

# ENVIRONMENTAL GEOSCIENCE, BACHELOR OF SCIENCE (BS) - CONCENTRATION IN APPLIED GEOGRAPHIC TECHNOLOGY

## Program Learning Outcomes

- **Outcome 1 (EVGE):** 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
- Maps to:
- University-wide learning outcome:
  - 3A. Explain and predict natural phenomena through use of observation, experimentation using appropriate technology, and scientific reasoning.

## 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
- Maps to:
- University-wide learning outcome(s)

- 1A. Communicate successfully with diverse audiences in speech and writing.
- 1C. Apply analytical reading to support language use.
- **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
- Maps to:
- University-wide learning outcome(s)
  - 2A. Gather, analyze and evaluate information and ideas.
  - 2B. Produce well-supported reasons and evidence.
  - 2C. Reach well-argued conclusions and decisions.
- **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
- Maps to:
- University-wide learning outcome(s)
  - 4A. Create and use mathematics in a variety of forms including formulas, graphs, schematics, and computing, where appropriate.
  - 4B. Implement experimentation and quantitative reasoning to solve problems and make inferences.

## Related Links

**Environmental Geoscience - Applied Geographic Technology, BS Program Page - COMING SOON**

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    |
|      | Other Basic Requirements    | 0-3   |

|                    |    |
|--------------------|----|
| Major Requirements | 48 |
| Electives          | 29 |

\* 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     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-----------|
| <b>The Rock</b>                                                                                                                                                                                            |                                                |           |
| SUBJ 139                                                                                                                                                                                                   | Foundations of Academic Discovery <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                     |           |
| POLI 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>                                                                                                                                                                            |                                                | 3         |
| SCI 101                                                                                                                                                                                                    | Science of Life                                |           |
| <i>Physical Science Inquiry</i>                                                                                                                                                                            |                                                |           |
| EVGE 201                                                                                                                                                                                                   | Earth Materials and Processes/Lab              | 4         |
| Subtotal                                                                                                                                                                                                   |                                                | 16        |
| <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>3</sup> |                                                | 12        |
| <b>Total Hours</b>                                                                                                                                                                                         |                                                | <b>43</b> |

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

<sup>2</sup> Course counts for 50% of Major requirements and Major GPA

<sup>3</sup> 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.

## 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 |            |
| <b>Total Hours</b>                             |                   | <b>0-3</b> |

## 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

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

| Code                                                   | Title                                                 | Hours |
|--------------------------------------------------------|-------------------------------------------------------|-------|
| <b>Environmental Geoscience Core</b>                   |                                                       |       |
| EVGE 131                                               | Oceanography                                          | 3     |
| GES 115                                                | Introduction to Geospatial Technologies               | 3     |
| GES 220                                                | General Methods of Fieldwork                          | 3     |
| GES 325                                                | Introduction to Geographic Information Science        | 3     |
| Capstone                                               |                                                       | 3     |
| EVGE 399                                               | Field Camp                                            |       |
| EVGE 450                                               | Internship                                            |       |
| EVSC 440                                               | Science, Technology and the Environment               |       |
| Subtotal                                               |                                                       | 15    |
| <b>Applied Geographic Technology Core Requirements</b> |                                                       |       |
| CPSC 236                                               | Selected Computer Languages                           | 3     |
| GES 315                                                | Cartography I                                         | 3     |
| GES 321                                                | Introduction to UAS for Remote Sensing and Monitoring | 3     |
| GES 345                                                | Population Analysis                                   | 3     |
| GES 410                                                | Remote Sensing                                        | 3     |
| GES 415                                                | Cartography II                                        | 3     |
| GES 425                                                | Advanced Geographic Information Systems               | 3     |
| GES 426                                                | Environmental Modeling                                | 3     |
| CIVL 210                                               | Elementary Survey                                     | 3     |
| Subtotal                                               |                                                       | 27    |

|                                                  |                                |   |
|--------------------------------------------------|--------------------------------|---|
| <b>Electives - Applied Geographic Technology</b> |                                |   |
| 6 credits required                               |                                | 6 |
| EVGE 303                                         | Paleontology/Lab               |   |
| EVGE 327                                         | Structural Geology             |   |
| EVGE 328                                         | Plate Tectonics                |   |
| EVGE 340                                         | Air Pollution Meteorology      |   |
| EVGE 341                                         | Geomorphology/Lab              |   |
| EVGE 342                                         | Glacial Geology/Lab            |   |
| EVGE 358                                         | Introduction to Geophysics/Lab |   |
| EVGE 360                                         | Introduction to Hydrology/Lab  |   |
| EVGE 362                                         | Stratigraphy/Lab               |   |
| EVGE 460                                         | Hydrogeology                   |   |
| GES 324                                          | Environmental Law and Policy   |   |
| GES 344                                          | Environmental Justice          |   |

|          |                                         |
|----------|-----------------------------------------|
| GES 355  | Earth's Changing Climate                |
| GES 361  | Gender and the Environment              |
| GES 362  | Applications in Sustainability          |
| GES 469  | Field Investigations in the Geosciences |
| ECON 315 | Economics of Sustainable Development *  |
| HEMT 314 | Sustainable Planning for Tourism        |
| HLTH 411 | Global Health                           |
| PCRM 204 | Environmental Communication             |
| PCRM 348 | Natural History of Ecosystems I         |
| PCRM 349 | Natural History of Ecosystems II        |
| PCRM 377 | Cultural Resources Management           |
| PHIL 324 | Environmental Ethics                    |

**Total Hours** **48**

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

## 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 GEOSCIENCE - BS (6124)/CIM 514  
 Concentration in Applied Geographic Technology (APGT)  
 This program is effective as of Effective Summer 2025  
 Revised 07.21.2025  
 UCC 11.26.2024