Earth and Space Exploration (Exploration Systems Design), BS

Earth and space exploration majors are crossing the boundaries of science and engineering while setting the stage for a new era of exploration. Our exploration systems design students are building space-flight hardware, engineering solutions to explore extreme environments and taking a systems-based approach to scientific discovery --- the future of exploration.

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 achieve specified scientific goals.

At the heart of the program is a sound grounding in the fundamentals of physics, mathematics and chemistry. Upon that foundation, students explicitly tackle issues concerning hardware design and instrument assembly and, ultimately, how to knit these components together when conceiving the requirements needed for a mission or project destined for space or another planet.

As part of this degree program, each student 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.

At a Glance

- **College/School:** 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.

  or MAT 270 Calculus with Analytic Geometry I

• **Math Intensity**: Substantial

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**Required Courses (Major Map)**

2018 - 2019 Major Map  
Major Map (Archives)

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**Admission Requirements**

**General University Admission Requirements:**

All students are required to meet general university admission requirements.

Freshman | Transfer | International | Readmission

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**Change of Major Requirements**

A current ASU student has no additional requirements for changing majors. Students should refer to [https://students.asu.edu/changingmajors](https://students.asu.edu/changingmajors) for information about how to change a major to this program.

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**Global Opportunities**

**Global Experience**

With over 250 programs in more than 65 countries (ranging from one week to one year), study abroad is possible for all ASU students wishing to gain global skills and knowledge in preparation for a 21st century career. Students earn ASU credit for completed courses, while staying on track for graduation, and may apply financial aid and scholarships toward program costs. [https://mystudyabroad.asu.edu/](https://mystudyabroad.asu.edu/)

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**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>Aerospace Engineer (🏻)</td>
<td>6.1%</td>
<td>$113,030</td>
</tr>
<tr>
<td>Computer Science Professor</td>
<td>8.1%</td>
<td>$78,630</td>
</tr>
<tr>
<td>Computer Software Quality Engineer</td>
<td>9.3%</td>
<td>$88,510</td>
</tr>
<tr>
<td>Computer System Architect</td>
<td>9.3%</td>
<td>$88,510</td>
</tr>
<tr>
<td>Electrical Engineering Professor ( (${})</td>
<td>14.6%</td>
<td>$98,360</td>
</tr>
<tr>
<td>Engineering Manager (🏻)</td>
<td>5.5%</td>
<td>$137,720</td>
</tr>
<tr>
<td>Supply Chain Engineer (🏻)</td>
<td>6.4%</td>
<td>$97,250</td>
</tr>
</tbody>
</table>
Bright Outlook  Green Occupation

Contact Information

Schedule an advisor appointment
School of Earth and Space Exploration | ISTB4 795
sese-advising@asu.edu | 480-965-5081