# 2018 - 2019 Major Map

## Earth and Space Exploration ( Exploration Systems Design), BS

**School/College:** The College of Liberal Arts and Sciences  
**Location:** Tempe campus  
**LASESESDBS**

### Term 1 0 - 15 Credit Hours

<table>
<thead>
<tr>
<th>Critical course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
</table>
| MAT 265: Calculus for Engineers I (MA) | 3 | C | ![Image](https://example.com/)
| ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition | 3 | C | ![Image](https://example.com/)
| LIA 101: Student Success in the College of Liberal Arts and Sciences | 1 |   | ![Image](https://example.com/)
| SES 100: Introduction to Exploration (CS) | 3 | C | ![Image](https://example.com/)
| SES 121: Earth, Solar System and Universe (SQ) AND SES 123: Earth, Solar System and Universe Laboratory (SQ) | 4 | C | ![Image](https://example.com/)
| SES 191: Exploring SESE | 1 | C | ![Image](https://example.com/)

**Term hours subtotal:** 15

- An SAT, ACT, Accuplacer, IELTS, or TOEFL score determines placement into first-year composition courses.
- Mathematics Placement Assessment score determines placement in mathematics course.
- LIA 101 is mandatory for all incoming freshmen.
- Both Calculus for Engineers I, II and III (MAT 265/266/267) and Calculus with Analytic Geometry I, II and III (MAT 270/271/272) are acceptable sequences for satisfying the calculus requirements in all Earth and Space Exploration majors.
- SESE requires freshmen and sophomores to seek faculty mentoring at least once during the academic year. Each student will be assigned a SESE faculty mentor. Students can find their faculty mentor on the [SESE advising website](https://example.com).
- Select your career interest area and play me3@ASU.

### Term 2 15 - 30 Credit Hours

<table>
<thead>
<tr>
<th>Critical course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
</table>
| MAT 266: Calculus for Engineers II (MA) | 3 | C | ![Image](https://example.com/)
| PHY 121: University Physics I: Mechanics (SQ) AND PHY 122: University Physics Laboratory I (SQ) | 4 | C | ![Image](https://example.com/)
| ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition | 3 | C | ![Image](https://example.com/)
| SES 122: History of the Earth and Solar System AND SES 124: History of the Earth and Solar System Laboratory OR SES 126: Exploration of the Universe AND SES 128: Exploration of the Universe Lab | 4 | C | ![Image](https://example.com/)
| Elective | 1 |   | ![Image](https://example.com/)
| Complete ENG 101 OR ENG 105 OR ENG 107 course(s). |   |   | ![Image](https://example.com/)
| Milestone: Complete SESE faculty mentoring. |   |   | ![Image](https://example.com/)

**Term hours subtotal:** 15

- Both Calculus for Engineers I, II and III (MAT 265/266/267) and Calculus with Analytic Geometry I, II and III (MAT 270/271/272) are acceptable sequences for satisfying the calculus requirements in all Earth and Space Exploration majors.
- SESE requires freshmen and sophomores to seek faculty mentoring at least once during the academic year. Each student will be assigned a SESE faculty mentor. Students can find their faculty mentor on the [SESE advising website](https://example.com).
- Join a student club or professional organization.

### Term 3 30 - 46 Credit Hours

<table>
<thead>
<tr>
<th>Critical course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
</table>
| MAT 267: Calculus for Engineers III (MA) | 3 | C | ![Image](https://example.com/)
| MAT 275: Modern Differential Equations (MA) | 3 | C | ![Image](https://example.com/)

- Both Calculus for Engineers I, II and III (MAT 265/266/267) and Calculus with Analytic Geometry I, II and III (MAT 270/271/272) are acceptable sequences for satisfying the calculus requirements in all Earth and Space Exploration majors.
- SESE requires freshmen and sophomores to seek faculty mentoring at least once during the academic year. Each student will be assigned a SESE faculty mentor. Students can find their faculty mentor on the [SESE advising website](https://example.com).
- Select your career interest area and play me3@ASU.
PHY 131: University Physics II: Electricity and Magnetism (SQ)  
AND PHY 132: University Physics Laboratory II (SQ)  
Humanities, Arts and Design (HU) AND Historical Awareness (H)  
Elective  
Complete First-Year Composition requirement.  
Complete Mathematics (MA) requirement.  
Term hours subtotal: 16

Term 4 46 - 60 Credit Hours Critical course signified by ☀

EEE 202: Circuits I  
MAE 201: Mechanics of Particles and Rigid Bodies I: Statics  
CHM 114: General Chemistry for Engineers (SQ)  
Humanities, Arts and Design (HU)  
Milestone: Complete SESE faculty mentoring.

Term hours subtotal: 14

Term 5 60 - 76 Credit Hours Necessary course signified by ★

★ SES 330: Practical Electronics and Instrumentation  
★ SES 350: Engineering Systems and Experimental Problem Solving  
CLAS Science and Society Elective  
Literacy and Critical Inquiry (L)  
Social-Behavioral Sciences (SB) AND Global Awareness (G)

Term hours subtotal: 16

Term 6 76 - 91 Credit Hours Necessary course signified by ★

★ SES 405: Exploration Systems Engineering  
Upper Division Exploration Systems Design Concentration Elective  
Upper Division CLAS Science and Society Elective  
Upper Division Literacy and Critical Inquiry (L)  
Social-Behavioral Sciences (SB) AND Cultural Diversity in the U.S. (C)  
Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s).

Term hours subtotal: 15

Term 7 91 - 106 Credit Hours Necessary course signified by ★

★ SES 410: Senior Exploration Project I  
Upper Division Humanities, Arts and Design (HU) OR Upper Division Social-Behavioral Sciences (SB)  
Upper Division Elective OR AST 484: Internship OR GLG 484: Internship OR SES 499: Individualized Instruction  
Complete 2 courses:  
Upper Division Elective

Term hours subtotal: 15

Term hours subtotal: 15

Term hours subtotal: 15

Term hours subtotal: 15

Term hours subtotal: 15

270/271/272) are acceptable sequences for satisfying the calculus requirements in all Earth and Space Exploration majors.

- SESE requires freshmen and sophomores to seek faculty mentoring at least once during the academic year. Each student will be assigned a SESE faculty mentor. Students can find their faculty mentor on the SESE advising website.
- Develop your skills.

- SESE requires freshmen and sophomores to seek faculty mentoring at least once during the academic year. Each student will be assigned a SESE faculty mentor. Students can find their faculty mentor on the SESE advising website.

- Students should start meeting with faculty advisor to discuss research opportunities.
- To access the requirements and the list of approved courses for Science and Society, click here.

- Students interested in graduate school should be researching programs and preparing application materials. Continue to meet with faculty advisor for input along the way.
- Students should meet with an advisor to do a graduation check.
- To access the requirements and the list of approved courses for Science and Society, click here.

- Explore an internship. In order to earn credits for an internship, students should work with their SESE advisor for approval. Students who hope to go to graduate school should consider getting involved in research. Students can talk to faculty mentors about how to find research opportunities.
- Continue to meet with faculty advisor for input along the way.
Notes:

- Please keep in mind that the applicability of a specific transfer course toward an ASU degree program depends on the requirements of the department, division, college or school in which you are enrolled at ASU. Transfer agreements that guarantee the completion of university level requirements do not necessarily meet college and major requirements. Please consult with an advisor for more information.

- Students interested in graduate school should be researching programs and preparing application materials.
- If not already completed, students should meet with an advisor to do a graduation check.

### General University Requirements Legend

- **General Studies Core Requirements:**
  - Literacy and Critical Inquiry (L)
  - Mathematical Studies (MA)

### Exploration Systems Design Concentration Elective

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SES 411: Senior Exploration Project II</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Complete 3 courses:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Division Elective</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Term hours subtotal: 14

- All students pursuing a B.S. or B.S.P. degree in the College of Liberal Arts and Sciences must complete two courses from the Science and Society list found at https://clas.asu.edu/resources/science-society. At least one of the two courses must be upper division. Students must earn a C or better in the courses, and no more than one of the two can also be used to simultaneously fill a requirement of the major, minor or related area. Science and Society courses cannot also be used to fill the general studies HU, SB, SQ or SG requirements.

Hide Course List(s)/Track Group(s)

<table>
<thead>
<tr>
<th>Exploration Systems Design Concentration Elective</th>
</tr>
</thead>
<tbody>
<tr>
<td>AST 321: Introduction to Planetary and Stellar Astrophysics (SQ)</td>
</tr>
<tr>
<td>AST 322: Introduction to Galactic and Extragalactic Astrophysics (SQ)</td>
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<tr>
<td>GLG 321: Mineralogy</td>
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<tr>
<td>GLG 404: Fundamentals of Planetary Geology</td>
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<tr>
<td>GLG 424: Petrology</td>
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<tr>
<td>GLG 471: Hydrology</td>
</tr>
<tr>
<td>SES 311: Essentials of Astrobiology: Exploration for Life in the Universe</td>
</tr>
</tbody>
</table>

Notes:

- Please keep in mind that the applicability of a specific transfer course toward an ASU degree program depends on the requirements of the department, division, college or school in which you are enrolled at ASU. Transfer agreements that guarantee the completion of university level requirements do not necessarily meet college and major requirements. Please consult with an advisor for more information.

**Total Hours:** 120

**Upper Division Hours:** 45 minimum

**Major GPA:** 2.00 minimum

**Cumulative GPA:** 2.00 minimum
General Studies Awareness Requirements:

- Cultural Diversity in the U.S. (C)
- Global Awareness (G)
- Historical Awareness (H)

First-Year Composition

General Studies designations listed on the major map are current for the 2018 - 2019 academic year.