

ASTRONOMY

<http://cos.gmu.edu/academics/undergraduate/majors/astronomy>

Name and description of the field.

Astronomy majors study the nature of stars, planets, gaseous nebulae, and phenomena like quasars and black holes. Professional astronomers conduct research using data from state-of-the art ground- and space-based telescopes or develop new technology for future ground- and space-based missions. As a career, astronomy offers an astonishing variety of possibilities.

What special skills or abilities are needed to succeed in this major?

Ability in mathematics is very helpful.

If both B.A. and B.S. degrees are offered, what are the differences in career/graduate school opportunities?

We offer a BS and BA degree and give students flexibility in designing their major. The B.S. in Astronomy prepares the student for graduate school leading to a research and/or teaching position or for a career in industry, business or science education where an analytical or science background is advantageous. The B. A. in Astronomy prepares students for a career in industry, business, science education and science writing where analytical skills and a science background are necessary. It also allows the flexibility to be a strong major for pre-med students.

What are recent graduates doing?

Astronomy is a fascinating field that offers challenging, exciting, and productive careers. Many astronomy majors seek advance degrees in Astronomy or Astrophysics while others are employed in a wide variety of fields. The Washington D.C. metropolitan area has a high concentration of high technology companies and federal government agencies that employ astronomy majors. Fields open to those with an education in Astronomy include education, research, medicine, engineering, space and earth sciences, consulting, environmental science, publishing/journalism, communications, and manufacturing.

Specific job titles include:

Astrophysicist	Systems Engineer	Research Scientist
Space Scientist	Physical Science Technician	Software Engineer
Planetarium Coordinator	Technical Writer	Environmental Physicist
Medical Imaging Engineer	High School Science Teacher	Web Developer
Integrated Circuit Designer	Medical Physicist	

Sample Job Descriptions:

Astrophysicist - conducts research to understand various astrophysical phenomena, develops theories and laws on the basis of observation and experiments, and devises methods to apply laws of physics to industry, medicine, science, and other fields; describes observations and conclusions in mathematical terms and conducts instrumental analysis to determine physical properties of materials.

NASA Engineer/Scientist: Designs and develops cutting-edge technology for spacecraft or on-board science instruments for future space missions.

Medical Imaging Engineer - develops tools--including x-rays, computed tomography, CT scans, and magnetic resonance imaging to determine bone damage, diagnose disease, and develops treatment for various illnesses; employed at hospitals, engineering firms and medical schools.

Software Engineer - researches, designs and develops computer software systems, in conjunction with hardware product development; analyzes software requirements to determine feasibility or design within time and cost constraints; operational and performance requirements of overall system.

Physical Science Teacher - teaches at the elementary or secondary school level with the challenge of keeping alive children's natural curiosity about the world around them; individuals who appreciate science often have a special gift for teaching children. Requires additional teaching certification.

EXPLORING MAJORS

For more information on related job descriptions, visit the Career Services Library and pick up a "Where to Start..." bibliography for Astronomy majors.

Organizations that typically hire Astronomy graduates include:

Naval Research Laboratory	Performance Engineering Corp.
Nat'l Oceanic & Atmospheric Admin.	National Weather Service
Systems Research & Application Corp	Science Applications International Corp.
Nat'l Inst. for Standards & Technology	Logicon, Inc.
NASA	Hughes Electronic Corp.
Hunter Labs	Metron. Inc.
Space Telescope Science Institute	

Resources for further information:

A key element in effective decision making is having sufficient information about the major or career being explored. Sources of information include people in the field, professional associations relating to the field, faculty and your career services counselor. Below are additional resources to aid in exploration:

Printed Resources: (Career Services Library, 348 SUB1) -

http://careers.gmu.edu/careerlibrary/wheretostart/phys_astr.pdf

Online Resources: http://careers.gmu.edu/onlineresources/phys_astr.htm

Science Related Job/Internship Postings: <http://cos.gmu.edu/students/careerservices> &

<http://www.aaas.org/careercenter/>

Networking Resource: <http://www.mentornet.net/>

Professional Associations:

- **American Association for the Advancement of Science-** <http://www.aaas.org/>
- **American Astronomical Society -** <http://www.aas.org>
- **American Institute of Physics -** <http://www.aip.org/>
- **Mason Student Clubs/Orgs/Societies Science and Technology Umbrella -** http://sa.gmu.edu/student_orgs/orgs.php#stu

Is it possible to minor in Astronomy?

Yes.

Whom should students contact for further information?

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