ENVIRONMENTAL GEOSCIENCE, BACHELOR OF ARTS (BA)

The environmental geoscience (BA) focuses on providing students with a scientific understanding of the Earth and surrounding environment. The student in geology gains an understanding of the various terrestrial processes and features (mountains, oceans, volcanoes, glaciers); the immenseness of geologic time, the history of the earth and organisms that inhabit it (fossils); the role of water, fuel, and mineral resources in the development of civilization; and the close interaction between the geologic and organic environments.

Students seeking state certification in secondary education must also complete requirements for a Master of Education degree, a one-year program at SRU. All of our programs are designed to steadily develop the quantitative, deductive and inductive reasoning skills that environmental geoscientists must have.

Program Learning Outcomes

Environmental Geoscience, BA

- **Outcome 1 (EGEO):** Each graduate shall develop general knowledge and understanding of the composition, history, and structure of the planet, and of the physical, chemical, and biological processes involved in the interactions between the geosphere, hydrosphere, atmosphere, and biosphere.
  - Each graduate will demonstrate an understanding of plate tectonic theory and be able to describe how it operates
  - Each graduate will demonstrate an understanding of the geologic time scale and the timing of major events in Earth history
  - Each graduate will demonstrate the ability to characterize and identify important rocks and minerals, and to interpret the processes by which they formed
  - Each graduate will demonstrate an understanding of the history, causes, and effects of global climate change
  - Each graduate will demonstrate an understanding of evolutionary theory and its evidence in the fossil record
  - Each graduate will demonstrate an understanding of the internal structure of Earth
  - Each graduate will be able to explain the fundamental principles of the hydrologic cycle

Geology, Geology, and the Environment, Overall

- **Outcome 1:** Each graduate will develop strong written and oral communication skills, demonstrate the ability to work in a collaborative environment, and exhibit professional attitudes and behavior.
  - Each graduate will deliver oral presentations, demonstrating the ability to effectively communicate discipline-specific concepts
  - Each graduate will write scholarly papers using acceptable format and organization with proper citations to appropriate literature.
  - Each graduate will actively participate in collaborative projects and in academic field trips
  - Each graduate will demonstrate professionalism and integrity in his/her academic conduct
  - Each graduate shall develop the ability to respect and integrate diverse worldviews in problem-solving frameworks
- **Outcome 2:** Each graduate shall possess and apply critical thinking and problem solving skills.
  - Each graduate will demonstrate the ability to develop valid research questions and hypotheses
  - Each graduate will demonstrate the ability to apply proper techniques for data acquisition and interpretation in a problem-solving context
  - Each graduate will demonstrate the ability to solve open-ended problems using scientific methodology
  - Each graduate will develop the ability to make informed, scientifically-based decisions regarding environmental issues
- **Outcome 3:** Each graduate shall develop skills in quantitative, qualitative, technological, laboratory, and field procedures.
  - Each graduate will learn and employ accepted laboratory and field techniques, protocols, and safety procedures
  - Each graduate will learn to read, construct, and comprehend thematic maps and derive perspective output from a map
  - Each graduate will demonstrate the ability to apply knowledge, concepts and techniques from complementary disciplines to solve problems

Related Links

Environmental Geoscience, BA Program Page (https://www.sru.edu/academics/majors-and-minors/environmental-geosciences/)

Geography, Geology, and the Environment Department Page (https://www.sru.edu/academics/colleges-and-departments/ches/departments/geography-geology-and-the-environment/)

Professional Licensure/Certification Page (https://www.sru.edu/students/student-consumer-information/professional-licensures/)

Curriculum Guide

GPA Requirement

Major GPA: 2.0 or higher
Overall GPA: 2.0 or higher

Summary*

Code	Title	Hours
Rock Studies 2 Requirements		43-45
Modern Language Requirement		0-9
Other Basic Requirements		0-3
Computer Competency		0-3
Major Requirements		43-46
Natural Science and Math College-Wide Requirements		12
Electives		22

* All undergraduate degree programs require a minimum of 120 credits. Some courses meet multiple requirements, but are only counted once toward the 120 credit total required to graduate.

Rock Studies 2 Requirements

Code	Title	Hours
The Rock		
SUBJ 139	Foundations of Academic Discovery [1]	3
ENGL 102	Critical Writing	3

ENGL 104	Critical Reading	3
MATH 125	Precalculus	4
or MATH 225	Calculus I	
Select one of the following:		3
COMM 200	Civil Discourse: Theory & Practice	
PHIL 110	Ethics and Civil Discourse	
POLS 235	Civil Discourse and Democracy	
Subtotal		16
Integrated Inquiry		
Creative and Aesthetic Inquiry		
Select 3 Credits (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
Humanities Inquiry		
Select 3 Credits (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
Social Science Inquiry		
Select 3 Credits (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
Natural Sciences Inquiry		
Select one of the following:		3-4
SCI 101	Science of Life	
CHEM 1xx	100 Level Chemistry & Lab	
BIOL 1xx	100 Level Biology & Lab	
Physical Science Inquiry		
Select one of the following:		3-4
SCI 102	Understanding the Physical World	
EGEO 1xx	100 Level Environmental Geoscience & Lab	
Subtotal		15-17
Thematic Thread		
Select 12 Credits (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/) [2]		12
Total Hours		**43-45**

[1] Course offered in multiple subjects; cannot take course in first major subject.

[2] One course from each category; six credits must be 300-level or above; no more than 4 credits from one subject area; specific courses required in first major, regardless of prefix of course, cannot be used to satisfy thread requirements; any course with same prefix as first major cannot be used to satisfy thread requirements, even if it is not a course in the first major.

BA Modern Language Requirement

BA degree requires language proficiency at the 103 class level. Exemption by placement or examination is possible.

Code	Title	Hours
Complete 0-9 credits		0-9
Total Hours		**0-9**

Basic Math Requirement

Check with your adviser or a current degree audit report to see if you have been exempted from this course. The credit earned in this course will not be counted toward the 120 credit hour minimum needed to earn a degree.

Code	Title	Hours
Complete one of the following:		0-3
Meet required minimum SAT or ACT math score OR		
ESAP 110	Beginning Algebra	
Total Hours		**0-3**

Computer Competency

Code	Title	Hours
Demonstrate "computer competency" by one of the following:		0-3
Pass Computer Competency Exam OR		
Select one of the following at SRU or another post-secondary institution:		
CPSC 100	Introduction to Computing for Liberal Arts	
CPSC 110	Computer Concepts	
CPSC 130	Introduction to Computing and Programming	
PE 202	Technology for Wellness	
Total Hours		**0-3**

DIVERSITY, EQUITY, AND INCLUSION REQUIREMENT

Students must take and pass a course with the Diversity, Equity, and Inclusion (DEI) designation prior to graduation. Students can meet this requirement by taking any DEI - designated course in any program at any time during their undergraduate career.

Major Requirements

- 22 major credits must be taken at SRU or PASSHE
- 22 major credits must be taken at the 300 level or above

Code	Title	Hours
Core Major Requirements		
EGEO 1XX	Any 100-level EGEO course	3-4
EGEO 201	Earth Materials and Processes/Lab	4
EGEO 202	Earth History/Lab	4
EGEO 272	Introduction to Georeports/Lab	1
GES 115	Introduction to Geospatial Technologies	3
GES 205	Cultural Geography	3
GES 324	Environmental Law and Policy	3
GES 325	Introduction to Geographic Information Science	3
Subtotal		24-25
Capstone Experience		
Select one of the following:		3
GES 444	World Environmental Cultures	
EGEO 469	Field Investigations in the Geosciences	
or GES 469	Field Investigations in the Geosciences	
EGEO 450	Internship	
or GES 450	Internship	
Subtotal		3
Focus Area		
Choose 10 credits from one of the following Focus Areas:		10
A: Geology		
Select 10 credits (p. 3)		
B: Geospatial Technology		

Select 10 credits (p. 3)	
C: Environmental Science	
Select 10 credits (p. 3)	
D: Global Studies	
Select 10 credits (p. 3)	
E: Sustainable Communities	
Select 10 credits (p. 3)	
Subtotal	10
Electives	
Any EGEO or GES 300 OR 400-level course	3-4
Any EGEO or GES 300 OR 400-level course	3-4
Subtotal	6-8
Total Hours	**43-46**

* Some courses may require pre-requisites. Please see course descriptions to determine if there are any pre-requisites for that specific course.

Geology

Code	Title	Hours
EGEO 303	Paleontology/Lab	4
EGEO 362	Stratigraphy/Lab	4
EGEO 327	Structural Geology	4
EGEO 328	Plate Tectonics	3
EGEO 358	Introduction to Geophysics/Lab	3
EGEO 342	Glacial Geology/Lab	3
EGEO 351	Mineralogy/Lab	4
EGEO 341	Geomorphology/Lab	3

Geospatial Technology

Code	Title	Hours
GES 315	Cartography I	3
GES 321	Introduction to UAS for Remote Sensing and Monitoring	3
GES 410	Remote Sensing	3
GES 415	Cartography II	3
GES 425	Advanced Geographic Information Systems	3
GES 426	Environmental Modeling	3

Environmental Science

Code	Title	Hours
EGEO 131	Oceanography	3
EGEO 360	Introduction to Hydrology/Lab	3
EGEO 340	Air Pollution Meteorology	3
EGEO 451	Geochemistry/Lab	4
EGEO 460	Hydrogeology	3
GES 355 & GES 356	Earth's Changing Climate and Earth's Changing Climate Laboratory	4

Global Studies

Code	Title	Hours
GES 201	Latin America and the Caribbean	3
GES 303	Asia	3
GES 307	Australia	3
GES 331	Economic Geography	3
GES 345	Population Analysis	3
GES 355 & GES 356	Earth's Changing Climate and Earth's Changing Climate Laboratory	4

Sustainable Communities

Code	Title	Hours
GES 215	Planning for Sustainable Communities	3
GES 235	Conservation	3
GES 344	Environmental Justice	3
GES 362	Applications in Sustainability	3
GES 361	Gender and the Environment	3
GES 355 & GES 356	Earth's Changing Climate and Earth's Changing Climate Laboratory	4

Natural Science and Math College-Wide Requirements

Code	Title	Hours
CHEM 107	General Chemistry I	3
CHEM 111	General Chemistry I Lab	1
MATH 125	Precalculus	4
or MATH 225	Calculus I	
PHYS 201	Elements of Physics I with Lab	4
or PHYS 216	University Physics 1 with Lab	
Total Hours		**12**

Co-curricular and Experiential Learning

Students are encouraged to explore additional curricular and co-curricular opportunities. There is a strong correlation between long-term student success and participation in the following types of programs and activities:

1. International study programs (short-term, semester, and year-long)
2. Student-faculty research
3. Service Learning Courses
4. Internships
5. Volunteering

Important Curriculum Guide Notes

This Curriculum Guide is provided to help SRU students and prospective students better understand their intended major curriculum. Enrolled SRU students should note that the My Rock Audit may place already-earned and/or in progress courses in different, yet valid, curriculum categories. Enrolled SRU students should use the My Rock Audit Report and materials and information provided by their faculty advisers to ensure accurate progress towards degree completion. *The information on this guide is current as of the date listed. Students are responsible for curriculum requirements at the time of enrollment at the University.*

PASSHE - Pennsylvania State System of Higher Education Institutions

Environmental Geosciences - BA (6 35)
w/optional Pre Masters in Education (7-12) (PX)
This program is effective as of Fall 2020.
Revised 12.06.2021
UCC 10.26.2021

Recommended Four-Year Plan

Course	Title	Hours
First Year		
Fall		
GES 115	Introduction to Geospatial Technologies	3
SUBJ 139	Foundations of Academic Discovery [1]	3
EGEO 131	Oceanography	3
ENGL 102	Critical Writing	3
ESAP 101	FYRST Seminar *	1
	Hours	**13**
Spring		
ENGL 104	Critical Reading	3
EGEO 201	Earth Materials and Processes/Lab	4
CHEM 107 & CHEM 111	General Chemistry I and General Chemistry I Lab	4
Creative & Aesthetic Inquiry (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
Free elective/minor		3
	Hours	**17**
Second Year		
Fall		
EGEO 202	Earth History/Lab	4
MATH 125	Precalculus	4
Social Science Inquiry (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
Major elective		3-4
Free elective/minor		3
Declare a Thematic Thread [2]		
	Hours	**17-18**
Spring		
EGEO 272	Introduction to Georeports/Lab	1
GES 205	Cultural Geography	3
Select one of the following:		3
COMM 200	Civil Discourse: Theory & Practice	
PHIL 110	Ethics and Civil Discourse	
POLS 235	Civil Discourse and Democracy	
Humanities Inquiry (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
Thematic Thread Requirement (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
	Hours	**13**
Third Year		
Fall		
Major elective		3-4
Thread course		3
Free elective/minor		3
Free elective/minor		3
Free elective/minor		3
	Hours	**15-16**
Spring		
GES 325	Introduction to Geographic Information Science	3
GES 324	Environmental Law and Policy	3
Thematic Thread Requirement (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
Major elective		3-4
Major elective		3
	Hours	**15-16**
Fourth Year		
Fall		
GES 444	World Environmental Cultures	3
Thematic Thread Requirement (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
Major elective		3-4
Free elective/minor		3
	Hours	**12-13**
Spring		
Major elective (if needed)		0-3
Free elective/minor		3
Free elective/minor		3
Free elective/minor		3
Free elective/minor		9
	Hours	**18-21**
	Total Hours**	**120-127**

[1] Course offered in multiple subjects; cannot take course in first major subject

[2] Work with your Academic Adviser to declare a Thematic Thread by the end of your fall semester in your second year.

* Students are encouraged to take ESAP 101 as a Free Elective.

*** This document is meant to serve as a guide. Some planners may show more than 120 credits because faculty have created flexibility in choosing courses. However, only 120 credits are required to obtain a degree. Please consult with your academic adviser and refer to your curriculum guide prior to registering for courses. This plan should be reviewed, and verified, by you and your academic adviser at least once each academic year.*

Major Code: 6 35
Revised: 08.27.2021