College of Science (COS)

100 Level Courses

COS 100: Introduction to Science as Profession. 1-2 credits.
This elective science course is intended for College of Science (COS) students participating in the College of Science Scientific Inquiry and Global Problem-Solving Learning Community. COS 100 is designed to orient COS Learning Community students to today's science disciplines, and build interdisciplinary competencies across today's scientific career pathways. Topics covered include career readiness and professionalism in science, exploration of 21st century career skills, academic and career pathways in science, global problem-solving, and an introduction to fundamental principles in research, writing and communication that span scientific research and practice. Offered by College of Science (http://catalog.gmu.edu/colleges-schools/science/). Limited to three attempts.

Schedule Type: Lecture

Grading:
This course is graded on the Undergraduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

COS 120: Introduction to Research. 1-3 credits.
Introduction to research, involving work on a research project. May involve lab study, computer modeling and analysis, mathematics, or other original research as appropriate. Research formulated and completed under instructor's guidance. Culminates in a written or oral final report. Offered by College of Science (http://catalog.gmu.edu/colleges-schools/science/). May be repeated within the degree for a maximum 6 credits.

Schedule Type: Independent Study

Grading:
This course is graded on the Undergraduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

300 Level Courses

COS 300: Professional Preparation for STEM Disciplines. 3 credits.
Prepares any undergraduate major that is interested in enhancing their competences in science writing, technical communication and social media skills. Students will be prepared to become more competitive in the next generation workforce. Covers these topics: drafting and revising papers, dissecting scientific journal articles, communicating science to non-scientists, creating a podcast, writing grant proposals, and preparing CVs, resume and "elevator pitches." By the end of the course, the student will not only be familiar but more confident in effectively disseminating information in their own field of interest. Offered by College of Science (http://catalog.gmu.edu/colleges-schools/science/). Limited to three attempts.

Specialized Designation: Mason Impact.

Recommended Prerequisite: ENGH 302 or its equivalent and COMM 100 or COMM 101 or their equivalents. (Concurrent enrollment permitted.)

Schedule Type: Lecture

Grading:
This course is graded on the Undergraduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

COS 301: Great Ideas in Science. 3 credits.
Nontechnical introduction to ideas that have shaped the growth of science, from the building of Stonehenge to modern theories of the Big Bang. The idea behind each major advance is treated in its historical context, with special attention to its importance in mankind's understanding of the nature of the universe. Intended for nonscience majors; uses little mathematics. COS 301 is the new course number for PROV 301: Great Ideas in Science. Offered by College of Science (http://catalog.gmu.edu/colleges-schools/science/). Limited to three attempts.

Mason Core: Natural Science Overview (http://catalog.gmu.edu/mason-core/)

Schedule Type: Lecture

Grading:
This course is graded on the Undergraduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

COS 310: Introduction to Science Policy. 3 credits.
This course is an introduction to how science is used to inform governmental policy decisions and how policy impacts U.S. science. The course is intended for any STEM student with an interest in understanding or contributing to decision making at the federal and state level or joining the government to draft policies and legislation directly. Government policies affect all parts of society, including the scientific research enterprise. Reciprocally, science can be used to inform policy in myriad ways at different levels of government. Scientists’ lack of familiarity with policy, and policymakers’ lack of familiarity with science contributes to the longstanding gap between the production of scientific research and its perceived utility by decision-makers. This course will bridge this gap and provide new skills for scientists to contribute to this new field. Offered by College of Science (http://catalog.gmu.edu/colleges-schools/science/). Limited to three attempts.

Mason Core: Synthesis (http://catalog.gmu.edu/mason-core/)

Schedule Type: Lecture

Grading:
This course is graded on the Undergraduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

COS 315: Science Policy Internship Preparation. 1 credit.
Science policy internships along with their application and interview processes are likely to be quite different from most of the experiences that students have had in their core science classes. This course is designed to help students identify internship experiences that are of interest, prepare the materials that they will need to apply, and practice the skills that they will need to interview effectively for those positions. Offered by College of Science (http://catalog.gmu.edu/colleges-schools/science/). Limited to three attempts.

Registration Restrictions:
Required Prerequisites: (COS 310 or 310XS). C Requires minimum grade of C. XS Requires minimum grade of XS.

Schedule Type: Seminar

Grading:
This course is graded on the Undergraduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

**COS 320: Science Policy in Practice.** 1 credit. Science policy internships are central to developing an understanding of how science policy operates. This course is a project-based follow-up to a science policy internship in which students will have the opportunity to synthesize what they have learned. During the course students will develop a policy memo analyzing relevant topics from their internship that will be submitted to their internship office and presented to members of the science policy community. Offered by College of Science (http://catalog.gmu.edu/colleges-schools/science/). Limited to three attempts.

**Recommended Prerequisite:** GOVT 480

**Registration Restrictions:**
- **Required Prerequisites:** (COS 310^C or 310^XS).
- ^C Requires minimum grade of C.
- ^XS Requires minimum grade of XS.

**Schedule Type:** Seminar

**Grading:** This course is graded on the Undergraduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

**400 Level Courses**

**COS 400: Problem Solving and Leadership in STEAM.** 3 credits. In this course, participants will experience a hands-on approach to incorporating problem solving principles into the STEAM (Science, Technology, Engineering, Arts and Mathematics) disciplines and consider implications for innovations in research, development, and entrepreneurship. This course consists of face to face meetings, follow up webinars, a collaborative project, and the opportunity for internship. Notes: This course may culminate with international travel; locations will vary by semester. Offered by College of Science (http://catalog.gmu.edu/colleges-schools/science/). Limited to three attempts.

**Specialized Designation:** Entrepreneurship

**Schedule Type:** Lecture

**Grading:** This course is graded on the Undergraduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

**COS 401: RS: Discipline Based Education Research.** 2-3 credits. Students will conduct an original Discipline-Based Education Research (DBER) project with their faculty mentor and STEM Accelerator faculty mentor. Offered by College of Science (http://catalog.gmu.edu/colleges-schools/science/). Limited to three attempts.

**Specialized Designation:** Research/Scholarship Intensive

**Schedule Type:** Independent Study

**Grading:** This course is graded on the Undergraduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

**COS 402: Special Topics in Science.** 1-4 credits. Explore an array of exciting topics in science; the course’s topic will vary by section offered. Offered by College of Science (http://catalog.gmu.edu/colleges-schools/science/). May be repeated within the term for a maximum 8 credits.

**Specialized Designation:** Topic Varies

**Schedule Type:** Lec/Sem #1, Lec/Sem #2, Lec/Sem #3, Lec/Sem #4, Lec/Sem #5, Lec/Sem #6, Lec/Sem #7, Lec/Sem #8, Lec/Sem #9, Lecture, Sem/Lec #10, Sem/Lec #11, Sem/Lec #12, Sem/Lec #13, Sem/Lec #14, Sem/Lec #15, Sem/Lec #16, Sem/Lec #17, Sem/Lec #18

**Grading:** This course is graded on the Undergraduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

**500 Level Courses**

**COS 500: Professional Preparation for STEM Disciplines.** 3 credits. Prepares graduate students that are interested in enhancing their competences in science writing, technical communication and social media skills. Students will be prepared to become more competitive in the next generation workforce. Covers these topics: drafting and revising papers, dissecting scientific journal articles, communicating science to non-scientists, creating a podcast, writing grant proposals, and preparing CVs, resume and “elevator pitches.” By the end of the course, the student will not only be familiar but more confident in effectively disseminating information in their own field of interest. Offered by College of Science (http://catalog.gmu.edu/colleges-schools/science/). May not be repeated for credit.

**Schedule Type:** Lecture

**Grading:** This course is graded on the Graduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

**COS 510: Introduction to Science Policy.** 3 credits. This course is an introduction to how science is used to inform governmental policy decisions and how policy impacts U.S. science. The course is intended for any STEM student with an interest in understanding or contributing to decision making at the federal and state level or joining the government to draft policies and legislation directly. Government policies affect all parts of society, including the scientific research enterprise. Reciprocally, science can be used to inform policy in myriad ways at different levels of government. Scientists’ lack of familiarity with policy, and policymakers’ lack of familiarity with science contributes to the longstanding gap between the production of scientific research and its perceived utility by decision-makers. This course will bridge this gap and provide new skills for scientists to contribute to this new field. Offered by College of Science (http://catalog.gmu.edu/colleges-schools/science/). Limited to three attempts.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**Grading:** This course is graded on the Graduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

**COS 515: Science Policy Internship Preparation.** 1 credit. Science policy internships along with their application and interview processes are likely to be quite different from most of the experiences
that students have had in their core science classes. This course is designed to help students identify internship experiences that are of interest, prepare the materials that they will need to apply, and practice the skills that they will need to interview effectively for these positions. Offered by College of Science (http://catalog.gmu.edu/colleges-schools/science/). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** COS 510B.
B- Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**Grading:**
This course is graded on the Graduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

**COS 520: Science Policy in Practice.** 1 credit.
Science policy internships are central to developing an understanding of how science policy operates. This course is a project-based follow-up to a science policy internship in which students will have the opportunity to synthesize what they have learned in the internship and in their scientific research. During the course students will develop a policy paper analyzing relevant topics from their internship and prepared in a format that will be submitted to their internship office and can be submitted to a science policy journal. In addition, students will present their work orally to members of the science policy community. Offered by College of Science (http://catalog.gmu.edu/colleges-schools/science/). May not be repeated for credit.

**Recommended Prerequisite:** POGO 794

**Registration Restrictions:**
**Required Prerequisite:** COS 510B.
B- Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**Grading:**
This course is graded on the Graduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

**600 Level Courses**

**COS 600: Multidisciplinary Problem Solving and Leadership.** 3 credits.
In this course, participants will experience a hands-on approach to incorporating problem solving principles into the STEAM (Science, Technology, Engineering, Arts and Mathematics) disciplines and consider implications for innovations in research, development, and entrepreneurship. This course consists of face to face meetings, follow up webinars, a collaborative project, and the opportunity for internship.

**Notes:** This course may culminate with international travel; locations will vary by semester. Offered by College of Science (http://catalog.gmu.edu/colleges-schools/science/). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**Grading:**
This course is graded on the Graduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)

**COS 602: Special Topics in Science.** 1-4 credits.
Explore an array of exciting topics in science; the course’s topic will vary by section offered. Offered by College of Science (http://catalog.gmu.edu/colleges-schools/science/). May be repeated within the term for a maximum 8 credits.

**Specialized Designation:** Topic Varies

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lec/Sem #1, Lec/Sem #2, Lec/Sem #3, Lec/Sem #4, Lec/Sem #5, Lec/Sem #6, Lec/Sem #7, Lec/Sem #8, Lec/Sem #9, Lecture, Sem/Lec #10, Sem/Lec #11, Sem/Lec #12, Sem/Lec #13, Sem/Lec #14, Sem/Lec #15, Sem/Lec #16, Sem/Lec #17, Sem/Lec #18

**Grading:**
This course is graded on the Graduate Regular scale. (http://catalog.gmu.edu/policies/academic/grading/)