Earth and Space Exploration (Astrophysics), BS

Do you want to be at the edge of exploration, making new discoveries about our planet, our solar system and our universe? As an astrophysics major, you could be discovering new planets, exploring cosmology, designing and building space-flight hardware, and engineering new instruments for telescopes and satellites.

Program Description

The BS program in earth and space exploration with a concentration in astrophysics is designed to offer students a fundamental grounding in astronomy and astrophysics, with exposure to the related fields of geology, planetary science and engineering.

Students of the astrophysics major develop a background in theoretical modeling and observational techniques of galactic and stellar astronomy, extragalactic astronomy and cosmology. They learn to think critically about scientific problems by reducing the complexity to more tractable components.

The rigorous and quantitative coursework includes a combination of physics courses taught in the ASU School of Earth and Space Exploration and the Department of Physics. The tools of astronomical discovery are increasingly dependent on technological advances, and students are exposed to engineering principles and computer programming. Through the capstone project in the senior year, students gain valuable experience in translating science drivers into engineering solutions.

In addition to the guidelines in the Concurrent Program Options section below, students interested in pursuing concurrent or second baccalaureate degrees in The College of Liberal Arts and Sciences are advised to visit The College's website for more information and requirements.

At a Glance
• College/School: The College of Liberal Arts and Sciences
• Location: Tempe

• Additional Program Fee: Yes
• Second Language Requirement: No
• First Required Math Course: MAT 270 - Calculus w/Analytic Geometry I
• Math Intensity: Substantial

Required Courses (Major Map)

2023 - 2024 Major Map
Major Map (Archives)

Concurrent Program Options

Students pursuing concurrent degrees (also known as a "double major") earn two distinct degrees and receive two diplomas. Working with their academic advisors, students can create their own concurrent degree combination. Some combinations are not possible due to high levels of overlap in curriculum.

Accelerated Program Options

This program allows students to obtain both a bachelor's and master's degree in as little as five years. It is offered as an accelerated bachelor's plus master's degree with:

- Astrophysics and Astronomy, MS
- Exploration Systems Design (Instrumentation), MS
- Exploration Systems Design (Sensor Networks), MS
- Exploration Systems Design (Systems Engineering), MS
- Exploration Systems Design, MS

Acceptance to the graduate program requires a separate application. Students typically receive approval to pursue the accelerated master's during the junior year of their bachelor's degree program. Interested students can learn about eligibility requirements and how to apply.

Admission Requirements

General University Admission Requirements:
All students are required to meet general university admission requirements.
First-year | Transfer | International | Readmission

Tuition Information
When it comes to paying for college, everyone’s situation is different. Students can learn about ASU tuition and financial aid options to find out which will work best for them.

**Change of Major Requirements**

A current ASU student has no additional requirements for changing majors.

Students should visit the [Change of Major form](#) for information about how to change a major to this program.

**Transfer Options**

ASU is committed to helping students thrive by offering tools that allow personalization of the transfer path to ASU. Students may use [MyPath2ASU®](#) to outline a list of recommended courses to take prior to transfer.

ASU has [transfer partnerships](#) in Arizona and across the country to create a simplified transfer experience for students. These pathway programs include exclusive benefits, tools and resources, and they help students save time and money in their college journey.

**Global Opportunities**

**Global Experience**
Space exploration is an international endeavor, and an international experience provides students opportunities for cross-cultural engagement and improving language and communication skills. [Global Education](#) allows students to take relevant classes while living in another country. Each of the more than 300 Global Education program options provide an opportunity for students to develop a valuable skill set that can give them an advantage in their career and personal enrichment. Whether in a foreign country, in the U.S. or online, Global Education programs encourage students to build communication skills, challenge them to adapt and persevere, expose them to differences across the world and increase their ability to work with diverse groups of people.

**Career Opportunities**

Graduates possess the skills required for a career in astrophysics, physics and related fields. They also are prepared to pursue graduate school in astrophysics or to perform laboratory research or data-intensive analyses that enable scientific progress or inform public policy.

Career opportunities include:

- aerospace engineer
• astrobiologist
• astronomer
• computer programmer
• data analyst
• instrumentation specialist
• planetary scientist
• science policy intern
• science writer
• teacher
• telescope operator

Career settings include:

• federal government
• K-12 schools
• manufacturing
• museums
• NASA facilities
• national laboratories
• NSF facilities
• observatories
• planetariums
• publishing
• space industries
• universities and colleges

Career example titles and salaries listed below are not necessarily entry level, and students should take into consideration how years of experience, geographical location, and required advanced degrees or certifications may affect pay scales.

<table>
<thead>
<tr>
<th>Career</th>
<th>*Growth</th>
<th>*Median Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerospace Engineer 🌟</td>
<td>6.1%</td>
<td>$126,880</td>
</tr>
<tr>
<td>Astronomer</td>
<td>4.6%</td>
<td>$128,330</td>
</tr>
<tr>
<td>Electrical Engineering Professor 🌟</td>
<td>9.3%</td>
<td>$103,550</td>
</tr>
<tr>
<td>Engineering Manager</td>
<td>4.1%</td>
<td>$159,920</td>
</tr>
<tr>
<td>Geology Professor</td>
<td>3.6%</td>
<td>$97,770</td>
</tr>
<tr>
<td>Health Sciences Manager 🌟</td>
<td>4.8%</td>
<td>$144,440</td>
</tr>
<tr>
<td>Physicist</td>
<td>4.7%</td>
<td>$142,850</td>
</tr>
</tbody>
</table>

* Data obtained from the Occupational Information Network (O*NET) under sponsorship of the U.S. Department of Labor/Employment and Training Administration (USDOL/ETA).

☀ Bright Outlook