Earth and Space Exploration (Exploration Systems Design), BS

As an earth and space exploration major, you will be crossing the boundaries of science and engineering while preparing for a new era of exploration. In the exploration systems design concentration you can build space-flight hardware, engineer solutions to explore extreme environments and take a systems-based approach to scientific discovery.

Program Description

The BS program in earth and space exploration with a concentration in exploration systems design offers students a fundamental curriculum in geology, physics and astrophysics while providing tools that enable them to design and build hardware and software to explore Earth and the universe beyond.

The program has a rigorous and quantitative grounding in the fundamentals of physics, mathematics and chemistry. Upon that foundation, students learn how to design hardware and software for scientific exploration. Coursework focuses on conceiving the requirements needed for a mission or project destined for space or extreme environments on Earth.

Each student in this program has the opportunity to learn how projects and missions are designed and planned, starting with the scientific drivers and then defining engineering specifications. All students are expected to complete a senior project that takes a desired scientific measurement and realizes the technological solution to achieve the observation.

Students currently enrolled in the Bachelor of Science in earth and space exploration (exploration systems design) may not pursue a concurrent degree with the BS in earth and space exploration, the BS in earth and space exploration (astrophysics), the BA in earth and environmental studies, the BS in earth and space exploration (astrobiology and biogesciences), or the BS in earth and space exploration (geological sciences) due to the high level of overlap in curriculum. Students should speak with their academic advisor for any further questions.
At a Glance

- **College/School:** The College of Liberal Arts and Sciences
- **Location:** Tempe campus
- **Additional Program Fee:** Yes
- **Second Language Requirement:** No
- **First Required Math Course:** MAT 265 - Calculus for Engineers I
- **Math Intensity:** Substantial

Required Courses (Major Map)

2021 - 2022 Major Map
Major Map (Archives)

Admission Requirements

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

Change of Major Requirements

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

Students should refer to https://changemajor.apps.asu.edu 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 help students save time and money in their college journey. Students may learn more about these programs by visiting the admission site: https://admission.asu.edu/transfer/pathway-programs.
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. Study abroad allows students to take relevant classes while living in another country. Students majoring in earth and space exploration can choose from nearly all of the 250 programs offered to supplement their ASU experience, whether it's stargazing in the desert or researching in Switzerland. [https://goglobal.asu.edu/](https://goglobal.asu.edu/)

Career Opportunities

Career opportunities include:

- astronomer
- geoscientist
- planetary scientist
- science policy intern
- science writer
- scientific instrumentation specialist
- space systems engineer
- systems engineer

Sample career settings include:

- aerospace industry
- federal government
- manufacturing
- NASA centers
- national laboratories
- observatories
- publishers
- space industries
- universities and colleges

Some of the listed careers may require advanced degrees or additional certifications. This program also provides suitable preparation for graduate study.

Career examples include but are not limited to those shown in the following list. Advanced degrees or certifications may be required for academic or clinical positions.

<table>
<thead>
<tr>
<th>Career</th>
<th>*Growth</th>
<th>*Median Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupation</td>
<td>Growth Rate</td>
<td>Salary</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Aerospace Engineer</td>
<td>2.8%</td>
<td>$118,610</td>
</tr>
<tr>
<td>Computer Science Professor</td>
<td>2.6%</td>
<td>$85,540</td>
</tr>
<tr>
<td>Computer Software Quality Engineer</td>
<td>not available</td>
<td></td>
</tr>
<tr>
<td>Computer Systems Architect</td>
<td>5.7%</td>
<td>$92,870</td>
</tr>
<tr>
<td>Electrical Engineering Professor</td>
<td>8.6%</td>
<td>$103,600</td>
</tr>
<tr>
<td>Engineering Manager</td>
<td>2.6%</td>
<td>$149,530</td>
</tr>
<tr>
<td>Supply Chain Engineer</td>
<td>10.1%</td>
<td>$88,950</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 🌿 Green Occupation

Contact Information

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