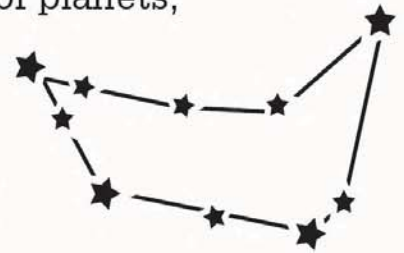




ASTRONOMER

JOB DESCRIPTION

Astronomers are scientists who study the Universe. They rely on ground- or space-based telescopes, spacecraft, and other advanced instruments to make their observations. Using mathematical techniques to interpret data, they investigate the properties and behavior of planets, stars, and galaxies, and then propose and test theories about the nature and makeup of the Universe.



SALARY

Graduate student ★★★★★
Astronomy professor ★★★★★

INDUSTRY PROFILE

Academic profession with few employment opportunities • Entry to research posts is competitive • Jobs found in government departments, laboratories, and observatories

AT A GLANCE



YOUR INTERESTS Astronomy • Mathematics • Physics • Chemistry • Geology • Engineering • Information Technology (IT) • Exploration



ENTRY QUALIFICATIONS Entrants to this profession usually hold an advanced degree in astronomy, space science, astrophysics, or geophysics.



LIFESTYLE Studying the sky and collecting data can involve long, irregular hours. Weekend and evening work is a crucial part of the job.



LOCATION Astronomers work mainly in space laboratories, observatories, and research departments. They may travel for meetings and conferences.



THE REALITIES This is a highly demanding, theoretical field. Entry is competitive, and many graduates are not able to find work as astronomers.

CAREER PATHS

Because astronomy is a highly academic field, aspiring astronomers need a degree in physics or astronomy and usually a PhD to progress. Most professional astronomers carry out research and hold teaching posts at universities, but some move into related fields, such as instrument engineering, computer programming, or space science, where they provide support for space missions.

GRADUATE If you have an astronomy degree, you can apply for support roles in planetariums, research laboratories, and science museums. You can also gain relevant work experience before moving to graduate study.



POSTGRADUATE You will require the highest level of academic qualifications to progress in this field; a master's or PhD in astronomy will improve your prospects.



▼ RELATED CAREERS

- ▶ **SOFTWARE ENGINEER** *see pp. 118–119*
- ▶ **ELECTRONICS ENGINEER** Designs and creates electronic equipment for use in industry, from telecommunications to manufacturing.
- ▶ **GEOPHYSICIST** Studies physical aspects of Earth, analyzing data on phenomena such as earthquakes, volcanoes, and the water cycle.
- ▶ **RESEARCH PHYSICIST** Investigates and proposes theories about the nature and properties of matter and energy. Physicists may work in academic or industrial research, or in government laboratories.
- ▶ **SATELLITE SYSTEMS ENGINEER** Uses a knowledge of electronics, computer science, and astronomy to design and build space satellites.

SKILLS GUIDE



A logical approach to solving complex problems and analyzing abstract astronomical ideas.



Advanced mathematical skills for aiding in computer modeling and conducting theoretical research.



Excellent computer skills for generating theoretical models and interpreting observational data.



Perseverance to study infrequent and slowly occurring astronomical phenomena patiently.



Attention to detail and the ability to make precise measurements and keep meticulous records.



THEORETICAL ASTRONOMER

Creates complex computer models to develop and test theories, and presents findings in reports, scientific journals, and at conferences around the world.



OBSERVATIONAL ASTRONOMER

Uses radio, infrared, and optical telescopes to gather data from spacecraft and satellites, then records and analyzes that data to test theories and predictions.



PLANETARIUM DIRECTOR

Develops exhibitions and film shows on the subject of planetary science to educate and entertain visitors, and hosts and liaises with different visitor groups, from tourists to schools.



ASTRONOMER This is an inherently academic career, so you will be expected to carry out original research, publish papers, and continue learning, as well as teach others.



ASTRONOMY PROFESSOR Teaches astronomy at undergraduate and postgraduate levels, and conducts research to contribute to our understanding of the universe.