

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

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 (<http://www.sru.edu/Documents/offices/PRMA/PLC.pdf>)

If you are a Liberal Studies student, please click here (<http://catalog.sru.edu/undergraduate/health-engineering-sciences/geography-geology-environment/geography-bs-concentration-environmental-studies-sustainability-liberal/#curriculumguidetext>) for your Curriculum Guide.

## 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="http://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/">http://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/</a> ) |                                    | 3     |
| <i>Humanities Inquiry</i>  |                                    |       |
| Select 3 Credits ( <a href="http://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/">http://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/</a> ) |                                    | 3     |
| <i>Social Science Inquiry</i>  |                                    |       |
| Select 3 Credits ( <a href="http://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/">http://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 |

### Thematic Thread

Select 12 Credits (<http://catalog.sru.edu/undergraduate/rock-studies/rock-studies-quick-guide/>) <sup>2</sup> 12

Total Hours 42-44

<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 |                   |       |
| ACSD 110                                       | Beginning Algebra |       |
| Total Hours                                    |                   | 0-3   |

### Computer Competency

| Code  | Title                                      | Hours |
|---|--|-------|
| Demonstrate "computer competency" by one of the following:                |  |       |
| 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   |

### 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 |
| Total Hours   |   | 56-58 |

<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 Rock Studies 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                               | FYRST Seminar                           | 1     |
| Hours                                  |   | 16    |
| <b>Spring</b>                          |   |       |
| ENGL 104                               | Critical Reading                        | 3     |
| SCI 101                                | Science of Life                         | 3     |
| Creative and Aesthetic Inquiry         |   | 3     |
| Free elective/minor                    |   | 3     |
| Free elective/minor                    |   | 3     |
| Hours                                  |   | 15    |
| <b>Second Year</b>                     |   |       |
| <b>Fall</b>                            |   |       |
| GES 220                                | General Methods of Fieldwork            | 3     |
| GES 205                                | Cultural Geography                      | 3     |
| STAT 152                               | Elementary Statistics I                 | 3     |
| Social Science Inquiry                 |   | 3     |
| Free elective/minor                    |   | 3     |
| Declare a Thematic Thread <sup>2</sup> |   |       |
| Hours                                  |   | 15    |
| <b>Spring</b>                          |   |       |
| EGEO 272                               | Introduction to Georeports/Lab          | 1     |
| COMM 200                               | Civil Discourse: Theory & Practice      | 3     |
| Humanities Inquiry                     |   | 3     |
| Thread course                          |   | 3     |
| GES 235                                | Conservation                            | 3     |
| Hours                                  |   | 13    |
| <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     |

|                     |    |
|---------------------|----|
| Thread course       | 3  |
| Free elective/minor | 3  |
| Free elective/minor | 3  |
| Hours               | 16 |

|               |  |   |
|---------------|--|---|
| <b>Spring</b> |  |   |
| GES 325       | Introduction to Geographic Information Science | 3 |
| GES 324       | Environmental Law and Policy                   | 3 |
| GES 444       | World Environmental Cultures                   | 3 |
| GES 331       | Economic Geography                             | 3 |
| Thread course | 3  |   |
| Hours         | 15   |   |

|                     |    |
|---------------------|----|
| <b>Fourth Year</b>  |    |
| <b>Fall</b>         |    |
| Major Elective      | 3  |
| Major Elective      | 3  |
| Thread course       | 3  |
| Free elective/minor | 3  |
| Free elective/minor | 3  |
| Hours               | 15 |

|                     |                                |   |
|---------------------|--------------------------------|---|
| <b>Spring</b>       |                                |   |
| GES 362             | Applications in Sustainability | 3 |
| GES 344             | Environmental Justice          | 3 |
| Major elective      | 3                              |   |
| Major elective      | 3                              |   |
| Free elective/minor | 3                              |   |
| Hours               | 15                             |   |
| Total Hours**       | 120                            |   |

<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-VJnD6riXkdMh1UNEFHMUNH0E15TkJOWIRHVzRCMzI3UldNTi4u>) to declare a thread.

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

Major Code: 6142  
Concentration Code: ESSU  
Revised: 01.2020

\*\* 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.