

# GEOGRAPHY, BACHELOR OF SCIENCE (BS) - CONCENTRATION IN ENVIRONMENTAL STUDIES & SUSTAINABILITY

Students in the environmental studies program study the links between humans and their environment. This program takes an interdisciplinary approach and integrates knowledge from the social and natural sciences in the study of environmental issues. An important goal of the program is for students to understand the relationships that exist between social, behavioral, and environmental systems. We emphasize the collection, analysis, and representation of earth data at scales ranging from the local to the global. Toward the end of their studies, students identify a research problem, gather and analyze data, and prepare a formal paper and presentation on their topic. Opportunities abound for students to engage in fieldwork, internships, and in the production of research in our department.

The environmental studies program provides students with a base in liberal arts skills (critical thinking, writing, and speaking) and in analytical skills such as data collection in the field, in the library, and on the computer; the use of global positioning systems; the use of mapping, spreadsheet, and database software. Many of our students have found work that allows them to address important environmental and social issues in the private or public sector. Representative employment areas for our graduates include environmental consulting, pollution remediation, environmental law or public policy, outdoor education, resource management, geographic information systems analysis, nonprofit environmental organizations, and planning.

## Program Learning Outcomes

### Geography, BS

- **Outcome 1 (GES):** Each graduate shall develop general knowledge and understanding of the concepts of location, place, human environment interactions, movement, and region.
  - Each graduate will demonstrate an understanding of physical features and patterns of the physical environment
  - Each graduate will demonstrate an understanding of features and patterns of the human environment
  - Each graduate will demonstrate an understanding of concepts such as absolute and relative location, proximity, separation, direction, region, hierarchy, density, and dispersion, and methods that are used to describe and analyze spatial patterns
  - Each graduate will demonstrate an understanding of absolute location systems such as latitude-longitude and alpha-numeric grids
  - Each graduate will demonstrate an understanding of major spatial features and patterns in the natural environment such as those relating to climate, oceans, soils, landforms, and vegetation
  - Each graduate will demonstrate an understanding of the major processes, such as evolution, atmospheric circulation, weathering and erosion, ocean currents, plate tectonics, and volcanism that shape patterns in the natural environment.

- Each graduate will demonstrate an understanding of the major spatial features and patterns in the cultural environment such as language, religion, and agriculture and economic, political, and demographic regions
- Each graduate will demonstrate an understanding of the major processes such as settlement, migration, trade, technological development, diffusion, and landscape transformation that shape cultural patterns

### 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

Geography - Environmental Studies and Sustainability, BS Program Page (<https://www.sru.edu/academics/majors-and-minors/geography-environmental-studies-and-sustainability/>)

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-licensure/>)

## Curriculum Guide

### GPA Requirement

Major GPA: 2.0 or higher

Overall GPA: 2.0 or higher

### Summary\*

Code	Title	Hours
Rock Studies Requirements		42-44
Other Basic Requirements		0-3
Computer Competency		0-3
Major Requirements		56-58
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 Requirements

Code	Title	Hours
<b>The Rock</b>		
SUBJ 139	University Seminar <sup>1</sup>	3
ENGL 102	Critical Writing	3
ENGL 104	Critical Reading	3
STAT 152	Elementary Statistics I	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	
Subtotal		15
<b>Integrated Inquiry</b>		
<i>Creative and Aesthetic Inquiry</i>		
Select 3 Credits ( <a href="https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/">https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/</a> )		3
<i>Humanities Inquiry</i>		
Select 3 Credits ( <a href="https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/">https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/</a> )		3
<i>Social Science Inquiry</i>		
Select 3 Credits ( <a href="https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/">https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/</a> )		3
<i>Natural Sciences Inquiry</i>		
Select one of the following:		3-4
SCI 101	Science of Life	
100 Level Chemistry & Lab (CHEM)		
100 Level Biology & Lab (BIOL)		
<i>Physical Sciences Inquiry</i>		
Select one of the following:		3-4
SCI 102	Understanding the Physical World	
100 Level Environmental Geoscience & Lab (EGEO)		
Subtotal		15-17
<b>Thematic Thread</b>		
Select 12 Credits ( <a href="https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/">https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/</a> ) <sup>2</sup>		12
<b>Total Hours</b>		<b>42-44</b>

<sup>1</sup> Course offered in multiple subjects; cannot take course in first major subject.

<sup>2</sup> From at least 3 categories; no more than 6 credits from one department; 6 credits must be 300-level or above.

### 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:		
Meet required minimum SAT or ACT math score OR		0-3
ESAP 110	Beginning Algebra	
<b>Total Hours</b>		<b>0-3</b>

### Computer Competency

Code	Title	Hours
Demonstrate "computer competency" by one of the following:		
Pass Computer Competency Exam OR		0-3
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	
<b>Total Hours</b>		<b>0-3</b>

### Major Requirements

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

Code	Title	Hours
<b>Core</b>		
GES 150	The Natural Environment <sup>1</sup>	3
GES 205	Cultural Geography <sup>1</sup>	3
GES 315	Cartography I <sup>1</sup>	3
GES 331	Economic Geography <sup>1</sup>	3
Subtotal		12
<b>Techniques Core</b>		
GES 115	Introduction to Geospatial Technologies <sup>1</sup>	3
GES 220	General Methods of Fieldwork <sup>1</sup>	3
GES 325	Introduction to Geographic Information Science <sup>1</sup>	3
EGEO 272	Introduction to Georeports/Lab <sup>1</sup>	1
Subtotal		10
<b>Environmental Studies Core</b>		
<i>Introductory Course</i>		
Select one of the following:		3
Any 100 level BIOL course <sup>2</sup>		
Any 100 level EGEO course <sup>2</sup>		
GES 135	Introduction to Environmental Problems <sup>1</sup>	
Subtotal		3
<i>Additional Environmental Studies Core Courses</i>		

GES 235	Conservation <sup>1</sup>	3
GES 324	Environmental Law and Policy <sup>1</sup>	3
GES 362	Applications in Sustainability <sup>1</sup>	3
GES 344	Environmental Justice <sup>1</sup>	3
or PHIL 324	Environmental Ethics	
Subtotal		12
<b>Capstone Experience</b>		
GES 444	World Environmental Cultures <sup>1</sup>	3
or GES 469	Field Investigations in the Geosciences	
Subtotal		3
<b>A critical understanding of Community through 40 hours of Service Learning</b>		
Service Learning		
<b>Electives</b>		
Select at least one course from each of the following blocks below, at least five courses must be 300 level or above:		16-18
Environment (p. 3)		
Planning (p. 3)		
Community (p. 3)		
Subtotal		16-18
<b>Total Hours</b>		<b>56-58</b>

<sup>1</sup> Course counts for 50% of Major requirements and Major GPA

<sup>2</sup> Course counts for 50% of Major requirements but not for Major GPA

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

## Environment

Code	Title	Hours
BIOL 104	Principles of Biology with Lab <sup>1</sup>	4
BIOL 105	Environmental Biology <sup>1</sup>	3
BIOL 120	Plants and Society <sup>1</sup>	3
BIOL 305	Wetlands and Aquatic Plants/Lab <sup>1</sup>	3
BIOL 306	Freshwater Biomonitoring/Lab <sup>1</sup>	3
BIOL 401	Ecology with Lab <sup>1</sup>	3
EGEO 121	Meteorology/Lab <sup>1</sup>	4
EGEO 131	Oceanography <sup>1</sup>	3
Any EGEO 300/400 level course <sup>2</sup>		3
ENGL 410	Literature of the Environment <sup>1</sup>	3
GES 321	Introduction to UAS for Remote Sensing and Monitoring	3
GES 355	Earth's Changing Climate <sup>1</sup>	3
GES 356	Earth's Changing Climate Laboratory <sup>1</sup>	1
GES 426	Environmental Modeling <sup>1</sup>	3
PCRM 348	Natural History of Ecosystems I <sup>1</sup>	3
PCRM 349	Natural History of Ecosystems II <sup>1</sup>	3

<sup>1</sup> Course counts for 50% of Major requirements and Major GPA

<sup>2</sup> Course counts for 50% of Major requirements but not for Major GPA

## Planning

Code	Title	Hours
BUSA 315	Economics of Sustainable Development <sup>1</sup>	3
or ECON 315	Economics of Sustainable Development	

GES 215	Planning for Sustainable Communities <sup>1</sup>	3
GES 345	Population Analysis <sup>1</sup>	3
GES 363	Energy and Society <sup>1</sup>	3
GES 410	Remote Sensing <sup>1</sup>	3
GES 415	Cartography II <sup>1</sup>	3
GES 425	Advanced Geographic Information Systems <sup>1</sup>	3
HEMT 210	Contemporary Travel and Tourism <sup>1</sup>	3
HEMT 314	Sustainable Planning for Tourism <sup>1</sup>	3
PCRM 377	Cultural Resources Management <sup>1</sup>	3

<sup>1</sup> Course counts for 50% of Major requirements and Major GPA

## Community

Code	Title	Hours
GES 344	Environmental Justice <sup>1</sup>	3
GES 361	Gender and the Environment <sup>1</sup>	3
GES 375	Geography of Intolerance <sup>1</sup>	3
EGEO 368	Women in Science <sup>1</sup>	3
HLTH 311	International Health <sup>1</sup>	3
NLPA 120	Civic Engagement and Community Decision-Making <sup>1</sup>	3
NLPA 220	Introduction to Nonprofit Management <sup>1</sup>	3
INDP 304	Urban Sociology <sup>1</sup>	3
INDP 309	Health and Society <sup>1</sup>	3
NLPA 320	Community Change and Development <sup>1</sup>	3
PHIL 324	Environmental Ethics <sup>1</sup>	3

<sup>1</sup> Course counts for 50% of Major requirements and Major GPA

## 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 classes
4. Internships
5. Volunteering

GEOGRAPHY - BS (6142)

Concentration in Environmental Studies and Sustainability (ESSU)

This program is effective as of Fall 2019.

Revised 8-2019

UCC 5.19.2019

## 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

## Recommended Four-Year Plan

Course	Title	Hours
<b>First Year</b>		
<b>Fall</b>		
GES 150	The Natural Environment	3
GES 115	Introduction to Geospatial Technologies	3
EGEO 131	Oceanography	3
SUBJ 139	University Seminar <sup>1</sup>	3
ENGL 102	Critical Writing	3
INDS 101	FIRST Seminar	1
<b>Hours</b>		<b>16</b>
<b>Spring</b>		
ENGL 104	Critical Reading	3
SCI 101	Science of Life	3
Creative & Aesthetic Inquiry ( <a href="https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/">https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/</a> )		3
Free elective/minor		3
Free elective/minor		3
<b>Hours</b>		<b>15</b>
<b>Second Year</b>		
<b>Fall</b>		
GES 220	General Methods of Fieldwork	3
STAT 152	Elementary Statistics I	3
Humanities Inquiry ( <a href="https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/">https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/</a> )		3
Social Science Inquiry ( <a href="https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/">https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/</a> )		3
Free elective/minor		3
Declare a Thematic Thread <sup>2</sup>		
<b>Hours</b>		<b>15</b>
<b>Spring</b>		
GES 205	Cultural Geography	3
GES 235	Conservation	3
EGEO 272	Introduction to Georeports/Lab	1
Select one of the following:		3
COMM 200	Civil Discourse: Theory & Practice	
PHIL 110	Ethics and Civil Discourse	
POLS 235	Civil Discourse and Democracy	
Thematic Thread Requirement ( <a href="https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/">https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/</a> )		3
<b>Hours</b>		<b>13</b>
<b>Third Year</b>		
<b>Fall</b>		
GES 315	Cartography I	3
GES 355	Earth's Changing Climate	3
GES 356	Earth's Changing Climate Laboratory	1
Thematic Thread Requirement ( <a href="https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/">https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/</a> )		3

Free elective/minor		3
Free elective/minor		3
<b>Hours</b>		<b>16</b>
<b>Spring</b>		
GES 325	Introduction to Geographic Information Science	3
GES 324	Environmental Law and Policy	3
GES 444	World Environmental Cultures	3
Major elective		3
Thematic Thread Requirement ( <a href="https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/">https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/</a> )		3
<b>Hours</b>		<b>15</b>
<b>Fourth Year</b>		
<b>Fall</b>		
Major Elective		3
Major Elective		3
Thematic Thread Requirement ( <a href="https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/">https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/</a> )		3
Free elective/minor		3
Free elective/minor		3
<b>Hours</b>		<b>15</b>
<b>Spring</b>		
GES 331	Economic Geography	3
GES 344	Environmental Justice	3
GES 362	Applications in Sustainability	3
Major elective		3
Free elective/minor		3
<b>Hours</b>		<b>15</b>
<b>Total Hours**</b>		<b>120</b>

<sup>1</sup> Course offered in multiple subjects; cannot take course in first major subject

<sup>2</sup> Work with your Academic Adviser to declare a Thematic Thread by the end of your fall semester in your second year. Click here (<https://forms.office.com/Pages/ResponsePage.aspx?id=ul1VhjsH90-30bc6d8W9kIM7Wtmwv-VJnD6riXkdMh1UNEFHMUNH0EI5TkJOWIRHVzRCMzI3UldNTi4u>) to declare a thread.

\* Students are encouraged to take INDS 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: 6142  
 Concentration Code: ESSU  
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