

ASTRONOMY, BS

Banner Code: SC-BS-ASTR

Undergraduate Astronomy Advisor

203 Planetary Hall
Fairfax Campus

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The program prepares students for graduate school, a career in research or teaching, or employment in industry, business, or education fields where analytical skills and a scientific background are advantageous. Students who are considering a double major should talk to the undergraduate coordinator.

Admissions & Policies

Admissions

University-wide admissions policies can be found in Undergraduate Admissions Policies (<http://catalog.gmu.edu/admissions/undergraduate-policies/>).

To apply for this program, please complete the George Mason University Admissions Application (<https://www2.gmu.edu/admissions-aid/apply-now/>).

Policies

Students must fulfill all Requirements for Bachelor's Degrees (<http://catalog.gmu.edu/policies/academic/undergraduate-policies/#ap-5-3-2>) including the Mason Core (<http://catalog.gmu.edu/mason-core/>).

At least 18 credits used to fulfill an Astronomy, BS cannot be used to fulfill another major or minor. Some course substitutions are allowed for double majors, subject to approval from the Department of Physics and Astronomy (<http://catalog.gmu.edu/colleges-schools/science/physics-astronomy/>).

By taking ASTR 402 RS: Methods of Observational Astronomy (Mason Core) (<http://catalog.gmu.edu/mason-core/>), astronomy majors satisfy the university's writing-intensive requirement.

For policies governing all undergraduate programs, see AP.5 Undergraduate Policies (<http://catalog.gmu.edu/policies/academic/undergraduate-policies/>).

Requirements

Degree Requirements

Total credits: minimum 120

Students should refer to the Admissions & Policies tab for specific policies related to this program.

Students must complete a total of 59 credits in physics and astronomy and 14 credits in mathematics with a minimum GPA of 2.00.

Required Astronomy Courses

Code	Title	Credits
ASTR 124	Introduction to Observational Astronomy	1
ASTR 210	Introduction to Astrophysics	3
ASTR 328	Stars	3
ASTR 401	Computer Simulation in Astronomy	3
ASTR 402	RS: Methods of Observational Astronomy (Mason Core) (http://catalog.gmu.edu/mason-core/) ¹	4
Total Credits		14

¹ Fulfills the writing intensive requirement.

Additional Astronomy Courses

Code	Title	Credits
Select two courses from the following:		6
ASTR 403	Planetary Science	
ASTR 404	Galaxies and Cosmology	
ASTR 420	Exoplanets	
ASTR 480	The Interstellar Medium	
Total Credits		6

Required Physics Courses

Code	Title	Credits
PHYS 160	University Physics I (Mason Core) (http://catalog.gmu.edu/mason-core/)	3
PHYS 161	University Physics I Laboratory (Mason Core) (http://catalog.gmu.edu/mason-core/)	1
PHYS 260	University Physics II (Mason Core) (http://catalog.gmu.edu/mason-core/)	3
PHYS 261	University Physics II Laboratory (Mason Core) (http://catalog.gmu.edu/mason-core/)	1
PHYS 251	Introduction to Computer Techniques in Physics	3
PHYS 301	Analytical Methods of Physics	3
PHYS 303	Classical Mechanics	3
PHYS 305	Electromagnetic Theory	3
PHYS 308	Modern Physics	3
PHYS 416	Undergraduate Physics Review	1
Total Credits		24

Required Math Courses

Code	Title	Credits
MATH 113	Analytic Geometry and Calculus I (Mason Core) (http://catalog.gmu.edu/mason-core/)	4
MATH 114	Analytic Geometry and Calculus II	4
MATH 213	Analytic Geometry and Calculus III	3

MATH 214	Elementary Differential Equations	3
Total Credits		14

Astronomy and Physics Courses

Code	Title	Credits
Select 15 credits from the following (at least 12 credits must be from upper-level courses):		
ASTR 301	Astrobiology	
ASTR 408	Senior Research	
PHYS 306	Wave Motion and Electromagnetic Radiation	
PHYS 307	Thermal Physics	
PHYS 402	Introduction to Quantum Mechanics and Atomic Physics	
ASTR 403	Planetary Science ¹	
ASTR 404	Galaxies and Cosmology ¹	
ASTR 420	Exoplanets ¹	
ASTR 480	The Interstellar Medium ¹	
PHYS 428	Relativity	
Other ASTR course with the permission of the department (http://catalog.gmu.edu/courses/astr/)		
Other PHYS course with the permission of the department (http://catalog.gmu.edu/courses/phys/)		
Total Credits		15

¹ If ASTR 403 Planetary Science, ASTR 404 Galaxies and Cosmology, ASTR 420 Exoplanets, or ASTR 480 The Interstellar Medium are not taken as part of the additional astronomy course requirement above, they may be used here.

Mason Core and Elective Credits

In order to meet a minimum of 120 credits, this degree requires an additional 47 credits, which may be applied toward any remaining Mason Core (<http://catalog.gmu.edu/mason-core/>) requirements (outlined below), Requirements for Bachelor's Degrees (<http://catalog.gmu.edu/policies/academic/undergraduate-policies/#ap-5-3-2>), and electives. Students are strongly encouraged to consult with their advisors to ensure that they fulfill all requirements.

Mason Core

Some Mason Core (<http://catalog.gmu.edu/mason-core/>) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (<http://catalog.gmu.edu/mason-core/>) requirements.

Code	Title	Credits
Foundation Requirements		
	Written Communication (ENGH 101) (http://catalog.gmu.edu/mason-core/#written)	3
	Oral Communication (http://catalog.gmu.edu/mason-core/#oral)	3
	Quantitative Reasoning (http://catalog.gmu.edu/mason-core/#quantitative)	3
	Information Technology and Computing (http://catalog.gmu.edu/mason-core/#information-technology)	3
Exploration Requirements		

Arts (http://catalog.gmu.edu/mason-core/#arts)	3
Global Understanding (http://catalog.gmu.edu/mason-core/#global)	3
Literature (http://catalog.gmu.edu/mason-core/#literature)	3
Natural Science (http://catalog.gmu.edu/mason-core/#natural-science)	7
Social and Behavioral Sciences (http://catalog.gmu.edu/mason-core/#social-behavioral-science)	3
Western Civilization/World History (http://catalog.gmu.edu/mason-core/#western-civilization-world-history)	3
Integration Requirements	
Written Communications (ENGH 302) (http://catalog.gmu.edu/mason-core/#written)	3
Writing-Intensive (http://catalog.gmu.edu/mason-core/#wi) ¹	3
Synthesis/Capstone (http://catalog.gmu.edu/mason-core/#synthesis-capstone) ²	3
Total Credits	40

¹ Most programs include the writing-intensive course designated for the major as part of the major requirements; this course is therefore not counted towards the total required for Mason Core.

² Minimum 3 credits required.

Honors

Honors in the Major Eligibility

Astronomy majors who have completed the prerequisites for ASTR 405 Honors Thesis in Astronomy I, have a GPA of at least 3.50 in ASTR and PHYS courses taken at Mason, and have a GPA of at least 3.50 in all courses taken at Mason may apply for admission to the astronomy honors program. Please visit the department for details.

Honors Requirements

To graduate with honors in astronomy, a student must maintain a GPA of at least 3.50 in their ASTR/PHYS courses. Students accepted into the honors program must complete ASTR 405 Honors Thesis in Astronomy I and ASTR 406 Honors Thesis in Astronomy II with a GPA of at least 3.50 and a grade of 'A-' or better in ASTR 406 Honors Thesis in Astronomy II. Students in ASTR 405 Honors Thesis in Astronomy I/ASTR 406 Honors Thesis in Astronomy II will complete a research project and write a thesis working under the supervision of a faculty member. At the end of ASTR 406 Honors Thesis in Astronomy II, the student will write a substantial thesis paper and make a presentation of results to their honors committee.