What can I do with a major in...

Astrophysics

**ACTIVITIES ASTROPHYSICS MAJORS DO:**
Astronomy is sometimes considered a subfield of physics. Astrophysics is a specialization in the field of astronomy. Astronomers use the principles of physics and mathematics to learn about the fundamental nature of the universe, including the sun, moon, planets, stars, and galaxies. They also apply their knowledge to solve problems in navigation, space flight, and satellite communications, and to develop the instrumentation and techniques used to observe and collect astronomical data.

Almost all astronomers do research. Some are theoreticians, working on the laws governing the structure and evolution of astronomical objects. Others analyze large quantities of data gathered by observatories and satellites and write scientific papers or reports on their findings. Some astronomers operate large space-based or ground-based telescopes, usually as part of a team. A small number of astronomers work in museums housing planetariums. These astronomers develop and revise programs presented to the public and may direct planetarium operations.

Most jobs in basic research usually require a doctoral degree. It is common for astronomers to spend three to six years in postdoctoral positions before finding a steady position in a university department, national facility, or government lab. Those with master's degrees qualify for some jobs in applied research and development. Those with bachelor's degrees often qualify as research assistants or for other physics-related occupations, such as technicians. Graduates typically work in a wide range of capacities, including business and private industry, education, national observatories, government laboratories, and other related jobs (planetariums, museums, public service, and science journalism).

**INDUSTRIES ASTROPHYSICS MAJORS WORK IN (SAMPLE LISTING):**
- Institutes
  - Research and development
- Universities
  - Government
- Government
  - Teaching
- Museums
  - Planetariums
- Military

**EMPLOYERS WHO HIRE ASTROPHYSICS MAJORS (SAMPLE LISTING):**
- NASA
- Smithsonian Astrophysical Observatory
- Fish and Richardson, P.C.
- Akiom
- 3M
- Space Telescope Science Institute
- Alliant Techsystems
- Intel Corp.
- Honeywell
- The Aerospace Corporation
- Lincoln Laboratory
- SAIC
- MIT
- Lawrence Livermore National Lab
- Emerson Network Power

**TYPES OF POSITIONS FOR ASTROPHYSICS MAJORS (SAMPLE LISTING):**
- **Astronomer:** Solves problems in navigation, space flight, satellite communications and develops instrumentation and techniques used to observe and collect astronomical data.
- **Professor/teacher:** Develops and teaches astronomy/astrophysics curriculum, which includes scientific experiments.
- **Physicist:** Conducts research into the phases of physical phenomena, develops theories and laws on the basis of observation and experiments, and devises methods to apply laws and theories to industry and other fields.
- **Data analyst:** Analyzes problems and comes up with creative solutions.
- **Instrument designer:** Uses CAD programming for satellite and rocket projects.
- **Research scientist:** Conducts experiments, analyzes findings, operates necessary equipment, develops and tests theories.
- **Support astronomer:** Provides instruction, assistance, and scientific guidance to observers on the use of the observatory’s telescopes and instruments.
- **Telescope engineer:** Assists with the design, development, fabrication, and commissioning of telescopes.

**Some of these positions may require an advanced degree.**
USEFUL WEBSITES FOR ASTRONOMY AND ASTROPHYSICS MAJORS:

- Minnesota Institute for Astrophysics: astro.umn.edu
- Astronomy Magazine: astronomy.com
- The Astronomy Net: astronomy.net
- National Aeronautics and Space Administration: nasa.gov
- National Optical Astronomy Observatory: noao.edu
- Physics and Astronomy Online: physlink.com
- Space Careers: space-careers.com
- Physics Today: physicstoday.org

PROFESSIONAL ORGANIZATIONS:

- American Astronomical Society: aas.org
- American Physical Society: aps.org
- International Astronomical Union: iau.org

*Additional job/internship search websites and resources can be found at cse.umn.edu/career.

Information on this page was compiled from the Occupational Outlook Handbook, the Encyclopedia of Careers and Vocational Guidance, University of Minnesota departmental websites, and student-reported data.