GEOGRAPHY, BACHELOR OF SCIENCE (BS) - CONCENTRATION IN APPLIED GEOGRAPHIC TECHNOLOGY

Students in the Applied Geographic Technology program study the links between human beings and their environment as well as the links between one area of the earth's surface with another. This program is designed to prepare students for employment in technical occupations, planning, or postgraduate studies. The applied geographic technology student investigates the geographic study of environmental, economic, cultural, and political processes and becomes proficient in the fast growing field of geographic information technology. This program emphasizes the collection, analysis, and representation of earth data at scales ranging from the local to the global. Opportunities abound for students to engage in fieldwork, internships, and in the production of research in our department. If you enjoy learning about the Earth and its peoples and landscapes, either in your back yard or far away, please consider the opportunities our program provides.

The Applied Geographic Technology 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; and 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 monitoring, environmental law or public policy, resource management, geographic information systems analysis, nonprofit environmental organizations, and planning.

Program Learning Outcomes

- **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 - Applied Geographic Technology, BS Program Page (https://www.sru.edu/academics/majors-and-minors/geography-applied-geographic-technology/)

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		42-44
Other Basic Requirements		0-3
Major/Concentration Requirements		58-60
Electives		25

* 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
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
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 Sciences 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		**42-44**

[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.

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**

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/Concentration Requirements

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

Code	Title	Hours
Basic Core		
GES 150	The Natural Environment [1]	3
GES 205	Cultural Geography [1]	3
GES 315	Cartography I [1]	3
GES 331	Economic Geography [1]	3
Subtotal		12
Techniques Core		
GES 115	Introduction to Geospatial Technologies [1]	3
GES 220	General Methods of Fieldwork [1]	3
GES 325	Introduction to Geographic Information Science [1]	3
EGEO 272	Introduction to Georeports/Lab [1]	1
Subtotal		10
Applied Geographic Technology Core		
GES 345	Population Analysis [1]	3
GES 410	Remote Sensing [1]	3
GES 415	Cartography II [1]	3
GES 425	Advanced Geographic Information Systems [1]	3
GES 426	Environmental Modeling [1]	3
Subtotal		15
Other Required Technology Core		
CPSC 130	Introduction to Computing and Programming	3
CPSC 146	Programming Principles	3
Subtotal		6
Capstone Experience		
Select one of the following:		3
GES 450	Internship [1]	
GES 489	Applied Geospatial Technologies [1]	

GES 490	Independent Study [1]	
Subtotal		3
Special Interest Area		
Select four courses from special interest area [2]		12-14
Total Hours		**58-60**

[1] Course counts for 50% of Major requirements and Major GPA

[2] Example: geography, geology, economics, biology, criminal, political science, marketing, communication, history, parks and recreation, public health and so on under consultation with student's Academic Adviser.

Note: at least four courses must be 300 level or above.

* 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 classes
4. Internships
5. Volunteering

GEOGRAPHY - BS (6142)
Concentration in Applied Geographic Technology (AGET)
This program is effective as of Fall 2019.
Revised 8-2019
UCC 11/27/2018

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
First Year		
Fall		
GES 115	Introduction to Geospatial Technologies	3
GES 150	The Natural Environment	3
EGEO 131 or SCI 102	Oceanography or Understanding the Physical World	3
ENGL 102	Critical Writing	3
ESAP 101	FYRST Seminar *	1
SUBJ 139	Foundations of Academic Discovery [1]	3
	Hours	**16**
Spring		
ENGL 104	Critical Reading	3
SCI 101	Science of Life	3
CPSC 130	Introduction to Computing and Programming	3
Creative & Aesthetic Inquiry (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
Free elective/minor		3
	Hours	**15**
Second Year		
Fall		
GES 220	General Methods of Fieldwork	3
CPSC 146	Programming Principles	3
STAT 152	Elementary Statistics I	3
Social Science 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
Declare a Thematic Thread [2]		
	Hours	**15**
Spring		
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	
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
Free elective/minor		3
	Hours	**13**
Third Year		
Fall		
GES 315	Cartography I	3
GES 325	Introduction to Geographic Information Science	3
GES 205	Cultural Geography	3
Free elective/minor		3
Free elective/minor		3
	Hours	**15**
Spring		
GES 415	Cartography II	3
GES 426	Environmental Modeling	3
Major elective		3
Major elective		3
Thematic Thread Requirement (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
	Hours	**15**

Fourth Year		
Fall		
GES 410	Remote Sensing	3
Major Elective		3
Major Elective		3
Thematic Thread Requirement (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
Free elective/minor		3
	Hours	**15**
Spring		
Major elective		3
GES 331	Economic Geography	3
GES 345	Population Analysis	3
GES 450	Internship	3
Free elective/minor		3
	Hours	**15**
	Total Hours**	**119**

[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: 6142
Concentration Code: AGET
Revised: 08.27.2015