







2023 - 2024 Major Map

Earth and Environmental Sciences, BA



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



This program's name has changed effective Fall 2024. The previous name was Earth and Environmental Studies.




Term 1 0 - 14 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 Mathematics (MA)	3	C	<ul style="list-style-type: none"> Students who place into MAT 170 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 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	
GLG 110: Dangerous World (SQ & G) AND GLG 111: Dangerous World Laboratory (SQ)	4	C	
LIA 101: Student Success in The College of Liberal Arts and Sciences	1		
Social-Behavioral Sciences (SB) AND Global Awareness (G)	3		
Term hours subtotal:	14		
Term 2 14 - 28 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
MAT 170: Precalculus (MA) OR MAT 210: Brief Calculus (MA)  OR MAT 251: Calculus for Life Sciences (MA) OR MAT 265: Calculus for Engineers I (MA) OR MAT 270: Calculus with Analytic Geometry I (MA)	3-4	C	<ul style="list-style-type: none"> ASU Language Placement: Only true beginners are eligible for 101-level courses. All other students are required to take a placement exam, regardless of prior credit earned. 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 (SQ)	4	C	
Second Language: Requirement satisfied through the following: * Completion of a language course at the intermediate level (202 or equivalent), including American Sign Language IV.	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 - 42 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
CHM 107: Chemistry and Society (SQ) AND CHM 108: Chemistry and Society Laboratory (SQ) OR CHM 101: Introductory Chemistry (SQ) OR CHM 113: General Chemistry I (SQ) OR CHM 114: General Chemistry for Engineers (SQ)	4	C	<ul style="list-style-type: none"> 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.
GIS 205: Geographic Information Science I (CS)	3	C	

SES 220: Biology of a Changing Earth	3	C
Second Language: Requirement satisfied through the following:		
* Completion of a language course at the intermediate level (202 or equivalent), including American Sign Language IV.	4	C
Complete First-Year Composition requirement.		
Complete Mathematics (MA) requirement.		
Term hours subtotal:	14	

- Develop your **skills**.

Term 4 42 - 58 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 STP 231: Statistics for Life Science (CS) OR GIS 270: Statistics for Geography and Planning OR STP 226: Elements of Statistics (CS)	3	C	<ul style="list-style-type: none"> • 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	
Second Language: Requirement satisfied through the following:			
* Completion of a language course at the intermediate level (202 or equivalent), including American Sign Language IV.	4	C	
Literacy and Critical Inquiry (L)	3		
Social-Behavioral Sciences (SB) AND Historical Awareness (H)	3		
Milestone: Complete SESE faculty mentoring.			
Term hours subtotal:	16		

Term 5 58 - 74 Credit Hours Necessary course signified by 	Hours	Minimum Grade	Notes
 GLG 325: Oceanography	3	C	<ul style="list-style-type: none"> • Students are strongly encouraged to meet with SESE faculty advisors to discuss career options.
Second Language: Requirement satisfied through the following:			
* Completion of a language course at the intermediate level (202 or equivalent), including American Sign Language IV.	4	C	
Humanities, Arts and Design (HU) AND Cultural Diversity in the U.S. (C)	3		
Upper Division Elective	3		
Elective	3		
Term hours subtotal:	16		

Term 6 74 - 89 Credit Hours Necessary course signified by 	Hours	Minimum Grade	Notes
 GLG 305: Dynamic Earth	3	C	<ul style="list-style-type: none"> • Research career opportunities. • The list of approved major track electives along with their prerequisites may be viewed on the SESE website. At least two of the major track electives must be 400-level. • Students should meet with an advisor to do a graduation check.
Complete 2 courses:			
Upper Division Earth and Environmental Studies (EES) Major Track Electives	6	C	
Humanities, Arts and Design (HU)	3		
Upper Division Elective	3		
 Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s).			
Term hours subtotal:	15		

Term 7 89 - 104 Credit Hours Necessary course signified by 	Hours	Minimum Grade	Notes
 GLG 327: Earth's Critical Zone	3	C	<ul style="list-style-type: none"> • If not already completed, students should meet with an advisor to do a graduation check. • 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.
Complete 2 courses:			
Upper Division Earth and Environmental Studies (EES) Major Track Electives	6	C	
Upper Division Literacy and Critical Inquiry (L)	3		
Upper Division Elective OR SES 484: Internship OR SES 499: Individualized Instruction	3		
Term hours subtotal:	15		

- Use Handshake to research **employment opportunities**.
- The list of approved major track electives along with their prerequisites may be viewed on the **SESE website**. At least two of the major track electives must be 400-level.

Term 8 104 - 120 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ GLG 464: Solving Environmental Problems	3	C	<ul style="list-style-type: none"> • The list of approved major track electives along with their prerequisites may be viewed on the SESE website. At least two of the major track electives must be 400-level.
Upper Division Earth and Environmental Studies (EES) Major Track Electives	3	C	
Upper Division Humanities, Arts and Design (HU) OR Upper Division Social-Behavioral Sciences (SB)	3		
Upper Division Elective	3		
Complete 2 courses:	4		
Elective			
Term hours subtotal:		16	

- 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.

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

Earth and Environmental Studies General Elective Track	Climate/Environmental Change Track	Earth Resources Track
<p>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. Of the five major elective courses required, at least two of the courses must be 400-level.</p>	ABS 350: Applied Statistics (CS)	ABS 350: Applied Statistics (CS)
	ASB 326: Human Impacts on Ancient Environments (SB & H)	ERM 428: International Environmental Management (G)
	ASB 375: Humans and the Environment: What's the Connection? ((L or SB) & G)	GCU 364: Energy in the Global Arena (SB & G)
	ERM 426: Environmental Issues	GIS 311: Geographic Information Science III (CS)
	ERM 428: International Environmental Management (G)	GIS 322: Programming Principles in GIS II
	FIS 444: Environment and Justice (L & C)	GIS 341: Cartography and Georepresentation (CS)
	GLG 362: Geomorphology	GIS 470: Advanced Statistics for Geography and Planning (CS)
	GLG 435: Sedimentology and Stratigraphy	GLG 301: Earth Science in Arizona and the Southwest
	GLG 470: Hydrogeology	GLG 304: Minerals, Energy, and Society
	GPH 314: Global Change (HU & G)	GLG 310: Structural Geology
	GPH 414: Climate Change (G)	GLG 321: Mineralogy
	JUS 332: Politics of Energy Policy and Justice	GLG 424: Petrology
	JUS 444: Environment and Justice (L & C)	

	PUP 442: Environmental Planning	GLG 435: Sedimentology and Stratigraphy
	SOS 314: Basic Energy Science	GLG 441: Ore Deposits
	SOS 320: Society and Sustainability (L or SB)	GLG 470: Hydrogeology
	SOS 324: Sustainable Energy Technology and Systems	GPH 381: Geography of Natural Resources (G)
	SOS 326: Sustainable Ecosystems	SOS 320: Society and Sustainability (L or SB)
	SOS 375: Humans and the Environment: What's the Connection? ((L or SB) & G)	SOS 324: Sustainable Energy Technology and Systems
	SOS 444: Climate Change, Society and Sustainability	SOS 325: The Economics of Sustainability
	STP 420: Introductory Applied Statistics (CS)	SOS 372: Earth Science in Arizona and the Southwest
		SOS 373: Minerals, Energy, and Society
		STP 420: Introductory Applied Statistics (CS)
Environmental Education Track	Environmental Management Track	Environmental Policy Track
ABS 302: Ethical and Policy Issues in Biology	ABS 350: Applied Statistics (CS)	ABS 302: Ethical and Policy Issues in Biology
BIO 324: Environmental Ethics (HU)	BIO 324: Environmental Ethics (HU)	ABS 350: Applied Statistics (CS)
ENG 371: Rhetoric of the Environmental Movement	BIO 412: Conservation in Practice	BIO 324: Environmental Ethics (HU)
ERM 426: Environmental Issues	CEE 400: Earth Systems Engineering and Management ((L or HU) & H)	BIO 412: Conservation in Practice
FIS 444: Environment and Justice (L & C)	ERM 426: Environmental Issues	ENG 371: Rhetoric of the Environmental Movement
GPH 314: Global Change (HU & G)	ERM 428: International Environmental Management (G)	ERM 426: Environmental Issues
GPH 381: Geography of Natural Resources (G)	GIS 311: Geographic Information Science III (CS)	ERM 428: International Environmental Management (G)
GPH 414: Climate Change (G)	GIS 322: Programming Principles in GIS II	FIS 334: Science, Technology and Inequality (C)
JUS 332: Politics of Energy Policy and Justice	GIS 341: Cartography and Georepresentation (CS)	FIS 444: Environment and Justice (L & C)
JUS 444: Environment and Justice (L & C)	GIS 470: Advanced Statistics for Geography and Planning (CS)	HST 345: Environmental History (L)
JUS 456: Human Rights and Sustainability ((L or SB) & G)	GLG 304: Minerals, Energy, and Society	JUS 332: Politics of Energy Policy and Justice
PHI 310: Environmental Ethics (HU)	GLG 362: Geomorphology	JUS 334: Science, Technology and Inequality (C)
POS 300: Contemporary Global Controversies (SB & G)	GLG 470: Hydrogeology	JUS 444: Environment and Justice (L & C)
PUP 442: Environmental Planning	GPH 314: Global Change (HU & G)	PHI 310: Environmental Ethics (HU)
SCN 300: Foundations of Environmental Education	GPH 381: Geography of Natural Resources (G)	POS 300: Contemporary Global Controversies (SB & G)
SCN 302: Environmental Education: A Global Perspective (L & G)	GPH 414: Climate Change (G)	PUP 442: Environmental Planning
SCN 307: Biomimicry: Nature's Sustainable Solutions (G)	HST 345: Environmental History (L)	SOC 331: Environmental Sociology (SB & G)
SCN 308: Urban Environmental Education	PHI 310: Environmental Ethics (HU)	SOS 315: Energy Policy
	POS 300: Contemporary Global Controversies (SB & G)	SOS 320: Society and Sustainability (L or SB)

SCN 310: Biodiversity Conservation: An Educational Inquiry	PUP 301: Introduction to Urban Planning (L)	SOS 321: Policy and Governance in Sustainable Systems
SCN 401: Sustainability Science, Technology, and Society	PUP 442: Environmental Planning	SOS 323: Sustainable Urban Dynamics
SOS 444: Climate Change, Society and Sustainability	SOS 373: Minerals, Energy, and Society	SOS 324: Sustainable Energy Technology and Systems
SOS 456: Human Rights and Sustainability ((L or SB) & G)	STP 420: Introductory Applied Statistics (CS)	SOS 444: Climate Change, Society and Sustainability
		STP 420: Introductory Applied Statistics (CS)
Sustainability Track		
ABS 350: Applied Statistics (CS)		
ASB 326: Human Impacts on Ancient Environments (SB & H)		
FIS 444: Environment and Justice (L & C)		
GCU 364: Energy in the Global Arena (SB & G)		
GLG 304: Minerals, Energy, and Society		
HST 345: Environmental History (L)		
JUS 332: Politics of Energy Policy and Justice		
JUS 444: Environment and Justice (L & C)		
JUS 456: Human Rights and Sustainability ((L or SB) & G)		
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 (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 373: Minerals, Energy, and Society		
SOS 444: Climate Change, Society and Sustainability		

Notes:

- First-Year Composition: All students are placed in ENG 101 unless submission of SAT, ACT, Accuplacer, IELTS, or TOEFL score, or college-level transfer credit or test credit equivalent to ASU's first-year composition course(s), determine otherwise. Students on Polytechnic, Downtown Phoenix and West Campuses are encouraged to complete the Directed Self-Placement survey to choose the first-year composition option they believe best suits their needs. Visit: <https://cisa.asu.edu/DSP>
- 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.

Total Hours: 120

Upper Division Hours: 45 minimum

Major GPA: 2.00 minimum

Cumulative GPA: 2.00 minimum

Total hrs at ASU: 30 minimum

Hrs Resident Credit for

Academic Recognition: 56 minimum

Total Community College Hrs: 64 maximum

Total College Residency Hrs: 12 minimum

General University Requirements Legend

General Studies Core Requirements:

- Literacy and Critical Inquiry (L)
- Mathematical Studies (MA)
- Computer/Statistics/Quantitative Applications (CS)
- Humanities, Arts and Design (HU)
- Social-Behavioral Sciences (SB)
- Natural Science - Quantitative (SQ)
- Natural Science - General (SG)

General Studies Awareness Requirements:

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

First-Year Composition

General Studies designations listed next to courses on the major map were valid for the 2023 - 2024 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.