







2024 - 2025 Major Map

Earth and Space Exploration (Astrobiology and Biogeosciences), BS

School/College: [The College of Liberal Arts and Sciences](#)
LASESABBS

Term 1 0 - 14 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 Mathematics (MATH)	3	C	<ul style="list-style-type: none"> Students who place into MAT 265 should take the course in term 1 to complete the MA requirement. ASU 101 or college-specific equivalent First-Year Seminar required of all first-year students. SESE will accept Calculus with Analytic Geometry I, II and III (MAT 270/271/272) in place of MAT 265/266/267. SESE majors are strongly encouraged to meet with their faculty mentor at least once during their first and second year. Students can find their faculty mentor on the SESE advising website. Select your Career Interest Communities and play me3@ASU. Activate your Handshake account and build out your profile.
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	
LIA 101: Student Success in The College of Liberal Arts and Sciences	1		
SES 121: Earth, Solar System and Universe (SCIT OR SQ) AND SES 123: Earth, Solar System and Universe Laboratory (SCIT OR SQ)	4	C	
Social and Behavioral Sciences (SOBE)	3		
Term hours subtotal:	14		

Term 2 14 - 28 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 CHM 113: General Chemistry I (SCIT OR SQ)	4	C	<ul style="list-style-type: none"> Students in this major have a choice between taking SES 122/SES 124 or SES 126/SES 128 in their second semester. SES 122/124 has an earth-based focus and SES 126/128 has a space-based focus. Students interested in exoplanets and the potential for life on other worlds should take SES 126/SES 128. Students interested in life in extreme environments and the origins of life should take SES 122/SES 124. SESE will accept Calculus with Analytic Geometry I, II and III (MAT 270/271/272) in place of MAT 265/266/267. SESE majors are strongly encouraged to meet with their faculty mentor at least once during their first and second year. Students can find their faculty mentor on the SESE advising website. Join a student club or professional organization. Create a first draft resume.
 MAT 265: Calculus for Engineers I (MATH OR MA)	3	C	
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	
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	
 Complete ENG 101 OR ENG 105 OR ENG 107 course(s).			
Milestone: Complete SESE faculty mentoring.			
Term hours subtotal:	14		

Term 3 28 - 42 Credit Hours Critical course signified by ⚠	Hours	Minimum Grade	Notes
⚠ CHM 116: General Chemistry II (SCIT OR SQ)	4	C	<ul style="list-style-type: none"> • SESE will accept Calculus with Analytic Geometry I, II and III (MAT 270/271/272) in place of MAT 265/266/267. • SESE majors are strongly encouraged to meet with their faculty mentor at least once during their first and second year. Students can find their faculty mentor on the SESE advising website. • Develop your skills.
⚠ MAT 266: Calculus for Engineers II (MATH OR MA)	3	C	
BIO 181: General Biology I (SCIT OR SQ)	4	C	
Humanities, Arts and Design (HUAD)	3		
⚠ Complete First-Year Composition requirement.			
Complete Mathematics (MATH) requirement.			
Term hours subtotal:	14		

Term 4 42 - 59 Credit Hours Critical course signified by ⚠	Hours	Minimum Grade	Notes
⚠ MAT 267: Calculus for Engineers III (MATH OR MA) OR STP	3	C	<ul style="list-style-type: none"> • SESE will accept Calculus with Analytic Geometry I, II and III (MAT 270/271/272) in place of MAT 265/266/267. • SESE majors are strongly encouraged to meet with their faculty mentor at least once during their first and second year. Students can find their faculty mentor on the SESE advising website. • Explore an internship.
231: Statistics for Life Science (QTRS OR CS)			
BIO 182: General Biology II (SCIT OR SG)	4	C	
PHY 121: University Physics I: Mechanics (SCIT OR SQ) AND	4	C	
PHY 122: University Physics Laboratory I (SCIT OR SQ)			
Science and Society Elective	3	C	
Humanities, Arts and Design (HUAD)	3		
Milestone: Complete SESE faculty mentoring.			
Term hours subtotal:	17		

Term 5 59 - 76 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ GLG 321: Mineralogy	3	C	<ul style="list-style-type: none"> • Students should start meeting with faculty to discuss research opportunities. • Students who took STP 231 instead of MAT 267 should take PHY 112/114 instead of PHY 131/132.
BIO 340: General Genetics	4	C	
PHY 131: University Physics II: Electricity and Magnetism (SCIT OR SQ) AND PHY 132: University Physics Laboratory II (SCIT OR SQ) OR PHY 112: General Physics (SCIT OR SQ) AND PHY	4	C	
114: General Physics Laboratory (SCIT OR SQ)			
SES 350: Engineering Systems and Experimental Problem Solving (QTRS OR CS)	3		
Sustainability (SUST)	3		
Term hours subtotal:	17		

Term 6 76 - 91 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ GLG 481: Geochemistry	3	C	<ul style="list-style-type: none"> • Explore a research or internship opportunity. In order to earn credits for research or 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 should talk to faculty mentors about how to find research opportunities. • Use Handshake to research employment opportunities. • Students interested in graduate school should be researching programs and preparing application materials. Continue to meet with faculty for input along the way. • Students should meet with an advisor to do a graduation check.
BIO 345: Evolution	3	C	
SES 311: Essentials of Astrobiology: Exploration for Life in the Universe	3	C	
Upper Division Astrobiology & Biogeosciences Major Elective	3	C	
Global Communities, Societies and Individuals (GCSI)	3		
Term hours subtotal:	15		

Term 7 91 - 106 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
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★ SES 410: Senior Exploration Project I	3	C
Upper Division Astrobiology & Biogeosciences Major Elective	3	C
Governance and Civic Engagement (CIVI)	3	
Upper Division Science and Society Elective	3	C
Upper Division Elective OR SES 484: Internship OR SES 499: Individualized Instruction	3	
Term hours subtotal:	15	

- Students interested in graduate school should be researching programs and preparing application materials. Continue to meet with faculty for input along the way.
- Apply for full-time career opportunities.
- If not already completed, students should meet with an advisor to do a graduation check.

Term 8 106 - 120 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ SES 411: Senior Exploration Project II	3	C	
Upper Division Astrobiology & Biogeosciences Major Elective	3	C	
American Institutions (AMIT)	3		
Complete 2 courses:	5		
Upper Division Elective			
Term hours subtotal:	14		

- All students pursuing a BS or BSP degree in The College of Liberal Arts and Sciences must complete two courses from the Science and Society list found at <https://thecollege.asu.edu/student-resources/science-society>. At least one of the two courses must be upper division and students must earn a C or better in the courses. Both Science and Society courses (i.e., all six credits) may count towards any major, minor, related fields, and ASU General Studies requirements.

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

Upper Division Astrobiology & Biogeosciences Major Electives
AST 321: Stellar and Planetary Astrophysics
BIO 320: Fundamentals of Ecology
GLG 404: Fundamentals of Planetary Geology
GLG 430: Paleontology
GLG 435: Sedimentology and Stratigraphy
GLG 460: Astrobiology
GLG 461: Geomicrobiology
GLG 485: Meteorites and Cosmochemistry
GLG 489: Field Geochemistry (L)
GLG 490: Remote Sensing
SES 350: Engineering Systems and Experimental Problem Solving (QTRS OR CS)
SES 421: Foundations of Planetary Science

- **Total Hours:** 120
- **Upper Division Hours:** 45 minimum
- **University Undergraduate Graduation Requirements**

Notes:

Mathematics Placement Assessment score determines placement in first mathematics course.

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.

General Studies designations listed next to courses on the major map were valid for the 2024 - 2025 academic year. Please refer to the course catalog for current General Studies designations at time of class registration. General Studies credit is applied according to the designation the course carries at the time the class is taken.