2024 - 2025 Major Map
Earth and Environmental Sciences, BS

School/College: The College of Liberal Arts and Sciences
LAEESBS

Term 1 0 - 14 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes
GLG 110: Dangerous World (SCIT OR SQ & G) AND GLG 111: Dangerous World Laboratory (SCIT OR SQ)	4	C	• If students don't place into MAT 251, 265, or 270, they should enroll in the appropriate math prerequisite course in Term 1. • ASU 101 or college-specific equivalent First-Year Seminar required of all first-year students. • SESE majors are strongly encouraged to seek faculty mentoring at least once during their first and second year. Students can find their faculty mentor on the SESE advising website. • Select your career interest area 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		
Governance and Civic Engagement (CIVI)	3		
Mathematics (MATH)	3	C	
Term hours subtotal:	14		

Term 2 14 - 28 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes
MAT 251: Calculus for Life Sciences (MATH OR MA) OR MAT 265: Calculus for Engineers I (MATH OR MA) OR MAT 270: Calculus with Analytic Geometry I (MATH OR MA)	3-4	C	• SESE majors are strongly encouraged to seek faculty mentoring 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.
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	
GLG 108: Water Planet (SCIT OR SQ)	4	C	
PHY 101: Introduction to Physics (SCIT OR SQ) OR PHY 111: General Physics (SCIT OR SQ) AND PHY 113: General Physics Laboratory (SCIT OR SQ)	4	C	
Complete ENG 101 OR ENG 105 OR ENG 107 course(s).			
Milestone: Complete SESE faculty mentoring.			
Term hours subtotal:	14-15		

Term 3 28 - 44 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes
CHM 113: General Chemistry I (SCIT OR SQ)	4	C	• If students choose to take STP 231 for their statistics requirement, they will not need an additional Quantitative Reasoning (QTRS) course. Students can take an elective instead. • SESE majors are strongly encouraged to seek faculty
SES 220: Biology of a Changing Earth	3	C	
STP 231: Statistics for Life Science (QTRS OR CS) OR GIS 270: Statistics for Geography and Planning	3	C	

	Science and Society Elective	3	C
	Quantitative Reasoning (QTRS)	3	
!	Complete First-Year Composition requirement.		
!	Complete Mathematics (MATH) requirement.		
	Term hours subtotal:	16	

- mentoring at least once during their first and second year. Students can find their faculty mentor on the SESE advising website.
- Develop your skills.

Term 4 44 - 60 Credit Hours Critical course signified by !	**Hours**	**Minimum Grade**	**Notes**
! CHM 116: General Chemistry II (SCIT OR SQ)	4	C	• SESE majors are strongly encouraged to seek faculty mentoring at least once during their first and second year. Students can find their faculty mentor on the SESE advising website. • Explore an internship.
SES 225: Global Biogeochemical Cycles	3	C	
Global Communities, Societies and Individuals (GCSI)	3		
Humanities, Arts and Design (HUAD)	3		
Social and Behavioral Sciences (SOBE)	3		
Milestone: Complete SESE faculty mentoring.			
Term hours subtotal:	16		

Term 5 60 - 75 Credit Hours Necessary course signified by ★	**Hours**	**Minimum Grade**	**Notes**
★ CHM 231: Elementary Organic Chemistry (SCIT OR SQ) OR CHM 233: General Organic Chemistry I	3	C	• Students are strongly encouraged to meet with SESE faculty advisors to discuss career options.
GLG 325: Oceanography	3	C	
Upper Division Science and Society Elective	3	C	
Humanities, Arts and Design (HUAD)	3		
Elective	3		
Term hours subtotal:	15		

Term 6 75 - 90 Credit Hours Necessary course signified by ★	**Hours**	**Minimum Grade**	**Notes**
★ GLG 305: Dynamic Earth	3	C	• Students have a choice between ERM 406 or CHM 302. Currently, ERM 406 is a spring course only and CHM 302 is a fall course only. If a student wishes to take CHM 302, they should plan to take it in Term 7 and move one of their Term 7 courses to Term 6, such as one of the EES Major Track Electives or their Sustainability (SUST) course. • For the Earth and Environmental Studies Track Electives, students are encouraged to choose a track but they also have the option to choose any combination of courses across multiple tracks.
ERM 406: Environmental Chemistry OR CHM 302: Environmental Chemistry	3	C	
Complete 2 courses: Upper Division Earth and Environmental Sciences (EES) Major Track Electives	6	C	
Upper Division Elective	3		
Term hours subtotal:	15		

- The list of approved major track electives along with their prerequisites may be viewed on the SESE website.
- Research career opportunities.
- Students should meet with an advisor to do a graduation check.

Term 7 90 - 105 Credit Hours Necessary course signified by ★		Hours	Minimum Grade	Notes
★	GLG 327: Earth's Critical Zone	3	C	• If not already completed, students should meet with an advisor to do a graduation check. • For the Earth and Environmental Studies Track Electives, students are encouraged to choose a track but they also have the option to choose any combination of courses across multiple tracks. Regardless of the chosen track, at least two of the Earth and Environmental Studies Track Electives must be 400-level. • 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. • Use Handshake to research employment opportunities. • The list of approved major track electives along with their prerequisites may be viewed on the SESE website.
	Complete 2 courses: 4** (400-level) Earth and Environmental Sciences (EES) Major Track Electives	6	C	
	Sustainability (SUST)	3		
	Upper Division Elective	3		
	Term hours subtotal:	15		

Term 8 105 - 120 Credit Hours Necessary course signified by ★		Hours	Minimum Grade	Notes
★	GLG 464: Solving Environmental Problems	3	C	• The list of approved major track electives along with their prerequisites may be viewed on the SESE website.
	American Institutions (AMIT)	3		
	Complete 3 courses: Upper Division Elective	9		
	Term hours subtotal:	15		

- 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.
- For the Earth and Environmental Studies Track Electives, students are encouraged to choose a track but they also have the option to choose any combination of courses across multiple tracks. Regardless of the chosen track, at least two of the Earth and Environmental Studies Track Electives must be 400-level.
- Each of the focused tracks has overlap with a related certificate program that students can choose to pursue along with the chosen track. Students should discuss this option and how to add a certificate with their academic advisor.
- Students interested in further study in the field of sustainability are encouraged to speak with their academic advisor and contact the College of Global Futures about additional program opportunities.

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

Earth and Environmental Sciences General Elective Track

This track includes all of the courses in the following tracks: 1) Climate/Environmental Change, 2) Earth Resources, 3) Environmental Education, 4) Environmental Management, 5) Environmental Policy and 6) Sustainability. While students are encouraged to pick a focused track, students may choose not to focus on one of the above tracks and may select courses across multiple tracks. Regardless of the chosen track, at least two of the courses must be 400-level.

Climate/Environmental Change Track

- ABS 350: Applied Statistics (QTRS OR CS)
- ASB 326: Human Impacts on Ancient Environments (SUST OR SB & H)
- ASB 375: Humans and the Environment: What's the Connection? ((L or SB) & G) or SOS 375: Humans and the Environment: What's the Connection? ((L or SB) & G)
- ERM 426: Environmental Issues
- ERM 428: International Environmental Management (G)
- FIS 444: Environment and Justice (L & C) or JUS 444: Environment and Justice (L & C)
- GIS 470: Advanced Statistics for Geography and Planning (QTRS OR CS)
- GLG 362: Geomorphology
- GLG 435: Sedimentology and Stratigraphy
- GLG 470: Hydrogeology
- GPH 314: Global Change (SUST OR HU & G)
- GPH 414: Climate Change (SUST OR G)
- JUS 332: Politics of Energy Policy and Justice
- PUP 442: Environmental Planning
- SOS 314: Basic Energy Science
- SOS 320: Society and Sustainability (SOBE OR L or SB)
- SOS 324: Sustainable Energy Technology and Systems
- SOS 326: Sustainable Ecosystems
- SOS 444: Climate Change, Society and Sustainability
- STP 420: Introductory Applied Statistics (QTRS OR CS)

Earth Resources Track

- ABS 350: Applied Statistics (QTRS OR CS)
- ERM 428: International Environmental Management (G)
- GCU 364: Energy in the Global Arena
- GIS 311: Geographic Information Science III (QTRS OR CS)
- GIS 322: Programming Principles in GIS II
- GIS 341: Cartography and Georepresentation (QTRS OR CS)
- GIS 470: Advanced Statistics for Geography and Planning (QTRS OR CS)
- GLG 301: Earth Science in Arizona and the Southwest or SOS 372: Earth Science in Arizona and the Southwest
- GLG 304: Minerals, Energy, and Society or SOS 373: Minerals, Energy, and Society
- GLG 310: Structural Geology
- GLG 321: Mineralogy
- GLG 424: Petrology
- GLG 435: Sedimentology and Stratigraphy
- GLG 441: Ore Deposits
- GLG 470: Hydrogeology
- GPH 314: Global Change (SUST OR HU & G)
- GPH 381: Geography of Natural Resources (SUST OR G)
- GPH 414: Climate Change (SUST OR G)
- PUP 442: Environmental Planning
- SOS 320: Society and Sustainability (SOBE OR L or SB)
- SOS 324: Sustainable Energy Technology and Systems
- SOS 325: The Economics of Sustainability
- STP 420: Introductory Applied Statistics (QTRS OR CS)

Environmental Education Track

- ABS 302: Ethical and Policy Issues in Biology
- BIO 324: Environmental Ethics (SUST OR HU) or PHI 310: Environmental Ethics (SUST OR HU)
- ENG 371: Rhetoric of the Environmental Movement

Environmental Management Track

- ABS 350: Applied Statistics (QTRS OR CS)
- BIO 324: Environmental Ethics (SUST OR HU) or PHI 310: Environmental Ethics (SUST OR HU)
- BIO 412: Conservation in Practice

Environmental Policy Track

- ABS 302: Ethical and Policy Issues in Biology
- ABS 350: Applied Statistics (QTRS OR CS)
- BIO 324: Environmental Ethics (SUST OR HU) or PHI 310: Environmental Ethics (SUST OR HU)

ERM 426: Environmental Issues

FIS 444: Environment and Justice (L & C) or JUS 444: Environment and Justice (L & C)

GIS 470: Advanced Statistics for Geography and Planning (QTRS OR CS)

GPH 314: Global Change (SUST OR HU & G)

GPH 381: Geography of Natural Resources (SUST OR G)

GPH 414: Climate Change (SUST OR G)

JUS 332: Politics of Energy Policy and Justice

JUS 456: Human Rights and Sustainability ((L or SB) & G) or SOS 456: Human Rights and Sustainability ((L or SB) & G)

POS 300: Contemporary Global Controversies (GCSI OR SB & G)

PUP 442: Environmental Planning

SCN 300: Foundations of Environmental Education

SCN 302: Environmental Education: A Global Perspective (SUST OR L & G)

SCN 307: Biomimicry: Nature's Sustainable Solutions (SUST OR G)

SCN 308: Urban Environmental Education

SCN 310: Biodiversity Conservation: An Educational Inquiry

SCN 401: Sustainability Science, Technology, and Society

SOS 444: Climate Change, Society and Sustainability

STP 420: Introductory Applied Statistics (QTRS OR CS)

CEE 400: Earth Systems Engineering and Management (SUST OR (L or HU) & H)

ERM 426: Environmental Issues

ERM 428: International Environmental Management (G)

GIS 311: Geographic Information Science III (QTRS OR CS)

GIS 322: Programming Principles in GIS II

GIS 341: Cartography and Georepresentation (QTRS OR CS)

GIS 470: Advanced Statistics for Geography and Planning (QTRS OR CS)

GLG 304: Minerals, Energy, and Society or SOS 373: Minerals, Energy, and Society

GLG 362: Geomorphology

GLG 470: Hydrogeology

GPH 314: Global Change (SUST OR HU & G)

GPH 381: Geography of Natural Resources (SUST OR G)

GPH 414: Climate Change (SUST OR G)

HST 345: Environmental History (SUST OR L)

POS 300: Contemporary Global Controversies (GCSI OR SB & G)

PUP 301: Introduction to Urban Planning (L)

PUP 442: Environmental Planning

STP 420: Introductory Applied Statistics (QTRS OR CS)

BIO 412: Conservation in Practice

ENG 371: Rhetoric of the Environmental Movement

ERM 426: Environmental Issues

ERM 428: International Environmental Management (G)

FIS 334: Science, Technology and Inequality (GCSI OR C) or JUS 334: Science, Technology and Inequality (GCSI OR C)

FIS 444: Environment and Justice (L & C) or JUS 444: Environment and Justice (L & C)

GIS 470: Advanced Statistics for Geography and Planning (QTRS OR CS)

GPH 314: Global Change (SUST OR HU & G)

GPH 414: Climate Change (SUST OR G)

HST 345: Environmental History (SUST OR L)

JUS 332: Politics of Energy Policy and Justice

POS 300: Contemporary Global Controversies (GCSI OR SB & G)

PUP 442: Environmental Planning

SOC 331: Environmental Sociology (SUST OR SB & G)

SOS 315: Energy Policy

SOS 320: Society and Sustainability (SOBE OR L or SB)

SOS 321: Policy and Governance in Sustainable Systems

SOS 323: Sustainable Urban Dynamics

SOS 324: Sustainable Energy Technology and Systems

SOS 444: Climate Change, Society and Sustainability

STP 420: Introductory Applied Statistics (QTRS OR CS)

Sustainability Track

ABS 350: Applied Statistics (QTRS OR CS)

ASB 326: Human Impacts on Ancient Environments (SUST OR SB & H)

FIS 444: Environment and Justice (L & C) or JUS 444: Environment and Justice (L & C)

GCU 364: Energy in the Global Arena

GIS 470: Advanced Statistics for Geography and Planning (QTRS OR CS)

GLG 304: Minerals, Energy, and Society or SOS 373: Minerals, Energy, and Society

GPH 314: Global Change (SUST OR HU & G)

GPH 414: Climate Change (SUST OR G)

HST 345: Environmental History (SUST OR L)

JUS 332: Politics of Energy Policy and Justice

JUS 456: Human Rights and Sustainability ((L or SB) & G) or SOS 456: Human Rights and Sustainability ((L or SB) & G)

PUP 442: Environmental Planning

SCN 401: Sustainability Science, Technology, and Society

SOS 300: Advanced Concepts and Integrated Approaches in Sustainability

SOS 310: Equity, Justice and Sustainability

SOS 314: Basic Energy Science

SOS 315: Energy Policy

SOS 320: Society and Sustainability (SOBE OR L or SB)

SOS 321: Policy and Governance in Sustainable Systems

SOS 323: Sustainable Urban Dynamics

SOS 324: Sustainable Energy Technology and Systems

SOS 325: The Economics of Sustainability

SOS 326: Sustainable Ecosystems

SOS 327: Sustainable Food & Farms

SOS 444: Climate Change, Society and Sustainability

STP 420: Introductory Applied Statistics (QTRS OR CS)

- **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.