

# COLLEGE OF SCIENCE

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## Administration

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- Tracy Mason, Assistant Dean for Strategic Communications
- Meghan St. George, Chief Business Officer
- Vacant, Associate Dean for Undergraduate and Graduate Student Affairs

### College Code: SC

The College of Science at George Mason University is a leader in scientific discovery and the creation of innovative solutions for the rapidly-changing needs of today's world. The college prides itself in being home to a diverse population of students from across the U.S. and around the world. Here in our college, we are a magnet for minds interested in scientific disciplines and we offer enhanced undergraduate and graduate research opportunities to our students. The college is also one of Mason's leaders in entrepreneurship and is home to the NSF I-Corp Site grant. With new discoveries, we are adding to Mason's portfolio of patents, licenses, and spin-off companies.

The College of Science blends traditional science education with sought-after programs in disciplines as diverse as infectious diseases, drug discovery, geoinformatics, chemistry, climate dynamics, environmental conservation, materials science, astronomy, forensic science, computational science, and applied mathematics. We encourage meaningful research at all levels of learning, pairing high achieving undergraduate students with faculty mentors to undertake original projects. Many of our undergraduates go on to pursue advanced degrees in the sciences or medical professions, while others pursue careers in public service, nonprofit organizations, and the private sector. We also offer innovative minors, certificates, and graduate degree opportunities, as well as global, transfer-focused, and online or hybrid programs that allow professionals the opportunity to reskill or change careers.

The College of Science serves the university through teaching Mason Core courses in a variety of scientific disciplines and is a leader in the development of creative STEM initiatives to challenge and engage

students at all levels. The college also serves the community and region as a resource for science education for K-12 students, teacher training, and community outreach programs. Our faculty strive to impart creativity, rigorous, analytical thinking, and clear communication as they help students explore new ideas and develop novel approaches to problem-solving. Students are thus prepared for their role as informed citizens in a complex, global society and are able to adapt to an ever-changing world.

## University Catalog College of Science Editors

**The College of Science is thankful for the Registrar's Catalog and Curriculum team and for the college's dedicated catalog editors:**

Amaya, Barreto, Bazaz Gettys, Berea, Bulancea, Burtch, Craft, Dumas, Durac, Edwards, Emelianenko, Erb, Fede, Flores, Hahn, Hayes, Grant, Jafri, Jones, Kasik, Khan, Kim, Kinser, Klinger, Knight, Lewis, Lopez, Mason, McKenna, O'Toole, Peters, Pfoser, Polayes, Rancourt, Rockwood, Rubin, Rule, Sausville, Scott, So, St. Germain, Stan, Stone, Sweeney, Turner, Uhen, Van Aken, Vaisman, Verardo, Weatherspoon, Wever, Yang

## Requirements & Policies

### College Policies

The students of the college are governed by the policies and procedures of the university. Areas where the college provides additional guidance will be found in the Undergraduate Education and Graduate Education sections below.

### Accommodations for Disabled Students

Students with documented disabilities should contact the Office of Disability Services (<http://ds.gmu.edu/>) (703-993-2474) to learn more about accommodations that may be available to them.

### Undergraduate Education

The college offers numerous certificates, Bachelor of Arts, and Bachelor of Science degrees. These undergraduate degrees consist of coursework in the Mason Core (<http://catalog.gmu.edu/mason-core/>), in a major area of study, and in elective courses. To earn a bachelor's degree, students must at a minimum:

- Complete 120 credits, of which at least 45 must be in upper-level courses (numbered 300 and above).
- Complete at least one course designated as "writing intensive" (at the 300 or 400-level).
- All entering students who have not yet satisfied the Mason Core (<http://catalog.gmu.edu/mason-core/>) requirement in 'Quantitative Reasoning' are required to take the Math Placement Test ([http://math.gmu.edu/placement\\_test.php](http://math.gmu.edu/placement_test.php)) prior to enrollment.
- Students should also consult AP.5 Undergraduate Policies (<http://catalog.gmu.edu/policies/academic/undergraduate-policies/>) for information concerning university-wide requirements for undergraduate degrees.

All students are responsible for meeting with their academic advisor and reviewing their transcripts and degree audits regularly to ensure that they are correct and meet all requirements. Transfer students are encouraged to meet with their academic advisor prior to registering for classes in order to review their transcripts and course equivalencies. In some cases,

students may need to earn more than 120 credits to complete all of the requirements.

More information regarding the undergraduate programs administered by the college is available on the college's website (<https://science.gmu.edu>).

## College-level Degree Requirements

The baccalaureate degree is designed to provide a broad knowledge of the world, develop in students the ability to think conceptually and critically, acquaint them with many different methods of inquiry, and provide skills to continue intellectual growth throughout life.

### Bachelor of Arts

The Bachelor of Arts (BA) degree provides students with a breadth of knowledge as well as the necessary skills to make in-depth study of a major truly meaningful. In addition to the Requirements for Bachelor's Degrees (<http://catalog.gmu.edu/policies/academic/undergraduate-policies/#ap-5-3>) and the Mason Core (<http://catalog.gmu.edu/mason-core/>), students pursuing a BA degree must also complete the College Requirements for the BA Degree, and the degree program's requirements, both listed in the specific degree program's catalog page.

### Bachelor of Science

The Bachelor of Science (BS) degree provides students with a more intensive approach to the technical core knowledge and concepts in their major field of study. Therefore, this curriculum has a reduced number of courses in humanities and social sciences in comparison with the BA degree in order to allow students to achieve greater depth in their majors. Students pursuing a BS degree must complete the Requirements for Bachelor's Degrees (<http://catalog.gmu.edu/policies/academic/undergraduate-policies/#ap-5-3>), including the Mason Core (<http://catalog.gmu.edu/mason-core/>), and the requirements for their major. Requirements for each BS major are listed on the specific degree program's catalog page.

### Minors

Students may elect to take a minor in addition to their major field of study. For policies governing all minors, see AP5.3.4 Minors (<http://catalog.gmu.edu/policies/academic/undergraduate-policies/#ap-5-3-4>). Students interested in earning a minor should complete the Minor Declaration form (<http://registrar.gmu.edu/forms/>).

## Teacher Licensure

Degree programs that help to prepare students for teaching careers are available in the following programs:

- Biology, BA (<http://catalog.gmu.edu/colleges-schools/science/biology/biology-ba/>)
- Biology, BS (<http://catalog.gmu.edu/colleges-schools/science/biology/biology-bs/>)
- Chemistry, BA (<http://catalog.gmu.edu/colleges-schools/science/chemistry-biochemistry/chemistry-ba/#text>)
- Chemistry, BS (<http://catalog.gmu.edu/colleges-schools/science/chemistry-biochemistry/chemistry-bs/>)
- Geology, BS (<http://catalog.gmu.edu/colleges-schools/science/atmospheric-oceanic-earth-sciences/geology-bs/>)
- Mathematics, BA (<http://catalog.gmu.edu/colleges-schools/science/mathematical-sciences/mathematics-ba/>)
- Mathematics, BS (<http://catalog.gmu.edu/colleges-schools/science/mathematical-sciences/mathematics-bs/>)
- Physics, BS (<http://catalog.gmu.edu/colleges-schools/science/physics-astronomy/physics-bs/>)

Students who wish to become teachers and who plan to seek teacher licensure should also consult the College of Education and Human Development (<http://catalog.gmu.edu/colleges-schools/education-human-development/>) and attend an information session early in their undergraduate career. For more information, visit the School of Education's website (<http://gse.gmu.edu/>).

## Undergraduate Policies

Students should become familiar with the university's general academic policies in addition to those specific to each department. Please see AP.5 Undergraduate Policies (<http://catalog.gmu.edu/policies/academic/undergraduate-policies/>).

Students with questions regarding exceptions to undergraduate academic policies and college-level requirements should contact the college's Office of Academic and Student Affairs (<https://cos.gmu.edu/about/contact-us/>) (email: [ugradCOS@gmu.edu](mailto:ugradCOS@gmu.edu)). Additional academic information (<https://science.gmu.edu/academics/advising-student-support/>) and forms (<https://science.gmu.edu/academics/undergraduate-academic-affairs-forms/>) are available online from the college's webpage.

## Registration

Students are personally responsible for correctly registering for courses and paying all tuition and fees by the official university registration and payment deadlines. Instructors do not have the authority to add students to courses. All students should verify the accuracy of their enrollment before the end of the official add period. Calendars are available on the Office of the University Registrar's website (<http://registrar.gmu.edu/calendars/>).

## Academic Load

Students should review the university policies regarding academic load in AP1.2 Academic Load (<http://catalog.gmu.edu/policies/academic/registration-attendance/#ap-1-2>).

In order to be considered for an overload, students must fulfill all of the following criteria:

- Be in good academic standing,
- Have completed the prior semester with a GPA of 2.75 or higher,
- Have a cumulative GPA of 2.75 or higher,
- No grades of 'C-' or lower in the previous semester,
- Have demonstrated in prior semesters at George Mason the ability to handle an increased and demanding course load while maintaining high performance, and
- Have no remaining incompletes ('IN') from a previous semester

Freshmen and transfer students in their first semesters are not given permission for overloads as they have yet to establish an academic record at Mason.

If approved for an overload, the student is responsible for adding the additional class(es) and paying for the related tuition and fees by the official university deadlines. Calendars are available on the Office of the University Registrar's website (<http://registrar.gmu.edu/calendars/>).

## Excluded Courses

The college's students are limited to 3 credits of coursework in Recreation (RECR) (<http://catalog.gmu.edu/courses/recr/>) activity courses which may be taken to satisfy degree requirements and applied as general elective credits toward a degree in the college.

Military Science courses MLSC 400 Leadership and Management and MLSC 402 Leadership and Ethics can be used for credit toward a degree in the college, but credit from other MLSC courses may not be applied toward the college's degrees.

Once matriculated at Mason, students may not take CLEP exams and apply credits from those exams toward the college's degrees. Students may apply credits from CLEP exams to the college's degrees only if those credits were awarded and reported prior to admission.

## University Consortium Registration

Students should review the university policies in AP.1.4 Special Registration Procedures (<http://catalog.gmu.edu/policies/academic/registration-attendance/#ap-1-4>), including the University Consortium listing.

In addition, students who have failed a course at Mason are not permitted to take the equivalent course through the consortium under any circumstances. All consortium registration requests must be submitted to the Office of Academic and Student Affairs (<https://cos.gmu.edu/about/contact-us/>) at least three weeks prior to the first day of classes for the relevant semester at Mason.

## Permission to Study Elsewhere

Once enrolled in degree status at Mason, students with less than 60 hours of earned transfer credits (excluding any credits earned through the Consortium of Universities of the Washington Metropolitan Area (<https://www.consortium.org/>) or through Mason Abroad (<http://studyabroad.gmu.edu/>)) may take no more than 9 credits of coursework in the college's disciplines at another institution.

Students with 60 or more hours of transfer credits are prohibited from taking additional coursework in the college's disciplines at another institution. Students may request special permission for additional credits beyond these listed limits for summer registration if their permanent residence is more than 50 miles from Mason's Fairfax campus. See AP.1.4.2 Permission to Study Elsewhere (<http://catalog.gmu.edu/policies/academic/registration-attendance/#ap-1-4-2>) for more information.

## Study Abroad

In order to be considered for study through Mason Abroad (<http://studyabroad.gmu.edu/>), students must plan well in advance and receive prior, written permission from the college's Office of Academic and Student Affairs. Students must also meet all of the following criteria:

- Meet all eligibility criteria for their program as specified by Mason Abroad (<http://studyabroad.gmu.edu/>), including minimum GPA requirements,
- Completed the immediately preceding semester at Mason with a GPA of 2.00 or higher, and
- Completed the necessary forms and obtained all required signatures and course equivalencies.

Mason Abroad (<http://studyabroad.gmu.edu/>) may have higher academic standards and students must meet all eligibility requirements.

Students in danger of probation, suspension, or dismissal should plan very carefully before requesting to study abroad. Students who are not in good academic standing will not be permitted to study abroad.

## Leave of Absence

Please consult AP.1.8 Undergraduate Leave of Absence (<http://catalog.gmu.edu/policies/academic/registration-attendance/#ap-1-8>) regarding the leave of absence policy.

## Withdrawals

Courses for which a withdrawal is approved receive a grade of 'W'.

Students are responsible for all courses in which they remain officially enrolled once the unrestricted withdrawal period has ended. Please review the applicable academic calendar (<http://registrar.gmu.edu/calendars/>) for pertinent dates.

Instructors do not have the authority to withdraw students from classes. Withdrawals require the approval of the college's associate dean for student affairs, are typically allowed only for full semesters at a time (all enrolled courses), and are only permitted for non-academic reasons. Withdrawals cannot be approved for academic reasons. When submitting a withdrawal request, students must provide verifiable, third-party documentation for the reason for the withdrawal. Requests for withdrawals should be submitted as early in the semester as possible, and never after the last day of classes.

Credits graded 'W' do not affect a student's GPA, but do count as attempted hours. The total attempted hours and cumulative GPA determine a student's academic standing. If the cumulative GPA is below 2.00, withdrawals may affect whether a student will be on warning, probation, suspension, or dismissal. Students should be familiar with AP.5.2.3 Student Retention Categories (<http://catalog.gmu.edu/policies/academic/undergraduate-policies/#ap-5-2-3>).

## Academic Clemency

Students should review the university policies regarding academic clemency in AP.5.2.9 Academic Clemency (<http://catalog.gmu.edu/policies/academic/undergraduate-policies/#ap-5-2-9>).

In extraordinary cases, students who (a) have been absent from Mason for a minimum of three consecutive calendar years, and (b) are currently in their first semester back at the university may request that the college's associate dean for student affairs consider allowing clemency from up to 16 hours of coursework from previous semesters.

To be considered for this clemency, students must meet all of the following criteria:

- Be absent from Mason for a minimum of three consecutive calendar years,
- Provide a detailed explanation for why they were unsuccessful in those courses and how they have made changes to ensure their academic progress upon their return,
- Submit their request within 12 months of the first day of the re-enrollment term,
- In order to make this request, students should
  - a. Enroll in at least 6 hours during their first 12 months back at Mason and
  - b. Earn a minimum GPA of 2.50 each semester back prior to making the clemency request, with no grade below 2.00.

If these minimum academic requirements are not met during the first semester of return, then clemency will not be allowed under any circumstances.

## Appeals Process

Students may appeal departmental decisions concerning academic actions to Office of Academic and Student Affairs (<https://cos.gmu.edu/about/contact-us/>). They may further appeal the decisions of Office of Academic and Student Affairs (<https://cos.gmu.edu/about/contact-us/>) to the Dean's Council, a committee composed of college deans and faculty members. These levels of appeal are subject to the limits below concerning the final level of appeal for each type of academic action. Students who feel that the college appeal process was conducted unfairly may appeal to the Office of the Provost as specified in Student Rights and Responsibilities (<http://catalog.gmu.edu/policies/student-rights-responsibilities/>).

Grade appeals should first be made to the department or program, following the process specified in AP3.9 Grade Appeals (<http://catalog.gmu.edu/policies/academic/grading/#ap-3-9>). If they are resolved within the department or program, that is the final level of appeal. The departmental decision may be appealed to the college's associate dean for student affairs only on the basis of procedural irregularity. Such appeals should be made through the Office of Academic and Student Affairs (<https://cos.gmu.edu/about/contact-us/>). If the grade appeal is not resolved within the department or program, the chair makes a recommendation to the college's associate dean for student affairs, who makes the final determination. The decision of the associate dean is not subject to review or further appeal.

Departments set the requirements for the majors and minors that they administer. Substitutions and waivers of requirements require the approval of Office of Academic and Student Affairs (<https://cos.gmu.edu/about/contact-us/>). When a department denies a substitution or waiver of a requirement, this decision may be appealed to the Office of Academic and Student Affairs (<https://cos.gmu.edu/about/contact-us/>) on the basis of procedural irregularity only, and is the final level of approval.

The Dean's Council is the final level of appeal for course overloads, consortium registration, study elsewhere, and withdrawals after the drop deadline within the semester.

The college's associate dean for student affairs is the final level of appeal for college-level requirements, retroactive adds, withdrawals, graduation, and return from suspension and dismissal.

There is no waiver or appeal of satisfactory performance standards (minimum grades or grade point average, GPA) that have been set by the department or program faculty for the courses in their major or minor.

Students should file all appeals in a timely manner, usually within the semester in which the original decision is rendered, but no later than the final day of classes in the following semester.

## Grievances

Grievances should be directed, in writing, to the department chair or program director overseeing the major or course.

## Transfer Students

Admitted and enrolled transfer students who have completed an AA, AS, or AA&S degree from the Virginia Community College System (VCCS) and have been offered admission to Mason by the Office of Admissions (<https://www2.gmu.edu/admissions-aid/>) may be eligible for a waiver of

all of Mason's lower level Mason Core (<http://catalog.gmu.edu/mason-core/>) requirements in accordance with the Guaranteed Admission Agreement. Students eligible for this waiver are still required by the university to complete ENGH 302 Advanced Composition (Mason Core) (<http://catalog.gmu.edu/mason-core/>) and a synthesis course. Transfer students who have been offered admission under the terms of the Guaranteed Admission Agreement and are pursuing a degree in the college are still responsible for any outstanding college requirements not covered by transfer coursework, including intermediate proficiency in a foreign language (required of BA students).

## Graduate Education

Mason's College of Science offers numerous graduate certificates, master's programs, and doctoral programs; the requirements for each can be found in the program's description in this catalog. More information regarding the college's graduate programs is available on the college's website (<https://cos.gmu.edu/academics/graduate-academics/>).

## Graduate Admission

Admissions decisions are made by the faculty committee in the respective graduate program. Denial of admission is not subject to appeal. Further information can be found in Graduate Admission Policies (<http://catalog.gmu.edu/admissions/graduate-policies/>).

## Provisional and Conditional Admission

Provisionally admitted students are not eligible to participate in any consortium coursework, studying at another institution, or study abroad programs until the conditions of the provisional contract have been met. Transfer of credit requests for coursework taken in non-degree status at Mason or another institution will not be considered until the provisional contract has been fulfilled. Further information on provisional admission can be found in Graduate Admissions Policies (<http://catalog.gmu.edu/admissions/graduate-policies/>).

Details on conditional admission, the need for additional requirements to be met before enrollment, can be found in Graduate Admission Policies (<https://catalog.gmu.edu/admissions/graduate-policies/#text>).

## Non-degree Enrollment

The college gladly admits qualified students for non-degree studies. Some of the factors that are considered by the college while making non-degree admissions decisions include: previous academic performance, professional experience, and academic fit. To apply, applicants are to complete the non-degree George Mason University Graduate Application (<https://www2.gmu.edu/admissions-aid/apply-now/>) and provide official transcripts from all institutions attended. Further information can be found in Non-degree Enrollment (<http://catalog.gmu.edu/admissions/non-degree-enrollment/>) and on the Office of Admissions' website (<http://admissions.gmu.edu/nonDegree/>).

Upon admission to graduate non-degree studies, students are considered graduate students and are charged tuition accordingly (regardless of the course's level). The college permits up to 12 credits of relevant graduate coursework earned in non-degree status to be considered for transfer into many of its graduate programs.

## Transferring Previous Graduate Credit into Programs and Certificates

Previously earned and relevant graduate credits may be eligible for transfer into COS programs and certificates; details can be found in

the Credit by Exam or Transfer (<https://catalog.gmu.edu/policies/academic/graduate-policies/>) section of this catalog.

## Credit from Other Institutions (Permission to Study Elsewhere)

Students enrolled in a degree program may take graduate courses at another regionally accredited institution and apply these credits to a master's or doctoral degree with prior approval. Details and related restrictions can be found in AP.6.5.3 Permission to Study Elsewhere (<http://catalog.gmu.edu/policies/academic/graduate-policies/#ap-6-5-3>). Students enrolling in courses at other institutions with different drop/add timetables must still abide by Mason's drop/add deadlines in terms of acquiring necessary approvals.

## Academic Load

Graduate students can enroll in up to 12 credits each semester; non-degree graduate students can enroll in up to 10 credits each semester. Students should review the university's policies in AP.1.2 Academic Load (<http://catalog.gmu.edu/policies/academic/registration-attendance/#ap-1-2>).

## University Consortium

Students should review university policies regarding the University Consortium under AP.1.4.9 University Consortium (<http://catalog.gmu.edu/policies/academic/registration-attendance/#ap-1-4-9>).

In addition, in order to register for a consortium course, students must have an overall GPA of at least 3.00 and be in good academic standing. Students with grades of 'IN' on their record or who earned grades of 'C' or 'F' in the most recent semester are not eligible to register for a consortium course. Students who have received a grade less than 3.00 in a consortium course are not permitted to enroll in additional consortium courses. Newly admitted graduate students are not permitted to enroll in consortium courses during their first semester of graduate study. Students who wish to enroll in consortium courses during their second semester of study must wait until the grades for the previous semester have been posted.

## Dissertation Committee

The college follows university policies regarding dissertation committees. Please see AP.6.10.5 Dissertation Committee (<http://catalog.gmu.edu/policies/academic/graduate-policies/#ap-6-10-5>). Please note that some programs within the college may have a more stringent policy.

## Dissertation (998/999) Registration

Most programs within the college follow university policies regarding dissertation registration; please see AP.6.10.6 Dissertation Registration (998, 999) (<http://catalog.gmu.edu/policies/academic/graduate-policies/#ap-6-10-6>). Some departments may require additional requirements.

## Time Limit for Doctoral Students

The college follows university policies regarding doctoral time limits. Please see AP.6.10.1 Time Limit (<http://catalog.gmu.edu/policies/academic/graduate-policies/#ap-6-10-1>). If your catalog term was before this current catalog, please visit the archived catalogs page (<http://catalog.gmu.edu/archives/>) and find your catalog term's policy on time limits.

Requests for an extension of the time limit must be submitted online and must include all required documentation listed on the Office of the

University Registrar's website (<https://registrar.gmu.edu/forms/timelimit/>).

## Graduate Appeals of Termination

All graduate students should be familiar with the university's policies on termination, please see AP.6.6.2 Academic Termination (<http://catalog.gmu.edu/policies/academic/graduate-policies/#ap-6-6-2>). Students who meet the criteria for academic termination may submit a Graduate Termination Exception Request (<https://registrar.gmu.edu/wp-content/uploads/GRADUATE-TERMINATION-EXCEPTION-REQUEST-June2020.pdf>) to the college's Associate Dean for Undergraduate and Graduate Student Affairs. Exception requests must include (a) specific details describing the unique and extenuating circumstances under which the student is unable to maintain minimum standards of academic performance and (b) a letter of support from Advisor or Dissertation/Thesis Chair/Graduate Program Director addressing why an exception should be granted, how the program will be supportive, any recommendations/requirements associated with approval, any other relevant information for consideration.

Exceptions for termination are reviewed by the college's Associate Dean for Undergraduate and Graduate Student Affairs with input from the Graduate Program Director or Department Chair within the student's department. If the student's Academic Exception Request (<https://graduate.gmu.edu/studying-here/graduate-policy-resources/graduate-academic-exceptions/>) is denied, the student may appeal that decision to the Associate Provost of Graduate Education.

## Academic Units

- Department of Atmospheric, Oceanic and Earth Sciences
- Department of Biology
- Department of Chemistry and Biochemistry
- Department of Computational and Data Sciences
- Department of Environmental Science and Policy
- Department of Geography and Geoinformation Science
- Department of Mathematical Sciences
- Department of Physics and Astronomy
- Forensic Science Program
- Interdisciplinary Program in Neuroscience
- School of Systems Biology

## Programs

- Advanced Biomedical Sciences Graduate Certificate
- Pre-Medical Undergraduate Certificate
- STEM in Society Minor (COS)
- Science Policy Graduate Certificate
- Science and Technology Policy Minor
- Scientific Leadership and Practice Minor

## Note:

See individual academic units within the college for additional program offerings.