 502 Theory and Development of Public Administration
- GOVT 504 Theory and Practice of International Relations
- PUAD 611 Methods of Analysis for Public Managers I
- PUAD 612 Methods of Analysis for Public Managers II
- PUAD 701 Cross-Cultural and Ethical Dimensions of International Management

Distributive Core Courses

Two of the courses below, chosen on the basis of the appropriateness of the courses to the concentration chosen by the student.
- PUAD 620 Organization Theory and Management Behavior
- PUAD 641 Policy Analysis
- PUAD 660 Public Financial Management
- PUAD 670 Personnel Administration in the Public Sector

Concentration

Concentrations are composed of seven courses chosen with the advice of the student's faculty.
1. An applicant's previous academic record should demonstrate high intellectual capacity, indicating to the graduate public administration faculty that the applicant is capable of completing the doctoral degree.

2. An applicant must have an M.P.A., M.B.A., M.S., M.A., J.D., or equivalent postbaccalaureate work at the time of entry into the D.P.A. class.

3. An applicant to the D.P.A. who does not have a master's degree or equivalent postbaccalaureate work may apply for the D.P.A. program. Such individuals should have outstanding credentials to justify entry directly into the D.P.A. programs. M.P.A. students who have completed 30 hours toward the M.P.A. will be considered along with all other applicants. If accepted into the D.P.A. program, the participant will be awarded the M.P.A. upon completion of the core seminar (PUAD 801-802).

Application For Admission
An individual interested in applying for admission to the D.P.A. program should obtain an application from the Admissions office. The applicant must arrange to have the following items submitted to the Admissions office:

1. Completed application and a $15 nonreturnable fee.

2. Official transcripts from each college/university where course work has been completed (undergraduate and graduate), which must be transmitted to GMU directly from the institution attended.

3. Certification from instructional institutions attended other than colleges and universities. (No academic credit need be given for such courses; however, the information will be considered as part of the total individual profile for admission.)

4. Scores from the GRE General Test, GMAT, or LSAT.

5. Three letters of reference.

6. A detailed resume (not the SF171) including information on all work, civic activities, and interests.

7. An essay of 1,500 to 2,000 words that describes how the applicant believes the D.P.A. program at GMU can help achieve stated intellectual and professional objectives.

Applications, including all supporting materials, must be received by the Graduate Admissions office no later than April 1 to be considered for the annual D.P.A. class to be admitted for the following fall semester, or November 1 for the spring.

Degree Requirements
The D.P.A. program requires 90 semester hours of work beyond the baccalaureate degree. A participant must show proficiency in two analytic managerial tools before being advanced to candidacy. Although all participants admitted to the D.P.A. program must have the equivalent of a master's degree, they must
take at least 36 hours of course work (the core seminars, intensive seminars, and work spelled out in their individual education plans) and pass two comprehensive examinations before being advanced to candidacy. A dissertation is required, and it must be defended in an oral examination. These and other requirements for the D.P.A. degree are described below.

Residency

A participant in the D.P.A. program must establish academic residency at GMU before being advanced to candidacy. Residency is established by

1. Participating in the introductory seminar held prior to the fall semester;
2. Completing the core curriculum, two six-hour seminars taken consecutively during the first two semesters of the D.P.A. program;
3. Passing the core comprehensive examination given after the completion of the core curriculum.

Analytical Managerial Tools Proficiency

To satisfy the analytic and managerial tools component of the D.P.A. degree, two sets of requirements must be met. First, a participant must demonstrate a working knowledge of the principal research and management tools applicable to public administration. This includes

1. Successfully completing a graduate course and an intensive seminar in the logic of research;
2. Showing knowledge of basic statistical methods (descriptive statistics, probability, sampling, hypothesis testing, and correlation-regression);
3. Showing knowledge of advanced analytical methods (microeconomics, decision analysis, systems theory, and modeling), which may be done by taking PUAD 612 or by passing the course's final exam.

Second, a participant must demonstrate competence in those research and management methods related to the dissertation topic by successfully defending the dissertation proposal.

Curriculum Requirements

A participant in the D.P.A. program should normally complete the core seminars during the first full year of study. After completing the core seminars, a D.P.A. participant may focus on one of several broadly defined areas. This part of the doctoral program is detailed in the education plan of each participant prepared during the required introductory seminar. The plan for the special area of study is periodically updated as the participant proceeds through the program. This plan must be worked out jointly between the participants and their advisers and the advisory committees. The plan is reviewable by the graduate public administration faculty, which retains ultimate authority in such matters.

The planning matrix is intended as a vehicle to provide structure to a participant's education plan while also allowing maximum flexibility. The cells of the matrix are not considered to be mutually exclusive nor are the activities and perspectives exhaustive. Instead, the intersections of activities and perspectives are intended to be used as focal points around which participants construct their individual education plans.

Although participants may take the majority of work in one part of the matrix and may detail the issues, activities, and perspectives that are central to their goals for the D.P.A., participants are responsible for the broader set of activities and perspectives represented by the other cells that are vertical and horizontal to the one chosen as the focus of attention. This six-cell configuration forms the basis of the special area of study comprehensive examination.

Students should take course work in those cells that are vertical and horizontal to the main focus of attention in order to successfully complete the special area of study comprehensive. However, the amount and type of course work required in the other cells is to be detailed in each participant's education plan.

The matrix serves not only as a guide to D.P.A. participants and their advisory committees, but it is used as a framework for designing course content by the D.P.A. faculty. Therefore, the seminars and tutorials of the D.P.A. program focus on selected issues represented within the matrix even though the courses relating to each individual cell may deal with a variety of theoretical, procedural, and substantive materials. By establishing direction and parameters for both faculty and participants, the special area of study allows maximum flexibility and at the same time guarantees a commonality and consistency of intellectual experience.

Model for Special Areas of Study Portion of D.P.A. Program at George Mason University

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<tr>
<th>Perspectives</th>
<th>Analysis and Evaluation</th>
<th>Leadership</th>
<th>Change and Innovation</th>
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<td>Individual Perspective</td>
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<td>Organizational and Inter-organizational Perspective</td>
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<tr>
<td>Societal and Environmental Perspective</td>
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Work at other universities must be approved by the dean of the Graduate School on the recommendation of the director of the Public Administration Program. No more than six hours of work from other universities taken subsequent to the D.P.A. core seminars may normally be counted toward the degree.

Doctoral Examinations

A participant in the D.P.A. program must complete the following three doctoral examinations:
1. Core comprehensive examination. Upon completion of the two core seminars, a participant must pass a written comprehensive examination covering the material included in the core of the program.

2. Special area of study comprehensive examination. Upon completion of the special area of study, the participant must complete a written examination as the final step in advancing to candidacy.

3. Oral defense of dissertation. A candidate must defend his research in a presentation to the graduate faculty.

Advancement To Candidacy

A participant is advanced to candidacy for the D.P.A. after establishing proficiency in the analytic and managerial tools, completing the required coursework as specified in the core and intensive seminars and in the plan for the special area of study, and passing the two comprehensive examinations. In addition, a formal plan of study must be approved and filed with the graduate school.

Dissertation

Each doctoral candidate must present a dissertation on a subject connected with the special area of study. The dissertation must represent technical mastery of the subject, originality in research, independent thinking, and scholarly ability. Its conclusions must be logical, its literary form must be acceptable, and its contribution to knowledge must be recognizable to others in the field.

Government and Politics Courses (GOVT)

504 Theory and Practice of International Relations (3:3:0). Prereq Acceptance in M.P.A. or PoD. Theoretical and empirical examination of the international system which both affects, and is affected by, the decisions, behaviors, and subsystems of state and nonstate (organizational) actors.

537 Selected Problems of Third World Development (3:3:0). Prereq grad standing or PoD. Third World development problems, including development management, a new international economic order, foreign aid, multi-national corporations and international organizations. May be repeated with PoD.

631 The Dynamics of Development (3:3:0). Prereq grad standing or PoD. Internal and external factors and forces that affect the political development of Third World countries, incl North-South relations, dependence theory, and development strategy within the context of resource scarcity.

Public Administration Courses (PUAD)

502 Theory and Practice of Public Administration (3:3:0). Prereq grad standing or PoD. Survey and review of the field of public administration to include development of U.S. governmental administration, theories of administrative organization and behavior, administrative processes, management of people and money, administrative responsibility, and the public policy-making/public policy-implementation nexus.

503 The Political Environment of Public Management (3:3:0). Prereq grad standing or PoD. Skills involved in a public manager's interaction with private groups, legislative bodies, advisory committees, the press, other administrative agencies, political executives and other levels of government. Case studies of administrative participation in the political process of public policy making.

610 Computer Uses in Managing Public Organizations (3:3:0). Prereq Admission to graduate school or Pol. Examines how managerial and analytical functions in public organizations can be performed via end-user computer applications. Provides in-depth coverage of selected data base and decision support packages. Gives attention to logic and integration of application software.

611 Methods of Analysis for Public Managers I (3:3:0). Techniques and skills available to, and used by, public managers to solve policy-related problems or to analyze policy-related data. Focus on problem definition, research design, and problem solving under conditions of uncertainty in the public sector.

612 Methods of Analysis for Public Managers II (3:3:0). Prereq PUAD 611. Techniques and skills available to, and used by, public managers to solve policy-related problems or to analyze policy-related data. Focus on data gathering and analysis, use of computers, systems theory and analysis, and operations research.


620 Organization Theory and Management Behavior (3:3:0). Consideration of behavior within the context of public organization and the consequent changes req in management. Focus on such issues as perception, attitude formation, motivation, leadership, systems theory, communication and information flow, conflict theory, and decision theory.


Public Affairs Course (PUAF)

850 Studies for the Doctor of Arts in Education (var cr). Prereq D.A.Ed. admission to study in public affairs. Program of studies designed by student's discipline director and approved by student's doctoral committee which allows the student to participate in the research of the discipline director and results in a paper reporting the original contributions of the student. The paper is presented in a subsequent D.A.Ed. summer seminar. Enrollments may be repeated.

862 Managing Development Projects and Programs (3:3:0). Prereq PUAD 502. Design, implementation, and evaluation of development projects and programs, with emphasis on management and organizational strategies and processes to accomplish development goals. Particular attention to socioeconomic-political environments and organizations structures and routines in the Third World context.
633 Management of International Organizations (3:3:0).
Prereq PUAD 502 and PUAD 504. Structure of decision making within international organizations, their internal structures, behavior of individuals and groups working within these organizations, and impact of external pressures on their management. Emphasis on factors and procedures that promote or hinder effectiveness of international organizations.


640 Public Policy Process (3:3:0). Processes of making public policy, incl detection of public issues, consideration of alternatives, and adoption and implementation of solutions. Highlights the major actors in the policy process, as well as the environment within which they work.

641 Policy Analysis (3:3:0). Prereq PUAD 611. Substantive issues in the conceptualization and practical applications of policy science and other formal perspectives to policy articulation, program formulation and program evaluation in the public sector.

642 Program Evaluation (3:3:0). Prereq PUAD 611. Practical exploration of assessment techniques utilized by central analytical units in government, incl program impact and program strategy evaluations, cost analysis, field experiments, particularly by study and evaluation research.

650 Intergovernmental Relations in the United States (3:3:0). In-depth study of intergovernmental relations, with emphasis on contemporary patterns of fiscal relations and operational grant programs.

651 Administration in the Commonwealth of Virginia (3:3:0). Cultural, demographic, constitutional, and socioeconomic environment of public administration in Va. Governmental agencies, legislative functions, executive leadership, staff agencies, state-local relationships, intrastate regions. Highlight the administrative challenges peculiar to Va.


662 State and Local Financial Management (3:3:0). Prereq PUAD 660 or PoD. Systems of public finance at state level. Impact of budgetary systems and taxation on state government, impact of federal grants-in-aid, revenue sources, and the relationship of national, state and local jurisdiction as partners in a federal system. Program auditing and new budgetary techniques are examined for their applicability at the state level.


671 Public Employee Labor Relations (3:3:0). Prereq PUAD 670. Prac/Public employee labor relations, incl unionization, representational elections, bilateral policy negotiations, administration of agreements, management rights, union and membership security, the strike issue and grievance procedures, impact on public administration, and assessment of future developments.

672 Methods in Public Personnel Management (3:3:0). Prereq PUAD 670. Intro to some of the more important basic methods used in public personnel management and administration, incl workforce planning and analysis; job evaluation and compensation; examining and selection; workforce management; and training and development.

700 Ethical Dimensions of Public Administration (3:3:0). Prereq Final sem of a student's M.P.A. program. Topics of ethical dimensions incl constitutionalism, democratic values and traditions, standards of conduct and ethics, and conflicting values of public officials and social equity of public programs.

701 Cross-Cultural and Ethical Dimensions of International Management (3:3:0). Prereq PUAD 504. Examination of normative issues in management of programs in international context. Emphasis on interplay of cultural, sociopolitical, legal, and ethical factors and on management and policy problems arising from conflicting goals, values, and inequalities among nations and regions.


739 Issues in International Management (3:3:0). Prereq At least one course from the PUAD 630 sequence. Examination of significant current issues in public international management. Emphasis on practical applications of theories and analysis of problems in the public international management arena. Competence in improving management practices in international management settings.


759 Issues in Local Government Administration (3:3:0). Contemporary problems—such as land use, transportation, economic development, growth management, and environmental impact—in the management of counties, cities, towns and special districts, with emphasis on local government in Va.

794 Internship (2-3:0:0). Prereq Open to authorized grad majors only, contact the department one sem prior to enrollment. Internships are work-study programs with specific employers. Cr is determined by the department.

795 Research Design (3:0:0). Prereq PUAD 612 and at least 12 hr of approved grad cr and completion of proficiency tools. Review of project-related background material. The research design must incl a statement of purpose, identification of data sources, data collection strategies, possible alternate hypotheses to be tested, the framework of analysis and a statement of anticipated results.

796 Directed Readings and Research (3:0:0). Prereq PoD and Pol. Reading and research on a specific topic under the direction of a faculty member. Written report req; oral examination over the research and report may be req. May be repeated once.

798 Research Project (3:0:0). Prereq PUAD 795 and PoD. Completion of an original research project related to public sector administration. On the basis of the approved research design each student prepares and defends a final report that is the result of the research project. Final report must be approved by the Department of Public Affairs.

800 Introductory Doctoral Program Seminar (2:2:0). Prereq PoD accepted in DPA program. Intensive orientation, self-appraisal and planning seminar for individuals entering the D.P.A. program.

dimensions, comparative perspectives, and future prospects of public administrative actions. Req of D.P.A. students during the first year of study.

803 Doctoral Seminar in Issues in Public Administration (1-2:0:0). Prereq PUAD 800. Major programmatic, functional, or operational aspects of public administration, and the principal historical, current, and prospective issues of concern to the field. Learning design entails formation of small teams for fact-finding, analysis, and presentation on important issue areas, as well as full-group sessions. The intensive format schedule is followed. May be repeated.

804 Conduct of Social Inquiry (3:3:0). Prereq PUAD 800. Emphasizes the assumptions and logic of different research designs and data collection techniques as an exercise in theory building. Designed to enable candidates to do original research and to critique the research of others.

810 Doctoral Seminar in Change, Innovation and Public Administration (3:3:0). Prereq Pol and PoA; doctoral students from other programs may enroll only by Pol. Recognition, anticipation, and analysis of economic, political, social, and technological change as it influences and is influenced by public administration. Nature of change, innovation, and creativity in society with the object of enhancing student sensitivity to and knowledge about the future. Ways for designing the structures and procedures of public organization so they can adapt to change.

819 Doctoral Tutorial in Change, Innovation, and Public Administration (1-3:0:0). Prereq Pol and PoA; doctoral students from other programs may enroll only by Pol. Individualized, intensive study of particular features of change, innovation, and public administration. Study arranged and supervised with tutorial professor.

820 Doctoral Seminar in Leadership (3:3:0). Prereq Pol and PoA; doctoral students from other programs may enroll only by Pol. Leadership in the political and administrative world, with special emphasis on the leader’s social influence, intellectual guidance, and on the leader’s role in policy making and organizational creation and direction. Inquiry is also made into the effect of internal and external forces upon leadership styles and effectiveness.

821 Doctoral Seminar in Theories of Organization and Bureaucracy (3:3:0). Prereq Pol and PoA; doctoral students from other programs may enroll only by Pol. The examination of key issues in organization theory and behavior. Issues include organization design, interorganizational coordination, intelligence and decision-making systems, leadership and motivation theories, and theories of organizations as agents of political and social change. Case studies will be used.

829 Doctoral Tutorial in Leadership (1-3:0:0). Prereq Pol and PoA; doctoral students from other programs may enroll only by Pol. Individualized, intensive study of particular features of leadership. Study is arranged and supervised with the appropriate tutorial professor.

840 Doctoral Seminar in Analysis and Evaluation (3:3:0). Prereq Pol and PoA; doctoral students from other programs may enroll only by Pol. Quantitative and qualitative approaches and techniques used in recognizing, defining, and assessing public issues and problems. Conceptualizing and assessing problems, employing and judging the strengths and weaknesses of tools and techniques, and identifying and categorizing the information required for competent analysis and evaluation.

849 Doctoral Tutorial in Analysis and Evaluation (1-3:0:0). Prereq Pol and Po participant’s advisory committee; doctoral students from other programs may enroll only by Pol. Individualized, intensive study of particular features of analysis and evaluation. Study is arranged and supervised with the tutorial professor.

999 Doctoral Dissertation (18-24). To be taken only with Po participant’s dissertation committee. Registration for the total cr hr may be spread over a multisemester contiguous period. D.P.A. candidates must register for at least three hr each sem until completion of the dissertation.

Sociology

Faculty

Avruch, Kevin A., Ph.D., University of California at San Diego, 1978; Associate Professor

Black, Peter W., Ph.D., University of California at San Diego, 1977; Associate Professor

Borkman, Thomasina S., Ph.D., Columbia University, 1969; Associate Professor

Colvin, Mark W., Ph.D., University of Colorado, 1985; Assistant Professor

Dietz, Thomas M., Ph.D., University of California at Davis, 1979; Associate Professor

Gittler, Joseph B., Ph.D., University of Chicago, 1941; Visiting Professor

Golomb, Louis, Ph.D., Stanford University, 1976; Assistant Professor

Horton, Lois E., Ph.D., Brandeis University, 1977; Associate Professor

Jacobs, Mark M., 1977; Ph.D., 1987, University of Chicago; Assistant Professor

Kolker, Aliza, Ph.D., Columbia University, 1975; Associate Professor

Krech, Shepard, Ph.D., Harvard University, 1974; Professor

Palkovich, Ann M., Ph.D., Northwestern University, 1978; Assistant Professor

Rader, Victoria F., Ph.D., University of Chicago, 1973; Associate Professor

Rosenblum, Karen E., Ph.D., University of Colorado, 1979; Associate Professor

Scimecca, Joseph A., Ph.D., New York University, 1972; Professor

Tavani, Nicholas J., Ph.D., University of Maryland, 1969; Associate Professor

Williams, Thomas R., Ph.D., Syracuse University, 1956; Professor

Sociology, M.A.

The Department of Sociology and Anthropology offers a master’s degree in sociology. A student may
choose a concentration in general sociology, applied sociology, sex and gender, race and ethnicity, or conflict analysis and management. The general sociology concentration allows maximum flexibility in the application of sociological knowledge to the analysis of social processes and systems. The applied concentration serves as a professional degree for the practitioner. The concentrations in race and ethnicity, sex and gender, and in conflict analysis provide advanced training in these areas. All five concentrations are appropriate for those anticipating further graduate study leading to the Ph.D. in sociology. The department provides opportunities for students to develop expertise in a variety of areas, including applied methods, community, criminology and juvenile delinquency, development and social change, deviance, environmental sociology, gerontology, medical sociology, occupations and professions, policy analysis, race and ethnicity, sociology of science and technology, and survey research.

Admission Requirements

In general, a degree applicant should meet the following admission requirements:

1. A bachelor's degree from an accredited institution.
2. An undergraduate grade point average of 3.00 (on a 4.00 scale).
3. A minimum of three semester hours each in undergraduate sociological theory, statistics, and research methods. Equivalent courses in other disciplines may be substituted for some of these requirements with permission.
4. Three letters of recommendation.

Acceptance of applicants to the program will depend upon assessment by the departmental graduate committee. While the Graduate Record Examination is not required for admission, it is recommended.

Provisional Admission

For provisional admission all required documentation for degree status must be submitted. An applicant with an undergraduate GPA of less than 3.00 who meets the other requirements may be admitted on a provisional basis. After completing not less than 6 nor more than 12 semester hours of graduate work with a grade point average of 3.00 or better, a provisional student may apply for degree status. If upon the completion of 12 hours a 3.00 average has not been achieved, provisional enrollment will be terminated.

Nondegree Status

Students who do not wish to pursue a degree or who have not supplied all required documents may be admitted to nondegree status. Nondegree students may later apply for degree status. With approval, a maximum of 12 graduate credit hours earned in nondegree status may be applied to a master's degree.

Degree Requirements

General Sociology. The degree requires 33 semester hours, including a core of 6 hours of social theory (Sociology 611, 612) and 6 hours of research methods (Sociology 620, 630). Students are also required to complete a master's thesis or equivalent.

Applied Sociology. The degree requires 33 semester hours, including a core of 3 hours of social theory (Sociology 612), 6 hours of research methods (Sociology 620, 630), and 9 hours of applied sociology (Sociology 515, 632, 640). Students are also required to complete a master's thesis or equivalent.

Sex and Gender. The degree requires 33 semester hours, including a core of 6 hours of social theory (Sociology 611, 612), 6 hours of research methods (Sociology 620, 630), and 9 hours in the sex and gender concentration. Students are also required to complete a master's thesis or equivalent.

Race and Ethnicity. The degree requires 33 semester hours, including a core of 6 hours of social theory (Sociology 611, 612), 6 hours of research methods (Sociology 620, 630), and 9 hours in the race and ethnicity concentration. Students are also required to complete a master's thesis or equivalent.

The Master's Thesis

A master's thesis or equivalent, such as a research report, will be required for the M.A. degree in sociology to demonstrate a candidate's capacity to carry out independent research. The thesis or its equivalent will consist of a substantial sociological research or theoretical project that will contribute to sociological knowledge.

Financial Aid

The Department of Sociology/Anthropology has a limited number of graduate assistantships. For information, please contact the department at 323-2900.

Sociology Courses (SOCL)

503 Family Law (3:3:0). Prereq undergrad senior status in Sociology, grad stdg or Pol. An examination of the salient aspects of the law as it affects the family in our dynamic society. Topics include: the nature and formalities of the marital relationship, intra-family torts and crimes, termination of the marital relationship, child custody and support, adoption, separation agreements, and the economic and sociological aspects of marriage, separation, and divorce.

505 Sociology of Sex and Gender (3:3:0). Prereq grad stdg or Pol. An advanced study of sex roles in contemporary society. Using historical and comparative data, course examines perceived, prescribed, and actual sex differentiation in social, political, and economic roles.

510 Employees, Employers, and the Changing Labor Force (3:3:0). Prereq grad stdg or Pol. Focusing on the nature and origin of recent developments, e.g., in technology, affirmative action policy and debates, migration and
immigration, and public and private job training programs, the course will examine their impact on the social structure of work.

515 Applying Sociology (3:3:0). Prereq undergrad senior status in sociology; grad status. Course provides overview of the ways sociologists have applied their theoretical and methodological skills and understanding in sociological practice in nonacademic settings.

523 Racial and Ethnic Relations: American and Selected Global Perspectives (3:3:0). Prereq grad stdg or Pol. Demographic portrait of racial and ethnic groups in the United States; nature and meaning of racial and ethnic groups; racial and ethnic groups as human-social-minority groups. Factors making for minority status include: personality factors; group cultural factors; reactions of racial and ethnic minorities to minority status; programs, measures, and philosophies seeking to change minority group status.

525 Current Research in Sex and Gender (3:2:0). Prereq grad stdg or Pol. An advanced study of current social science research and research methodology used in the study of sex and gender.

541 Survey Research (3:3:0). Prereq PSYC 300 or SOC1 221 or equiv. This course is designed to acquaint students with the theory, method, and practice of survey research design and analysis. The course requires the student to complete a survey research project.

599 Issues in Sociology (3:3:0). Prereq undergrad senior status in sociology; grad status. Course provides an opportunity to explore topics of contemporary interest in sociology. Topics will change from one semester to next and will include issues in sociological theory, crime and delinquency, advanced research methods, social and cultural change, urban sociology, medical sociology, sociology of aging, rural sociology. This course can be taken only once for credit.

602 Sociology of Formal Organizations (3:3:0). Prereq grad stdg or Pol. Classical and contemporary theories governing formal organizations; social issues such as nature of authority, implementation of change, and relationship between formal organization and society.

604 Sociology of Occupations and Professions (3:3:0). Prereq grad stdg or Pol. Theories of occupations and professions. Issues include educational patterns and social mobility, occupational status and prestige, importance of the work setting, work satisfaction and alienation, and impact of the professions on society.

606 Socialization Processes (3:3:0). Prereq grad stdg or Pol. Selected aspects of the cultural transmission process in specific local cultures selected from various world culture regions—e.g., Oceanic, Sub-Saharan Africa, India—with an emphasis on the origins, course of development, and present structure and functions of the intergenerational transmission of culture.

607 Criminology (3:3:0). Prereq grad stdg or Pol. Crime and crime causation. Topics include social basis of law, administration of justice, and control and prevention of crime.

608 (508) Juvenile Delinquency (3:3:0). Prereq grad stdg or Pol. Sociology of adolescent behavior. Sociological factors that determine which behaviors and social categories of adolescents are likely to be labeled and treated as delinquent.


610 Qualitative Research Methods (3:3:0). Prereq grad stdg or Pol. Examination of basic research methods involving observational techniques and procedures used in description and analysis of the patterns, configurations, ethos, eidos, structures, functions, and styles typical of whole societies and cultures, with an emphasis on case studies, unobtrusive methods, participant observation, long-term residence, choices of observer status-role, recording data, uses of technical equipment, key informants, interviewing techniques, and ethical considerations in employing such methods and procedures.

611 Classical Sociological Theory (3:3:0). Prereq grad stdg or Pol. In-depth examination of major issues in classical (pre-1930) sociological theory. Durkheim, Marx, Weber, Mead and others are analyzed and the social and intellectual context of their theories is emphasized.

612 Contemporary Sociological Theory (3:3:0). Prereq grad stdg or Pol. Schools in contemporary sociological theory such as structural-functionalism, conflict, exchange, symbolic interactionism, etnmethodology, humanist sociology and critical theory are examined. Contemporary theorists are analyzed in relation to previous schools.

615 Social and Cultural Change (3:3:0). Prereq grad stdg in sociology or Pol. Social and cultural change in a transnational and transcultural (or comparative) perspective, with particular attention to theories, research methods, and conclusions concerning development and modernization in post-Colonial and “Third World” societies and cultures.

616 Society, Culture, and Personal Character (3:3:0). Prereq grad stdg in sociology or Pol. Transcultural (comparative) examination of the interrelations between social and cultural factors and individual personal character; focus on life history of individuals in particular social and cultural settings. Readings and discussions center upon theoretical concerns, methodological approaches, and current research in study of social/cultural factors in personal character.

619 Conflict and Conflict Management: Perspectives from Sociology (3:3:0). Prereq grad stdg in Sociology or Conflict Management or Pol. The course deals with the sociology of conflict. Such major sociological theories of conflict as those of Marx, Weber, Simmel, Dahrendorf, Coser, and Collins will be presented. The role that sociological conflict theory plays in undergirding conflict management practices will be stressed.

620 Design of Social Research (3:3:0). Prereq grad stdg and undergrad statistics and research methodology, or Pol. Introduction to advanced strategies of social research used in the area of social policy analysis, incl sample design, theory and techniques of measurement, questionnaire design, and data collection. Incl an intro to various types of social research: survey, participant observation, case study, and evaluation research.

621 Human Ecology and the City (3:3:0). Prereq grad stdg or Pol. Intro to urban ecology. Origin and development of various types of cities, shape and structure of urban areas, inner and outer city, and spatial patterning of urban institutions.

622 Metropolitan and Regional Development (3:3:0). Prereq grad stdg or Pol. Process of social development in the context of metropolitan and regional social change. Social development is considered in the light of economic, political, demographic, and human resource dimensions.

623 The Suburban Community (3:3:0). Prereq grad stdg or Pol. Systematic sociological study of the suburb: (a) its evolution and development (demographic and geographic); (b) its varied types; (c) its relation to the inner city; (d) as part of the metropolitan area and megalopolis; (e) its structure as a community incl its formal and informal social groupings, organization and voluntary associations, family and social institutions, social stratification, and social mobility; (f) social change.

625 Directed Readings in Sex and Gender (3:3:0). Prereq SOC1 505 and 525, or Pol. Readings on a specific topic within the sociological study of sex and gender, under the direction of a faculty member. Written report and oral examination required.

630 Analytic Techniques of Social Research (3:3:0). Prereq grad stdg and undergrad statistics and research methodology, or Pol. Advanced strategies of social research used in the area of social policy analysis, focusing on
analytic techniques such as analysis of variance and covariance, multiple regression and correlation, path analysis and elaborative contingency table analysis.

632 Evaluation Research for Social Programs (3:3:0). Prereq SOCI 520, 530, or Pol. Study of methodological issues related to the evaluation of social programs. Conceptual and research design issues are explored in relation to social programs, particularly the delivery of social services. To incl the examination of methods used to assess the need for the programs, impact of delivery systems, and the efficiency and effectiveness of social programs.

633 Special Topics in Sociology (3:3:0). Prereq grad stdg or Pol.

640 Social Theory and Social Policy (3:3:0). Prereq grad stdg or Pol. Major theories of social organization and social change as a means of understanding social policy development. Concentration is on social policies in American society.

650 Health Systems Delivery (3:3:0). Prereq grad stdg or Pol. An analysis of the social factors associated with the delivery of health care. Several theoretical perspectives are used to highlight relevant elements. Planning for health from individual to federal processes is studied. The processes and problems of measuring the quality of health care are investigated.

651 (551) Medical Sociology (3:3:0). Prereq grad stdg or Pol. Social context of disease and medical care, the position of the professions in the medical care structure, the delivery of medical care, and the physician-patient relationship under different systems of practice.

680 Clinical Sociology (3:3:0). Prereq grad stdg or Pol. Intro to theoretical principles, methods and procedures necessary to practice clinical sociology as an independent consultant or within private or public organizations. Such specialized applications as family counseling, organizational change, medical sociology and educational sociology are covered.

685 Sociology of the Disabled (3:3:0). Prereq grad stdg or Pol. Overview of social movements relating to the disabled incl questions on how persons with handicaps manage living in their homes, schools, and workplace. Analysis of legislation and public programs as they relate to various disabling conditions.

688 Sociology of Aging (3:3:0). Prereq grad stdg or Pol. Analysis of sociological issues in aging. Issues incl class and cultural factors, problems of work, of retirement, of attachment and of loss and ageism. Different theories of aging are examined.

696-697 Independent Study (3:0-01, 3:0-0). Prereq grad stdg or Pol. Theoretical and research literature chosen by student and instructor.

799 Thesis (3-6:0:0)

800 Studies for the Doctor of Arts in Education (var cr). Prereq D.A.Ed. admission to study in sociology. Program of studies designed by student's discipline director and approved by student's doctoral committee which brings the student to participate in the current research of the discipline director and results in a paper reporting the original contributions of the student. The paper is presented in a subsequent D.A.Ed. summer seminar. Enrollments may be repeated.
Certificates, Programs, and Additional Graduate Courses
Certificates, Programs, and Additional Graduate Courses

Certificates

Teaching of English as a Second Language (TESL)

Admission Requirements

Applicants interested in a Certificate in the Teaching of English as a Second Language must be admitted to graduate study through the Graduate School or approved for graduate course enrollment through the Division of Continuing Education. Students who initially enroll in the certificate program through the Division of Continuing Education must apply for regular admission through the Graduate School no later than the second semester of study. At the time formal admission to graduate study is sought, applicants must submit one copy of a writing sample of approximately 1,000 words and two letters of recommendation. The certificate may be pursued concurrently with any of several degree programs offered through the Department of Education, the Department of English, and the Department of Foreign Languages and Literatures, and part of the work toward the certificate may be applicable toward degrees in those departments.

Certificate Requirements

Certificate candidates must complete the following series of graduate English courses, achieving a grade of B or better in each.

1. ENGL 520, 522, 582, and 521 (EDCI 519 may be substituted for ENGL 521)

2. One of the following courses: ENGL 507 (EDCI 507), 581, 615, 690, 784. (Additional courses, including some from other departments, may be used to fulfill this requirement. Apply to the Department of English for a list of approved electives.)

Graduate Certificate in Gerontology

Committee

Rita Ailinger, Kathleen McGuinness, Aliza Kolker, Catharine Kopac, Jeanne Mellinger, Mary Montebello, Theodore Remley, Fred Schack, Moira Shannon

The Graduate Certificate in Gerontology is administered by the Division of Continuing Education through the Office of Individualized Study Degree Programs.

Five departments, including the Departments of Sociology, Psychology, Nursing, Education, and Health and Physical Education, have developed a graduate certificate program in gerontology. This program combines theoretical and applied course work in aging with the student's graduate curriculum in one of these departments. Since gerontology is by definition multidisciplinary, the certificate program requires students to take course work outside their major field.

A student applying to the certificate program must be in graduate degree status or hold a master's degree in psychology, education, nursing, or a service-related discipline (e.g., social work, recreational therapy, physical therapy). A student who already holds a master's degree must choose an area of specialization. As a prerequisite, a student must have had an undergraduate or graduate survey course in aging. The certificate requires 18 hours of graduate courses: 6 in the major area of specialization, 6 outside the major, and 6 hours of practicum (if applicable).

Students may obtain counseling and an application form from the Office of Individualized Study Degree Programs, Room 124 East Building, 323-2342.

Graduate Certificate in Information Management and Expert Systems

The graduate certificate in Information Management and Expert Systems has been designed for persons in fields such as business, education, government, law, liberal arts, medicine, or nursing who wish to learn how to manage information resources that use computer technology. The program is designed to offer professional development for persons whose responsibilities include the management of a computer-based system of any size. It offers a broad group of tools and techniques, stressing the important role of expert systems to help individuals and organizations harness the full potential of the computer in applied settings.

Program Requirements

An applicant to the certificate program should have a bachelor's degree with 2.75 GPA or higher for the last 60 semester hours of course work leading to an
undergraduate degree and have completed the Graduate Management Admission Test (GMAT) with a grade of 500 or higher. Application is made through the Graduate School of the University. Fifteen hours of course work are required for the certificate.

Program Content

All students without a strong background in information management must first take the introductory course, IRM 610, or its equivalent before any of the remaining course work. At most, three semester hours may be transferred from previous work at other universities toward this program.

Required Courses

IRM 610 Computer Systems for Management
IRM 720 Analysis and Design of Computer Systems
IRM 795 Business Expert Systems

plus two of the following:

IRM 730 Decision Support Systems
IRM 735 Management Information Systems
IRM 740 Data Base and Data Communications
IRM 750 Managerial Applications of Microcomputers
IRM 760 Human Engineering Issues in Computer System Design
IRM 770 Legal Issues in Information Resource Management
IRM 780 Knowledge-Based Systems for Business
IRM 790 Advanced Issues in Information Resource Management
IRM 792 Topics in Information Resource Management

Graduate Certificate in International Nursing

The graduate certificate in International Nursing provides an opportunity for students to enrich their understanding of international health through a sequence of courses including, but not limited to, international nursing, anthropology, international relations, and economics.

Program Requirements

A student applying to the certificate program must have a master’s degree in nursing or hold a master’s degree from an NLN-accredited program. Application is made through the Graduate School of the University.

Required Courses (9 credits)
NURS 698 International Nursing (3)
NURS 699 Practicum in International Nursing (3)
Nursing Elective (3)

Suggested Electives (15 credits)
GOVT 536 Context of Development
GOVT 537 Selected Problems of Third World Development
ECON 765 Economics of Development
ECON 766 Seminar in Latin American Development
NURS 670 Cultural Dimensions of Aging

A student must complete all required courses and two electives with a 3.00 GPA to achieve the certificate.

Graduate Certificate in Nursing Administration

The certificate program is designed for the student with a master’s degree in nursing who wishes formal study in theory and practice in nursing administration in the health care delivery system.

Program Requirements

An applicant to the certificate program must have a master’s degree in nursing from an NLN-accredited program. Application is made through the Graduate School of the University. A requirement for the certificate is 18 credits of graduate courses in which a 3.00 GPA is maintained.

Program Content

The program for the certificate (18 credits) consists of the following required courses:

MGMT 610 (formerly BUAD 660) Management Theory and Practice, or equivalent (3)
NURS 760 Health Care Financial Management (3)
NURS 763 Seminar in Nursing Administration I (3)
NURS 765 Practicum in Nursing Administration I (3)
NURS 766 Seminar in Nursing Administration II (3)
NURS 768 Practicum in Nursing Administration II (3)

Graduate Certificate in Nursing Education

The graduate certificate in nursing education combines foundation courses in education with courses in the principles and practices of nursing education. The program prepares students to function in nursing educational roles in both academic and nonacademic settings.

Program Requirements

Individuals applying to the graduate certificate in nursing education must be in degree status in the graduate nursing program or hold a master’s degree in nursing from an NLN-accredited program. Application is made through the Graduate School of the University.

Program Content

NURS 657 Perspectives in Nursing Education (3)
NURS 658 Practicum in Nursing Education (3–6*)
EDUC 531 Educational and Psychological Measurement (3)
EDUC 701 Educational Program Development (3)
Total 15 credits

*Students must complete 15 credits with a 3.00 GPA. Those who, by virtue of their educational experiences, qualify for a three-credit practicum may choose the remaining three credits from courses designated by the Department of Nursing.
Continuing Nursing Education

Continuing nursing education is an important commitment of the School of Nursing at the University and activities are planned so that individuals can grow personally and professionally.

The School of Nursing, in cooperation with the University Division of Continuing Education, offers opportunities for credit and noncredit courses representing a variety of subjects focusing on the concerns of nurses and health care consumers.

When planning and presenting continuing education program activities, the School of Nursing utilizes the wealth of available resources in the Northern Virginia area. Comments and suggestions for programming from the health care community are welcomed and encouraged. To be placed on the mailing list to receive notice of specific activities scheduled throughout the academic year, contact either the School of Nursing or the Division of Continuing Education.

Northern Virginia Cooperative Graduate Engineering Program

Graduate programs in engineering and information technology are being offered under the auspices of a Cooperative Network in Northern Virginia. This network includes George Mason University (the host institution), Virginia Polytechnic Institute and State University (VPI), and the University of Virginia (UVA), and employs a mix of direct classroom laboratory instruction from GMU and live interactive televised lectures from VPI and UVA. Afternoon and evening instruction is provided at several classroom sites, including the GMU Fairfax Campus, the GMU Metro Campus, the UVA/VPI Telestar Northern Virginia Academic Center, and additional off-campus locations, including corporate televised receive sites.

Master’s degrees will be offered by either UVA, VPI, or GMU following successful completion of the appropriate program of study. Students will apply to a degree program at one of these three institutions based upon course offerings and programs sponsored by an institution and the individual direction a student wishes to follow at the graduate level. Program requirements are the responsibility of the degree-granting institution and, subject to these requirements, courses may be taken from any of the three universities. Within the framework of departmental and graduate school approval, the majority of courses must be taken through the student’s home institution and additional courses approved by the home institution may be transferred among the three cooperating institutions. UVA and VPI degree programs are composed primarily of televised courses and are supported by additional courses from the host institution, GMU. These degree programs do not have a thesis or research component. GMU degree programs do have a research project or thesis component and are composed primarily of live classroom instruction, with the possibility of transferring televised courses into these degree programs from VPI and UVA.

Discipline areas of the degree programs from the University of Virginia include the Master of Materials Science, the Master of Engineering in Chemical Engineering, Mechanical and Aerospace Engineering, Electrical Engineering, Systems Engineering, or Civil Engineering (Structural Focus). From VPI the following degree programs are offered: Master of Engineering Administration, Master of Science in Mechanical Engineering, Electrical Engineering, Civil Engineering (Environmental Focus) and Aerospace and Ocean Engineering, and the master of science and master of engineering in Systems Engineering.

GMU offers master of science degree programs
(described within this catalog) in Computer and Electronics Engineering, Computer Science, Information Systems, Operations Research and Management Science, and Systems Engineering. Also offered from GMU is the doctor of philosophy in Information Technology.

Qualified students who wish to take particular graduate courses for professional development may enroll without pursuing formal graduate degree programs. Admission will be based on the student’s background and space available. The Northern Virginia Cooperative Graduate Engineering Program is one of three cooperative efforts in the Commonwealth, the others hosted by Virginia Commonwealth University in Richmond and Old Dominion University in Tidewater. This statewide network, with five participating major universities, is also supported by the Virginia Department of Information Technology and the State Council of Higher Education in Virginia, and provides expanded academic resources to three major urban communities of the Commonwealth.

For program information, contact the Cooperative Graduate Engineering Program, School of Information Technology and Engineering, GMU, (703) 323-3194.

Other Graduate Courses

American Studies Courses (AMST)

502 Problems in American Culture (3:3:0). Prereq Grad stdg. Interdisciplinary study of a particular aspect of American culture. Limited to 15 students. Specific content varies and is announced before regis. May be repeated with PoC.

690 Internship (2-6:0:0). Prereq PoC. Internships are nonpaying, work-study positions established by AMST Program with employers involved in interdisciplinary AMST issues. Qualified students are placed with area schools, interest groups, agencies, museums, parks or corporations. Placement depends upon availability of positions.

Art History Courses (ARTH)

Art Department

592 Exhibitions Projects (3:3:0). Prereq B.A. or equiv or Pol. Planning, promotion and production of visual art presentations and related events on the GMU campus. Exhibitions are produced by students who alternately serve in all operational capacities from proposal research and budget planning to the graphic design of announcements and the installation of exhibitions.

593 Art Apprenticeships (3-6:0:0). Prereq B.A. or equiv or Pol. Seminar followed by an apprenticeship or internship project with a professional individual or organization in the field of visual arts in the D.C. area. An apprenticeship may provide an introductory work experience in the professional area in which the student is considering a career.

596 Independent Study (3:3:0). Prereq B.A. or equiv or Pol. Independent reading and research on a specific project under the direction of a department member. A written report is required. May be repeated for cr.

599 Special Topics in the History of Art (3:3:0). Prereq B.A. or equiv or Pol. Topics vary and incl women in art, art patronage, art criticism, and others.

800 Studies for the Doctor of Arts in Education (var cr). Prereq D.A.Ed. student admission to study in art. Program of studies designed by student’s discipline director and approved by student’s doctoral committee. Course work allows the student to participate in the research activity of the discipline director and results in a paper reporting the original contributions of the student. The paper is presented in a subsequent D.A.Ed. summer seminar. Enrollment may be repeated.

Art Studio Courses (ARTS)

Art Department

592 Exhibitions Projects (3:3:0). Prereq Undergrad degree in Art or equiv or Pol. Planning, promotion and production of visual art presentations and related events on the GMU Campus. Exhibitions are produced by students who
alternately serve in all operational capacities from proposal research and budget planning to the graphic design of announcements and the installation of exhibitions.

593 Art Apprenticeships (3-6:0:0). Prereq Undergrad degree in Art or equiv or Pol. Intro seminar followed by an apprenticeship or internship project with a professional individual or organization in the field of visual arts in the D.C. area. An apprenticeship may provide an introductory work experience in the professional area in which the student is considering a career.

596 Independent Study (3-3:0). Prereq Undergrad degree in Art or equiv or Pol. Independent reading and research on a specific project under the direction of a department member. A written report is required. May be repeated for cr.

601, 602 Graduate Drawing and Painting (3:0:0). Prereq Undergrad degree in art or art education (B.A. or B.F.A.) or equiv. Independent drawing and painting workshop with emphasis on individual development.

605, 606 Graduate Printmaking Studio (3:0:0). Prereq Undergrad degree in art (B.A. or B.F.A.) or equiv or Pol. Independent printmaking workshop with emphasis on individual projects and development.

800 Studies for the Doctor of Arts in Education (var cr). Prereq D.A.Ed. student admission to study in art. Program of studies designed by student’s discipline director and approved by student’s doctoral committee. Course work allows the student to participate in the research activity of the discipline director and results in a paper reporting the original contributions of the student. The paper is presented in a subsequent D.A.Ed. summer seminar. Enrollment may be repeated.

Chemistry Courses (CHEM)

500 Selected Topics in Modern Chemistry (3:3:0). Topics of interest in biochemistry and in physical, organic, inorganic, and analytical chemistry. Rec for teachers of general science and chemistry.

501 Lab Demonstration Techniques in the Teaching of Chemistry (3:3:0). Lab for developing proficiency in the conduct of lab demonstrations. Rec for teachers of chemistry and general science.

513 (413) Special Topics in Organic Chemistry (3:3:0). Prereq CHEM 313-314. Synthetic and mechanistic organic chemistry with emphasis on topics such as heterocyclics, natural products, and biologically active compounds. Relation of applied organic chemistry to consumer products, including drugs and agricultural chemicals.

514 Physical Organic Chemistry (3:3:0). Prereq CHEM 313, 314, or Pol. The principles underlying molecular structures, reactivities, and reaction mechanisms. Topics include valence-bond and molecular-orbital theory, the electronic interpretation of organic reactions, stereochemistry, conformational analysis, the kinetics and thermodynamics of organic reactions, and photochemistry.

521 Theory of Analytical Properties (3:3:0). Prereq CHEM 422 or Pol. Physical-chemical principles and analytical techniques applicable to the analysis of solutions, including activity coefficients, solvation and ionic size, titration-curve theory, acidity functions, and pH-scales, kinetic analysis, and modern techniques for designing experiments and interpreting data.

523 (423) Selected Topics in Analytical Chemistry (3:3:0). Prereq CHEM 422. Principles and applications of commonly used methods of analysis. Topics include differential pulse polarography, anodic stripping voltammetry, atomic absorption, spectroscopy, fluorescence, emission spectrometry, neutron activation, analysis, and spark source mass spectrometry. Advances in applications to trace metal determinations in environmental samples.

525 Electroanalytical Chemistry (3:3:0). Prereq CHEM 422 or Pol. Theory of polarography, stationary-electrode and hydrodynamic voltammetry, chronopotentiometry, chronoamperometry, controlled-potential electrolysis and coulometry at controlled potential, coulometric titration, and a number of related techniques, with emphasis on their applications in analysis and research.

533 (431, 432, 433) Selected Topics in Physical Chemistry (3:3:0). Prereq CHEM 331, 332. Advanced study of topics in physical chemistry, selected from among the areas of thermodynamics, atomic and molecular structure, spectroscopy, and chemical kinetics. Content varies; announced before regis. May be retaken for cr with PoD.


546 Bioinorganic Chemistry (3:3:0). Prereq CHEM 563 or Pol. A survey of the structures, functions, and properties of metal ions in biological systems. Modern inorganic coordination chemistry and the study of metal-ion sites in metalloenzymes and metalloproteins. Enzymatic catalysis, oxygen carriers, electron-transport phenomena, and inorganic model systems.


565 (463) Biochemistry Lab I (2:1:3). Prereq or Coreq CHEM 563 (461). Intro to experimental methods used to study the chemical and physical properties of proteins, carbohydrates, lipids, and nucleic acids. Complements the corresponding lecture course. Designed for those who have had no previous exposure to the specialized techniques used in biochemical research. One hour recitation.


567 (561) Protein Biochemistry (3:3:0). Prereq CHEM 563 (461), 564 (462) or Pol. Topics incl the structural, transport, and immunological roles of proteins with emphasis on role of proteins as biological catalysts. Current theories of enzyme catalysis as well as pertinent experimental techniques. Important structural proteins from muscle and connective tissue as well as free and membrane-bound transport proteins.

800 Studies for the Doctor of Arts in Education (var cr). Prereq D.A.Ed. student admission to study in chemistry. Program of studies designed by student’s discipline director and approved by student’s doctoral committee which allows the student to participate in the current research of the discipline director and results in a paper reporting the original contributions of the student. The paper is presented in a subsequent D.A.Ed. summer seminar. Enrollments are repeated according to each student’s program.

Communication Courses (COMM)

Communication courses at the 500 level are open to postbaccalaureate students or Communication majors with advanced undergraduate standing and other seniors with PoD.

501 Communication in Professional Relationships (3:3:0). Theoretical perspectives and relevant research related to communication techniques useful in various professional roles and situations. Relates theoretical foundations to practice, allowing individual students to assess theories of communication and their applications in individual professional fields.

502 Theories of Interpersonal Communication (3:3:0). Prereq COMM 301 or Pol. Contemporary theories of interpersonal communication. Analysis of theories, concepts and approaches to the improvement of interpersonal comm.
Extensive examination of interpersonal comm research is included.

504 Communication and Interpersonal Conflict (3:3:0). Prereq Admission to Grad School or senior standing and Pol. This course provides a theoretical introduction and experiential learning in the role of communication in conflict and conflict management. The focus is upon interpersonal interactions, including dyadic and small group levels in various settings such as friendships, marriage, family, and the work-place. The course examines the factors that generate conflicts and the communication strategies and skills that help shape conflict interaction toward productive ends. Class activities include lectures, guided discussions, case analyses exercises, and simulations.

505 Intercultural Communication (3:3:0). Analysis of communication variables as they relate to communication across cultures. Topics incl nonverbal communication, time conceptualizations, perceptual and attitudinal foci, values, social organization patterns, cultural norms, language, ethics, conflict across cultures and research in intercultural communication.

506 Communication in International Organizations (3:3:0). Analysis of communication variables as they relate to organizational and managerial functions within international organizations. Focus on interpersonal aspects of government and business relations both outside the U.S. and with foreign visitors in the U.S., with extensions being made to management of subcultural differences within U.S. national organizations. Emphasis on developing an understanding of how cultural differences influence managerial activities, and upon learning to deal effectively with these cultural differences.

510 Studies in Oral Interpretation (3:3:0). A comprehensive examination of the role of the oral communicator in the selection, adaptation and performance of literature. Seminar course topics vary depending upon genre being considered. May be repeated three times for cr if each course is devoted to a different genre.

530 Theories of Small Group Communication (3:3:0). Advanced levels of theory and practice of small group interaction. Examination of current research in small group communication; a focus on learning the theory and application of the theory to relevant setting.

535 Organizational Communication (3:3:0). An analysis of communication systems and processes within organizations, both public and private. Specific topics include conflict management, group decision making, interviewing, technical presentations, and use of various channels to improve internal and external communication for the organization.

536 Communication Consulting (3:3:0). Prereq COMM 335. Investigation of theories which serve as the foundation for communication consulting. Designed to provide both the theoretical information and mechanisms for application necessary to modify communicative behavior within organizations.

540 Directing Forensics Programs in Individual Events (3:3:0). An investigation of the role of the individual events forensics educator in developing a high school or college program. Coaching and judging competitive original speaking and oral interpretation events, and tournament management.


543 Advanced Debate Theory (3:3:0). Prereq Prior debate and/or debate coaching experience or Pol. Theoretical issues involved in the practice of debate. Critical examination of new issues in theory and discussion of revisions in theories designed to enhance academic debate.

550 Communication in the Classroom (3:3:0). Prereq 84 hr. Examination of both verbal and nonverbal elements in the classroom which produce meaning among teachers and students. Communication theories and skills needed to manage the communication environment in the classroom. Nonverbal aspects of space, time, action, and form are considered as they impact teaching choices. Verbal patterns for skills of classroom management; questioning skills, enhancing students' self-concept, systematic feedback, parental communication and student development.

551 Developing Students' Speaking and Listening Skills (3:3:0). Prereq 84 hr. Speaking and listening skills which develop the oral communication competency of children and adolescents. Emphasis on development of assignments that both directly and indirectly develop communication competence. The five functions of communication and steps in developing them are developed in the context of integrating the basic skills at the elementary level and direct teaching at the secondary level. Issues of definition in terms of philosophies of communication education and curriculum development, as well as competency assessment are covered.

590 Seminar in Communication (3:3:0). Intensive study of specific topics in interpersonal, public and mass communication. Specific content varies. May be repeated for cr with Pr.

596 Directed Readings and Research (1- 3:0:1- 3). Prereq Grad stdg and Pol. Reading and research on a specific topic, under the direction of a faculty member. A written report is required; an oral or written examination over the material may be required. Course may be repeated for a maximum of six credits.

597 Independent Production (1- 3:0:1- 3). Prereq Grad stdg and Pol. Media or creative production activities, under the direction of a faculty member. A completed production is required; a written report and an oral examination may be required. Course may be repeated for a maximum of six credits.

800 Studies for the Doctor of Arts in Education (var. cr). Prereq D.A.Ed. student admission to study in communication. A program of studies designed by student's discipline director and approved by student's doctoral committee. Course work allows the student to participate in the research activity of discipline director and results in a paper reporting original contributions of the student. The paper is presented in a subsequent D.A.Ed. summer seminar. Enrollment may be repeated.

Dance Courses (DANC)

510 Independent Study (3:0:0). Prereq Dance major with 84 hr, grad stdg in dance or theatre or Pol. Individual research or a creative project in close consultation with an instructor. Projects selected from performance, choreography, technical theatre as it applies to dance management, dance history, or criticism.

527 Advanced Modern Dance (3:0:6). Prereq Audition. Course provides the advanced student the opportunity for continued training. Emphasis and importance is placed on the attainment of high technical quality and performing skills. Six hrs per week. May be taken for a total of 18 credits.

560 Advanced Choreography (3:3:0). Prereq DANC 360 or Pol. Intensive study and exploration of advanced choreographic forms culminating in a public performance of a complete dance work. Three hrs per week. May be taken for a total of 12 credits.

570 Advanced Dance Performance (3:0:6). Prereq Audition or Pol. Advanced exploration into performance, repertory, and/or production skills through participation in University dance productions, special guest artist programs, or professional dance companies. May be taken for a total of 12 credits.

598 Philosophy and Aesthetics of Dance (3:3:0). Prereq DANC 390 and 391 or Pol. A study of the philosophical
theories and aesthetic principles of dance as a performing art. What dancing is, what it expresses, what it creates, and how it is related to other arts and artists will be explored.

Geology Courses (GEOL)

500, 501 Selected Topics in Modern Geology (1–3:1–3:0), (1–3:1–3:0). Prereq Baccalaureate degree in geology or Pol. Lecture/lab/field trip. Topic is designated in the class schedule.

514 Biot stratigraphy and Biofacies Analysis (4:3:3). Prereq Baccalaureate degree in geology or Pol. Use of fossils in correlating and dating rock units in various fields of energy exploration. Relationships between fossils and paleoenvironments. May incl field trips.

515 Advanced Structural Geology (4:3:3). Prereq Baccalaureate degree in geology or Pol. The concepts of stress and strain in rock materials, and the application of this theory to understanding complex three-dimensional structures in deformed rocks. Emphasis is placed on a quantitative approach to resource deposits. May incl field trips.

516 Appalachian Stratigraphy (3:3:0). Prereq Baccalaureate degree in geology or Pol. Analysis of the stratigraphy and tectonics of sedimentary rocks of the Appalachian Mountain system, with emphasis on the stratigraphic provinces that contain energy resources.

610 Geochemical Methods of Analysis (4:3:3). Prereq Baccalaureate degree in geology or Pol. Principles and application of geochemical analysis as applied to rocks found in areas of energy resources. Concentration on techniques of x-ray and optical spectroscopy and atomic absorption.

620 Organic Geochemistry (4:3:3). Prereq Baccalaureate degree in geology or Pol. The production of natural organic compounds. Discussions on the influence of diagenetic factors such as hydrolysis, heat, and pressure on such compounds as cellulose, lignin, proteins and lipids, and a consideration of the origin of soil organic matter, carbonaceous shales, coal, and crude oil. May incl field trips.

800 Studies for the Doctor of Arts in Education (var cr). Prereq D.A.Ed. admission to study in geology. Program of studies designed by student's discipline director and approved by student's doctoral committee which brings the student to participate in the current research of the discipline director and results in a paper reporting the original contributions of the students. The paper is presented in a subsequent D.A.Ed. summer seminar. Enrollments may be repeated.

Philosophy and Religious Studies Courses (PHIL)

510 Seminar in the Ethics of Health Care (3). Prereq Junior-senior or graduate standing or Pol. An examination of moral dilemmas within the health care profession based on ethical theories and principles. Special emphasis on patients' rights, social justice of health care and evolving health care technologies.

512 Issues in Philosophy and Literature (4:3:0). Prereq Senior standing, 6 hr of 300-level English and 6 hr of 300-level philosophy or Pol. The topic of the seminar will vary from term to term; possible topics include structuralism, technology, form and matter, conceptions of the future. The course will be cross-listed and team taught.

531 Freud and Philosophy (3:3:0). Prereq 6 hr in philosophy or a course in personality theory, or Pol. Exploration of philosophical aspects of Freud's thought, focusing on Freud's philosophy of human nature and culture and its influence on contemporary thought.

555 Environmental Ethics (3). Prereq Junior-senior or graduate standing, and 3 cr in philosophy plus a combined total of 9 additional cr in philosophy and science or Pol. An examination of ethical principles affecting environmental issues with special emphasis on the problems encountered by environmental biologists.

574 Current Issues in Philosophy of Psychology (3:3:0). Prereq A combined total of at least 12 cr in philosophy or psychology, at least 3 of which must be in philosophy and at least 3 of which must be at 300 level or above, or Pol. A careful examination of some issue or issues of current interest to both philosophers and psychologists. Typical of issues examined will be the mind-body problem, philosophical and psychological implications of work in artificial intelligence and philosophical issues in psycholinguistics.

591 Special Topics in Philosophy (3:3:0). Prereq Grad standing and Pol. An examination of specific topics in philosophy which are both of central interest in that field, and of interdisciplinary interest as well. Topics will be selected with special reference to the areas of philosophy of technology, aesthetics, philosophy of religion, and ethics and social and political philosophy. Course may be repeated for credit up to three times (when the course content differs) with permission of the instructor and the student's adviser.

800 Studies for the Doctor of Arts in Education (var cr). Prereq D.A.Ed. admission to study in philosophy. Program of studies designed by student's discipline director and approved by student's doctoral committee which brings the student to participate in the current research of the discipline director and results in a paper reporting the original contributions of the student. The paper is presented in a subsequent D.A.Ed. summer seminar. May be repeated.
## Glossary of Course Symbols

### Computer names of courses offered by the University

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### Course Abbreviations

1. Course titles are followed by numbers in parentheses (0:0:0), separated by colons. The numbers have the following significance:
   - First number: semester credit hours for the course
   - Second number: hours of lecture/seminar per week for the course
   - Third number: hours of laboratory/studio per week for the course

2. For independent study, reading, topics, or similar courses, individual instructors set hours.

3. The following abbreviations are used in course descriptions:
coreq - corequisite(s)
cr - credit(s)
equiv - equivalent(s)
grad - graduate(s)
grd stdg - graduate standing
hr - hour(s)
incl - including/include(s)
intro - introduction/introductory
lab - laboratory(ies)
nat - natural
PoA - Permission of adviser
PoC - Permission of chair
PoD - Permission of department
Pol - Permission of instructor
prereq - prerequisite(s)
prog - program
rec - recommend(ed)/recommendation(s)
regis - registration/register
req - required(d)/requisite(s)/requirement(s)/requires
sci - science(s)
sem - semester(s)
undergrad - undergraduate(s)

Course Numbering

1. Courses numbered 500 and above are graduate courses.

2. Courses are occasionally renumbered by departments. Additional credit may not be received for a course under a different number if all requirements have been completed and a satisfactory letter grade has been earned in the course under its original number. Graduate students are required to determine prior to registration that they have not completed a subject in a prior semester under a different number. For one year after the change the new number is accompanied by the old number in parentheses. Thus, 791 (591) means that the old course number was 591, and the new course number is 791. Students also may check with the department offering the course work to be certain that they are not repeating a graduate course for which they already have credit.

3. General Numbers for Graduate Courses:
   500-599 Graduate courses open only to graduate students (admitted to master’s or doctoral programs), to other bachelor’s degree holders, and to approved advanced undergraduate students. Advanced undergraduate students who have secured the permission of the department offering the course may select from these courses to accumulate the hours necessary for the completion of an undergraduate degree; and with the written permission of the dean of the graduate school, they may take these courses for reserve graduate credit.
   600-699 Graduate courses open only to graduate students (admitted to master’s or doctoral programs) and to other bachelor’s degree holders.
   700-799 Master’s level graduate courses open only to graduate students (admitted to master’s or doctoral programs). These numbers are used only for master’s level course work.
   800-999 Doctoral level graduate courses open only to graduate students admitted to study in doctoral programs. These numbers are used for doctoral level (post-master’s) course work.

4. Special Numbers for Graduate Courses (courses with these numbers are reserved for the uses designated).

600-609 Limited applicability graduate credit courses. Courses intended for in-service professional development and not directly leading to a graduate degree. From courses with these numbers a limited number of hours may be applied to a graduate degree.

798 Master’s project research. A course under the supervision of a graduate faculty member resulting in the final professional project to be submitted in partial fulfillment of the requirements for the professional master’s degree.

799 Master’s thesis research. A course for research under the supervision of a graduate faculty member resulting in a master’s thesis to be submitted in partial fulfillment of the requirements for the master’s degree.

800 Studies for the Doctor of Arts in Education program.

998 Doctoral project research. A course under the supervision of a graduate faculty member resulting in the final professional project to be submitted in partial fulfillment of the requirement for the professional doctoral degree.

999 Doctoral dissertation research. A course for research under the supervision of a graduate faculty member resulting in a doctoral dissertation to be submitted in partial fulfillment of the requirements for the doctoral degree.

790, 890 Supervised practicum.
794, 894 Internship.
796, 896 Directed reading and research courses for master’s and doctoral level students.
797, 897 Independent reading and research courses for master’s and doctoral level students.
Honor Code

As is the tradition at most Virginia schools, George Mason University has a student-supported Honor Code. The purpose of the Honor Code is to instill the concept of honor within the University community by promoting a strong sense of mutual trust and respect among its members. The use of an Honor Code allows students the maximum amount of freedom while remaining within the morals of society.

To promote a stronger sense of mutual responsibility, respect, trust, and fairness among all members of George Mason University, and with the desire for greater academic and personal achievement, we, the members of George Mason University, have set forth the following code of honor.

Truth and honor are essential characteristics of a university. To allow cheating would undermine the credibility of the University as a granter of degrees. The purpose of the University is the pursuit of knowledge, not attainment of a degree at any cost. For these reasons, the students of George Mason University have set the standards outlined in the Honor Code of this University.

I. The Honor Committee

Duties of the Honor Committee:

The Honor Committee is to be a group of students elected from the student body whose primary and indispensable duty shall be to instill the concepts and spirit of the Honor Code within the student body. The secondary function of this group shall be to sit as a hearing committee on all alleged violations of the code.

II. Extent of the Honor Code

The Honor Code of George Mason University shall deal specifically with

A. Cheating and attempted cheating
B. Plagiarism
C. Lying
D. Stealing

A. Cheating encompasses the following:
1. The willful giving or receiving of an unauthorized, unfair, dishonest, or unscrupulous advantage in academic work over other students.
2. The above may be accomplished by any means whatsoever, including, but not limited to, the following: fraud, duress, deception, theft, trick, talking, signs, gestures, copying from another student, and the unauthorized use of study aids, memorandum, books, data, or other information.

3. Attempted Cheating.

B. Plagiarism encompasses the following:
1. Presenting as one's own the words, the work, or the opinions of someone else without proper acknowledgment.
2. Borrowing the sequence of ideas, the arrangement of material, or the pattern of thought of someone else without proper acknowledgment.

C. Lying encompasses the following:

The willful and knowledgeable telling of an untruth or falsehood as well as any form of deceit, attempted deception, or fraud in an oral or written statement relating to academic work. This includes but is not limited to
1. Lying to administration and faculty members;
2. Falsifying any University document by mutilation, addition, or deletion;
3. Lying to Honor Committee members and counsels during investigation and hearing. This may constitute a second charge with the Committee members (who are acting as judges during that specific hearing) acting as accusers.

D. Stealing encompasses the following:
Taking or appropriating without the right or permission to do so, and with the intent to keep or to make use of wrongfully, property belonging to any member of the George Mason community or any property located on the University campus. (This section is relevant only to academic work and related materials.)

III. Responsibility of the Faculty

To alleviate misunderstanding, professors are required to delineate at the beginning of each semester what constitutes a violation of the Honor Code in their classes. This should include an explanation of

A. The extent of group participation that is permissible in preparing term papers, laboratory exhibits or notebooks, reports of any kind, tests, quizzes, examinations, homework, or any other work;

B. The extent to which the use of study aids, memoranda, books, data or other information is authorized during recitations, tests, quizzes, examinations, reports of any kind, laboratory sessions, or any other work; and

C. The nature of plagiarism.

Professors are required to send the Honor Committee a written copy of their policies, which will be kept on file.

Faculty members who witness an Honor Code violation should proceed as outlined under Procedures for Reporting a Violation.

IV. Responsibility of the Students

Students should request a delineation of policy from each professor if none is given at the beginning of each semester. Students should also request an explanation of any part of the delineation that they do not understand. It is the responsibility of the
student to understand a professor's policies with regard to the Honor Code. It is also the student's responsibility to understand the provisions of the Honor Code.

All students in the University have the duty, as participating members of this community, to report to a member of the Honor Committee any violations of the Honor Code within the prescribed time as outlined under Procedures for Reporting a Violation. This duty is important not only because it enforces the Honor Code, but also because it gives students the opportunity to express their respect for personal integrity and an honest academic community.

V. Procedure for Reporting a Violation

Any student or faculty member witnessing or discovering a violation of the Honor Code shall enlist, wherever and whenever possible, one or more corroborating witnesses to the overt act. The accuser(s) (student or faculty) will, within 15 working days from date of realization, inform the suspected party with a letter of accusation provided by the Honor Committee.

The Honor Committee shall retain a copy of the accusation letter. The letter must inform suspected parties that they have four (4) working days to contact a member of the Honor Committee and be advised of their rights and options, or the Honor Committee shall commence an investigation, this investigation not involving a presumption of guilt on the part of the accused. Any member of the George Mason University academic community who has knowledge of but does not report an Honor Code violation may be accused of lying under the Honor Code.

VI. Counsel for the Accused and Accuser

Counsel for the accused and accuser may be provided by any member of the George Mason University student community, including members of the Honor Committee.

VII. Appearance of Witnesses

The Honor Committee may require any member of the University community to appear as a witness before the Committee at the time of the hearing. All requests for such appearances shall be issued by the Chairman of the Honor Committee. (The appearance of the accuser is required unless otherwise exempted by the request of both counsels, or the Chairman of the Honor Committee.)

VIII. Verdict

In order to find a student guilty of an honor violation, all of the voting members must vote for a verdict of guilty. If the vote is not unanimous, the defendant shall be acquitted.

A student may not be tried more than once for the same offense except when an appeal is granted.

IX. Penalty

If the accused is found guilty of an honor violation, the Honor Committee shall determine the nature of the penalty by majority vote.

The Honor Committee is not restricted to any one kind of penalty but will determine a penalty commensurate with the seriousness of the offense. Typical of the range of penalties that may be given are the following:

A. Oral Reprimand:
An oral statement to the student by the Chairman of the Honor Committee. No entry is made on the student's scholastic record.

B. Written Reprimand:
A written censure, which is placed in the confidential files of the Honor Committee and made part of the student's academic file, but not the student's scholastic transcript records.

C. Nonacademic Probation:
Exclusion from holding an elected or appointed office in any student activity or organization. A student on nonacademic probation will be ineligible to participate in any athletic or other activity representing the University and will be ineligible to serve as a working staff member of any student organization. This action is noted in the Judicial Administration's file but not made a part of the student's scholastic record.

D. Failing Grade:
Recommending in writing to the instructor of a grade of F for the work involved or for the entire course. The student's permanent record will reflect the academic evaluation made by the instructor.

E. Suspension from the University for One or More Semesters:
A student's scholastic record would read: "Nonacademic suspension (date to date)." This penalty will be recommended to the Judicial Administrator only in extraordinary circumstances, such as for repeated offenses.

F. Expulsion from the University:
A student's scholastic record would read: "Nonacademic expulsion as of (date)." This penalty will be recommended to the Judicial Administrator only in extraordinary circumstances, such as for repeated offenses.

X. Appeal

A written request for an appeal, detailing new evidence, procedural irregularities, or other sufficient grounds, which may have sufficient bearing on the outcome of the trial, must be presented to the chair of the Honor Committee within seven working days after the date on which the verdict was rendered.

XI. Keeping of Records

The records of the hearing shall be kept in the file of the Honor Committee. These records shall include a full transcript of the hearing and all evidence presented at the hearing; if the evidence belongs to any person other than the defendant, the original shall be returned to the owner and a copy shall be kept with the records of the Honor Committee.

XII. Composition of the Committee

The Honor Committee shall be proportionally composed of students from each school, and faculty
adviser(s), although the latter shall be nonvoting members. Undecided majors, B.I.S. students, and continuing education students shall be considered together as a school. The total number of members, exclusive of freshmen, shall be as close to seventeen as practicable. Four freshmen will be appointed in the fall to serve until the following spring election. One or more clerks will be appointed by the committee from the student body to serve as aides to the committee chair.

The chair of the committee will be elected by majority vote of the committee members. For a particular hearing, five members of the Honor Committee will be designated as voting members.

The faculty adviser, as a nonvoting member of the Committee, should sit with and advise the committee at all hearings. The faculty adviser shall be chosen by the Honor Committee.

Previous Honor Committee members may serve during the summer term.

XIII. Eligibility of Members

Any student who maintains a 2.0 grade-point average and is in good standing with the University shall be eligible for the Honor Committee. A Committee member must maintain a 2.0 average to continue in office.

XIV. Election of the Honor Committee

The Honor Committee shall be elected in the spring semester. The term of office shall begin upon election and run until the following spring election.

In the fall semester, the chair shall appoint new members to fill any vacancies that have occurred and to fill the four freshman seats on the Committee.

All appointments made by the chair are subject to majority vote of approval by the remaining members.

XV. The Challenging and Voluntary Withdrawal of a Member of the Committee from Participation in a Particular Hearing

An accused who challenges the right of any member of the Honor Committee to sit in judgment on him must present cause to the chair of the hearing.

The Hearing Committee shall then decide the validity of the challenge with the challenged member abstaining from voting. A simple majority shall decide the validity of any challenge. A successfully challenged committee member shall not be present during the hearing.

Members of the Honor Committee shall withdraw from a specific hearing if they feel they are prejudiced as to the facts in the case.

XVI. Provisions for Amendments

Upon petition of 20 percent of the student body, a committee shall be appointed by the Student Government to consider amendments to, or revisions of the Honor Code, said amendments and/or revisions to be then voted on by the student body as a whole. A two-thirds majority of the votes cast shall be necessary for acceptance of any amendment or revision.

The Honor Committee may also propose amendments to be voted on by the student body as described in paragraph one of this section.

Approved amendments will take effect immediately except that new provisions will not be applied to cases initiated prior to amendment.

Revised 4/7/82.
Regulations

Firearms

The unauthorized possession, storage, display, or use of any kind of ammunition, firearms, fireworks, explosives, air rifles, air pistols, or other lethal instruments is prohibited on University property. Any questions regarding this regulation should be directed to the Campus Police (323-2158).

Smoking

Smoking is not permitted in classrooms, lecture halls, theaters, or in the University libraries. Lounge areas in the Student Union Buildings and other University buildings have been set aside for this purpose.

Bicycles/Skateboards

Bike racks are provided at various locations on campus for the convenience of students who bike to and from the University. For resident students, storage areas for bikes are located near Buildings 2, 4, and 8. Bikes are to be parked only in these areas.

Bikes and skateboards are not permitted on sidewalks, ramps, foot paths, or grassy areas of campus or inside University buildings.

Pets

No pets are permitted in University buildings at any time. Additionally, pets that are on campus grounds must be on a leash and under supervision at all times.

Solicitors and Salesmen

Solicitors and salesmen, except on official business with the University, are not permitted on the campus without prior approval of the Business and Finance Office.

Notices

Although this catalog was prepared on the basis of the best information available at the time of publication, all information, including statements of tuition and fees, course offerings, admissions and graduation requirements, is subject to change without notice or obligation.

Admission Policy

Admission to the University and acceptance into a particular degree program are competitive.

Space available is determined largely by the availability of resources. Demand for resources is balanced to meet the University’s many educational responsibilities. The University, therefore, engages in qualitative evaluation of students and makes selections based on performance and evidence of prospects for success.

Accreditation

George Mason University is fully accredited by the Southern Association of Colleges and Schools.

Education. The following programs have been approved by the Virginia State Department of Education and the National Council for Accreditation of Teacher Education:

Counseling and Development
Education Administration and Supervision
Elementary Education
Reading
Secondary Education
Special Education

Nursing. M.S.N. Degree. This Nursing Program is accredited by the Virginia State Board of Nursing and by the National League for Nursing.

Privacy of Student Records

Annually, George Mason University informs students of the Family Educational Rights and Privacy Act of 1974. This Act, with which the institution intends to comply fully, was designed to protect the privacy of education records, to establish the right of students to inspect and review their education records, and to provide guidelines for the correction of inaccurate or misleading data through informal and formal hearings. Students also have the right to file complaints with the Family Educational Rights and Privacy Act Office (FERPA) concerning alleged failures by the institution to comply with the Act.

Local policy explains in detail the procedures to be used by the institution for compliance with the
provisions of the Act. The Office of the Registrar keeps a copy of the policy and also maintains a Directory of Records listing all education records maintained on students by this institution.

Questions concerning the Family Educational Rights and Privacy Act may be referred to the Office of the Registrar.

George Mason University Catalog

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State Domicile Legislation

Section 23-7.4 of the Code of Virginia

Be it enacted by the General Assembly of Virginia:

1. That the Code of Virginia is amended by adding a section numbered 23-7.4 as follows:

§23-7.4. Eligibility for in-state tuition charges. — A. For purposes of this section the following definitions shall apply:

"Date of the alleged entitlement" means the first official day of class within the term, semester or quarter of the student's program.

"Dependent student" means one who is listed as a dependent on the federal or state income tax return of his parents or legal guardian or who receives substantial financial support from his parents or legal guardian.

"Domicile" means the present, fixed home of an individual to which he returns following temporary absences and at which he intends to stay indefinitely. No individual may have more than one domicile at a time. Domicile, once established, shall not be affected by mere transient or temporary physical presence in another jurisdiction.

"Domiciliary intent" means present intent to remain indefinitely.

"Emancipated minor" means a student under the age of eighteen on the date of the alleged entitlement whose parents or guardians have surrendered the right to his care, custody and earnings and who no longer claim him as a dependent for tax purposes.

"Full-time employment" means employment resulting in, at least, an annual earned income reported for tax purposes equivalent to fifty work weeks or forty hours at minimum wage.

"Independent student" means one whose parents have surrendered the right to care, custody and earnings, have ceased to support him, and have not claimed him as a dependent on federal and state income tax returns for at least twelve months prior to the date of the alleged entitlement.

"Special arrangement contract" means a contract between a Virginia employer or the authorities controlling a federal installation or agency located in Virginia and a public institution of higher education for reduced rate tuition charges as described in paragraph G of this section.
"Substantial financial support" means financial support in an amount which equals or exceeds that required to qualify the individual to be listed as a dependent on federal and state income tax returns.

"Unemancipated minor" means a student under the age of eighteen on the date of the alleged entitlement who is under the legal control of and is financially supported by either of his parents, legal guardian or other person having legal custody.

"Virginia employer" means any employing unit organized under the laws of Virginia or having income from Virginia sources regardless of its organizational structure, or any public or nonprofit organization authorized to operate in Virginia.

B. In order to become eligible for in-state tuition, an independent student shall establish by clear and convincing evidence that for a period of at least one year immediately prior to the date of the alleged entitlement, he was domiciled in Virginia and had abandoned any previous domicile, if such existed.

In order to become eligible for in-state tuition, a dependent student or unemancipated minor shall establish by clear and convincing evidence that for a period of at least one year prior to the date of the alleged entitlement, the person through whom he claims eligibility was domiciled in Virginia and had abandoned any previous domicile, if such existed.

In determining domiciliary intent, all of the following applicable factors shall be considered: continuous residence for at least one year prior to the date of alleged entitlement, state to which income taxes are filed or paid, driver's license, motor vehicle registration, voter registration, employment, property ownership, sources of financial support, location of checking or passbook savings accounts and any other social or economic relationships with the Commonwealth and other jurisdictions.

Domiciliary status shall not ordinarily be conferred by the performance of acts which are auxiliary to fulfilling educational objectives or are required or routinely performed by temporary residents of the Commonwealth. Mere physical presence or residence primarily for educational purposes shall not confer domiciliary status.

Those factors presented in support of entitlement to in-state tuition shall have existed for the one-year period prior to the date of the alleged entitlement.

C. The domicile of a married person shall be determined in the same manner as the domicile of an unmarried person.

The domicile of an emancipated minor shall be established in the same manner as any other independent student.

Any alien holding an immigration visa or classified as a political refugee shall also establish eligibility for in-state tuition in the same manner as any other student. However, absent congressional intent to the contrary, any person holding a temporary or other temporary visa shall not have the capacity to intend to remain in Virginia indefinitely and, therefore, shall be ineligible for Virginia domicile and for in-state tuition charges.

The domicile of a dependent student shall be rebuttably presumed to be the domicile of the parent or legal guardian claiming him as an exemption on federal or state income tax returns currently and for the tax year prior to the date of the alleged entitlement or providing him substantial financial support.

A matriculating student who has entered an institution classified as out-of-state shall be required to rebut by clear and convincing evidence the presumption that he is in the Commonwealth for the purpose of attending school and not as a bona fide domicile.

For the purposes of this section, the domicile of an unemancipated minor or a dependent student eighteen years of age or older may be either the domicile of the parent with whom he resides or the parent who claims the student as a dependent for federal and Virginia income tax purposes for the tax year prior to the date of the alleged entitlement and is currently so claiming the student. If there is no surviving parent or the whereabouts of the parents are unknown, then the domicile of an unemancipated minor shall be the domicile of the legal guardian of such unemancipated minor unless there are circumstances indicating that such guardianship was created primarily for the purpose of conferring a Virginia domicile on the unemancipated minor.

D. It is incumbent on the student to apply for change in domiciliary status on becoming eligible for such change. Changes in domiciliary status shall only be granted prospectively from the date such application is received.

A student who knowingly provides erroneous information in an attempt to evade payment of out-of-state fees shall be charged out-of-state tuition fees for each term, semester or quarter attended and may be subject to dismissal from the institution. All disputes related to the veracity of information provided to establish Virginia domicile shall be appealable through the due process procedure required by paragraph H below.

E. A nonmilitary student whose parent or spouse is a member of the armed forces may establish domicile in the same manner as any other student. However, a nonmilitary student, not otherwise eligible for in-state tuition, whose parent or spouse is a member of the military stationed or residing in the Commonwealth pursuant to military orders and claiming a state other than Virginia on their State of Legal Residence Certificate, shall be entitled to in-state charges when the following conditions are met: (i) if the student is a child of a member of the armed forces, then the nonmilitary parent shall have, for at least one year immediately prior to the date of alleged entitlement for in-state tuition charges, resided in Virginia, been employed full time and paid individual income taxes to Virginia. Such student shall be eligible for in-state tuition charges only if the nonmilitary parent claims him as a dependent for Virginia and Federal income tax purposes; or (ii) if the student is the spouse of a member of the armed forces, then such student shall have, for at least one year immediately prior to the date of alleged entitlement for in-state tuition, resided in
Virginia, been employed full time and paid individual income taxes to Virginia. Any student whose spouse or parent is a member of the armed forces shall be eligible for in-state tuition charges for so long as these conditions continue to be met.

F. Students who live outside this Commonwealth and have been employed full time inside Virginia for at least one year immediately prior to the date of the alleged entitlement for in-state tuition shall be eligible for in-state tuition charges if such student has paid Virginia income taxes on all taxable income earned in this Commonwealth for the tax year prior to the date of the alleged entitlement. Students claimed as dependents for federal and Virginia income tax purposes who live outside this Commonwealth shall become eligible for in-state tuition charges if the nonresident parent claiming him as a dependent has been employed full time inside Virginia for at least one year immediately prior to the date of the alleged entitlement and paid Virginia income taxes on all taxable income earned in this Commonwealth for the tax year prior to the date of the alleged entitlement. Such students shall continue to be eligible for in-state tuition charges for so long as they or their qualifying parent are employed full time in Virginia, paying Virginia income taxes on all taxable income earned in this Commonwealth and the student is claimed as a dependent for Virginia and federal income tax purposes.

G. Public institutions of higher education may enter into special arrangement contracts with Virginia employers or authorities controlling federal installations or agencies located in Virginia. The special arrangement contracts shall be for the purpose of providing reduced rate tuition charges for the employees of the Virginia employers or federal personnel when the employers or federal authorities are assuming the liability for paying to the extent permitted by federal law the tuition for the employees or personnel in question and the employees or personnel are classified by the requirements of this section as out-of-state.

All special arrangement contracts with authorities controlling federal installations or agencies shall be to provide group instruction in facilities provided by the installation or agency.

Special arrangement contracts with Virginia employers may be for group instruction in facilities provided by the employer or in the institution's facilities or on a student by student basis for specific employment-related programs.

Special arrangement contracts shall be valid for a period not to exceed two years and shall be reviewed for legal sufficiency by the Office of the Attorney General prior to signing. All rates agreed to by the public institutions shall be at least equal to in-state tuition and shall only be granted by the institution with which the employer or the federal authorities have a valid contract for students for whom the employer or federal authorities are paying the tuition charges.

All such contracts shall be registered with the State Council of Higher Education to assure accurate tabulation of the domiciles of the students.

H. Each public institution of higher education shall establish an appeals process for those students who are aggrieved by decisions on eligibility for in-state tuition charges. The Administration Process Act (§§9-6.14:1 et seq.) shall not apply to these administrative reviews.

An initial determination shall be made. Each appeals process shall include an intermediate review of the initial determination and a final administrative review. The final administrative decision shall be in writing. A copy of this decision shall be sent to the student. Either the intermediate review or the final administrative review shall be conducted by an appeals committee consisting of an odd number of members. No person who serves at one level of this appeals process shall be eligible to serve at any other level of this review. All such due process procedures shall be in writing and shall include time limitations in order to provide for orderly and timely resolutions of all disputes.

Any party aggrieved by a final administrative decision shall have the right to review in the circuit court for the jurisdiction in which the relevant institution is located. A petition for review of the final administrative decision shall be filed within thirty days of receiving the written decision. In any such action, the institution shall forward the record to the court, whose function shall be only to determine whether the decision reached by the institution could reasonably be said, on the basis of the record, to be supported by substantial evidence and not to be arbitrary, capricious, or otherwise contrary to law.

1. In order to ensure the application of uniform criteria in administering this section and determining eligibility for in-state tuition charges, the State Council of Higher Education shall issue and from time to time revise guidelines, including domiciliary status questions, to be incorporated by all state institutions of higher education in their admissions applications. These guidelines shall not be subject to the Administrative Process Act (§§ 9-6.14:1 et seq.) of this Code.

An advisory committee, composed of ten representatives of the public institutions, shall be appointed by the Council each year to cooperate with the Council in developing the guidelines for determining eligibility or revisions thereof. The Council shall consult with the Office of Attorney General and provide opportunity for public comment prior to issuing any such guidelines.

The first set of such guidelines shall be issued by September 1, 1984.

2. That § 23-7 of the Code of Virginia is repealed.

3. That if any clause, sentence, paragraph, subdivision, section or part of this act shall be adjudged by any court of competent jurisdiction to be invalid, the judgment shall not affect, impair or invalidate the remainder thereof, but shall be confined in its operation to the clause, sentence, paragraph, subdivision, section or part thereof directly involved in the controversy in which the judgment shall have been rendered.

Pending Legislation.

At the date of catalog publication, several bills were pending in the General Assembly to change the
requirements for eligibility for in-state tuition. Any modifications that may have occurred as a result of passage of one or more of the bills are not included in the State Domicile Legislation printed here.

Change of Domicile Classification

An individual requesting a change of classification from out-of-state to in-state status must file the required form prior to the first day of the semester for which in-state status is sought. Forms are available in the Admissions office, Room 117 Finley.

School of Law

The School of Law is located in Arlington, Virginia, on the Metro Campus, convenient to Washington and easily accessible by public transportation. It offers educational programs leading to the first professional degree in law, the Juris Doctor.

Through a stimulating instructional program, the School affords its students a sound curriculum responsive to contemporary demands. The School of Law is fully approved by the American Bar Association.

In the first two years the curriculum provides the basic skills and knowledge required to meet the challenge of the third-year emphasis on the array of problems for legal analysis. The various social, economic, business and financial implications of problems with a legal aspect are explored both extensively and intensively.

For further information regarding the degree requirements and application procedures, please see the law catalog or contact the School of Law directly at: George Mason University Law School, Office of Admissions, 3401 North Fairfax Drive, Arlington, VA 22201.
Visiting the Campuses

Visitors are always welcome at the University, and prospective students are especially encouraged to visit the campuses, preferably while the University is in session. Administrative offices are open Monday through Friday, but because hours vary, it is best to make appointments.

Parking regulations are enforced 24 hours a day, seven days a week. Parking on campus is by permit or decal only Monday through Friday from 7:00 a.m. through 10:00 p.m.; decals are not required on weekends. Special parking places are also provided for disabled persons. Parking permits and assistance in parking are available at each campus through the University Parking and Traffic Office. University buildings are fully accessible to persons in wheelchairs, except as noted below.

1. Finley Building
(First floor accessible to wheelchairs)
Admissions (Undergraduate and Graduate)
Assistant Senior Vice President, Affirmative Action/Legal Affairs
Assistant Senior Vice President for Governmental Affairs
Assistant Vice President Business Services
Assistant Vice President and Dean for Undergraduate Studies
Assistant Vice President Planning and Budget
Associate, Senior Vice President for Computing and Information Systems
Board of Visitors
Director, Office of Research
Executive Assistant to the President
Executive Vice President Finance and Planning
George Mason Institute of Science and Technology
Graduate School
Information/Switchboard
President
Public Relations Services
Senior Vice President
Special Assistant to the President
Testing Center
Vice President Academic Affairs
Vice President Administration
Vice Provost for Academic Support Administration

2. Krug Hall
(Ground and first floors only accessible to wheelchairs)
Chemistry Department

3. West Building
(Ground and first floors only accessible to wheelchairs)
Physics Department

4. East Building
(First floor only accessible to wheelchairs)
BIS/MAIS Degree Programs
Consortium for Continuing Education
Continuing Education
Extended Studies Enrollment
Gerontology Certificate
Individualized Study Program
In-Service Education Coordinator
Off-Campus Coordination
Summer Session

5. Fenwick Library
Main Library Entrance:
Library Collections and Services
Library Offices
Media Services Center
Special Collections and Archives
South Entrance:
Center for the Study of Constitutional Rights
Design and Publications
Federal Theatre Project and New Deal Culture
Government, Society, and the Arts Center
History Department
History Research Center
Mason Gazette
Philosophy and Religious Studies Department
Social Work Department

6. Lecture Hall

7. Thompson Hall
Academic Computing Services
Academic User Services
Administrative Information Systems
Audio Visual Services (distribution)
Center for Interactive Management
Citizens Applied Research Institute
Communication Department
Computer Science Department
Dean, College of Arts and Sciences
Foreign Languages and Literatures Department
Institute for Information Technology
Language Lab
Operations Research and Applied Statistics Department
PAGE (Plan for Alternate General Education)
Software Research Lab
WGMU

8. Greenhouse

9. Student Union I
Academic Advising Center
Academic Testing
Arts and Crafts Center
Bank
Broadside (student newspaper)
By George! (yearbook)
Cafeteria
Campus Ministry
Career Services
Cooperative Education
Counseling Center
Credit Union
English Language Institute
Financial Aid
Honor Committee
Housing and Residential Life
International Programs and Services
Mini Mall (shops)
Minority Student Services
Phoebe (Literary Magazine)
Quick Copy Center
Rathskeller
Services for Disabled Students
Student Activities
Student Government
Student Health Services
Student Organizations
Student Services
Student Unions Director
Ticket Center
Traffic and Parking Satellite Office
Tutorial Services
University Activities Director
Veterans Services
Vice President, Student Affairs

10. Student Apartments

11. Physical Education Building
Health, Sport, and Leisure Studies Department

12. Robinson Hall I
Area Studies
Art Department
Center for Bilingual/Multicultural Teacher Preparation
Center for Conflict Resolution
Center for Economic and Social Education
Center for Middle East Studies
Center for the Study of Market Processes
Composition Tutorial Center
Dean, College of Education and Human Services
Education Department
Educational Study Center
English Department
Indochina Institute
Northern Virginia Writing Project
Project for the Study of Young Children
Public Affairs Department
School of Nursing
Vocational Education
Writing Center

13. Robinson Hall II
Accounting and Business Legal Studies
Audio Visual Services (distribution)
Center for Conflict Resolution
Center for Real Estate and Land Use Analysis
Cybernetics Center
Decision Sciences Department
Economics Department
Finance Department
Institute for Cross-Cultural Understanding
Management Department
Marketing Department
Metropolitan Area Assessment Center
Microcomputer Laboratory
Quick Copy Center
Real Estate and Urban Development Department
School of Business Administration
Self-Care Institute
Sociology and Anthropology Department

14. Harris Theatre

15. Commonwealth Hall

16. Dominion Hall

17. University Commons

18. Student Union II
Bookstore
Cafeteria

Scheduling Coordinator

19. Academic III
Biology Department
Electrical and Computer Engineering Department
Geology Department
Psychology Department
Telecommunications (TV Studio)
Televised Engineering

20. Science and Technology I

21. Humanities I

22. Humanities II

23. Humanities III

24. Field House
Athletics
Patriot Club
Sports Information

25. Patriot Center

26. Security and Information

27. Development House

28. George's Hall
Center for Study of Public Choice

29. Power Plant

30. Maintenance Building

31. Facilities Planning

32. Campus Police

33. Traffic and Parking

34. Pohick Module
Center for Robotics and Control
Information Systems and Systems Engineering Department
Institute for Engineering Technology
School of Information Technology and Engineering

35. Fine Arts Module

36. Central Module
Cashier's Office
Disbursements
Registrar
Student Accounts
Student Aid (not Financial Aid)

37. North Chesapeake Module
Institutional Planning and Research
Mathematics Department
UCIS/Information Center (computing)

38. South Chesapeake Module
Access and Information Services
Mail Services
Print Services

39. Humanities Module

40. Field House Module
Dance Department
ROTC
41. North P.E. Module
Academic Center for Athletics
Auditor
Center for Health Promotion
Community Services
Property Control
Purchasing

42. South P.E. Module
Accounting Office
Controller
Grants and Contracts
Payroll
Personnel

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Student Union I

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Diane Knight, 350 Student Union I

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Elizabeth Carlson Dahlin, 4520 Roberts Road

Veterans Services .................................. 2381
Carol A. Elstad, 354 Student Union I
To receive an application for admission, please write or call the:

Admissions Office
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4400 University Drive
Fairfax, Virginia 22030-4444
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