

# Earth and Environmental Systems

Geology is the study of processes affecting the earth — geological, hydrological, and chemical.

Geology majors study past and present-day interrelationships between earth components and earth processes: rocks, minerals, fossils, landforms, structural features, earthquakes, glaciers, magmas, volcanoes, atmospheric gases, surface water, subsurface water, and environmental pollutants. Required coursework in geology is integrated with required or recommended coursework in forestry, soils, hydrology, chemistry, physics, and mathematics.

## Requirements for the Major in Geology

The major requires successful completion of the following:

Code	Title	Semester Hours
<b>Course Requirements <sup>1</sup></b>		
FORS/GEOL 332	Oral Presentations	2
GEOL 121	Physical Geology (Lab)	4
GEOL 221	Mineralogy (Lab)	4
GEOL 225	Sedimentology (Lab)	4
GEOL 320	Igneous and Metamorphic Petrology (Lab)	4
GEOL 325	Field and Structural Geology (Lab)	4
GEOL 230	Paleoecology	4
or GEOL 235	Earth Systems and Climate Change	
Select one laboratory course in Chemistry (CHEM) numbered 120 or above		4
Select one of the following:		4
CSCI 101	Introduction to Computer Science	
MATH 101	Calculus I	
MATH 102	Calculus II	
STAT 204	Elementary Statistics	
Select three of the following:		12
ENST 217	Fundamentals of GIS	
or ENST 317	Advanced Applications of GIS	
FORS 121	Introduction to Forestry (Lab)	
FORS/GEOL 303	Soils (Lab)	
FORS/GEOL 314	Hydrology (Lab)	
GEOL 305	Economic Geological Resources (Lab)	
PHYS 101	General Physics I (Lab)	
or PHYS 102	General Physics II (Lab)	
One unduplicated course from MATH 101, MATH 102		
A summer geology field camp (at least 4 weeks in length and at least 4 credit hours)		
<b>Total Semester Hours</b>		<b>46</b>

Code	Title	Semester Hours
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## Additional Requirements

A comprehensive examination

Department capstone requirement, which may be satisfied by:

- Receiving a grade of C or higher on the Elberton Project undertaken in GEOL 320 - Petrology;
- Completing no earlier than the second semester of their junior year an independent study project that culminates in a technical paper or a presentation at Scholarship Sewanee; or,
- Completing ESCI 450 during the spring semester of their senior year.

<sup>1</sup> All B.S. degrees require four science/math courses outside the major taken at Sewanee, two with labs.

## Writing-Intensive Course in the Major Requirement

Students majoring in Forestry, Geology, or Natural Resources and the Environment can satisfy their writing-in-the-major requirement by:

1. Successfully completing a designated writing-intensive course in the department, or
2. Successfully completing three Forestry and/or Geology designated “writing portfolio” courses. Written and edited scientific papers from each writing portfolio course are to be compiled into a scientific writing portfolio by each student, and maintained by the advisor.

The following courses are designated as writing portfolio or writing-intensive courses in the Department of Earth and Environmental Systems. Other courses may be approved as such during some years. In exceptional cases and by faculty permission, one of the three writing portfolio courses might be fulfilled by FORS 444 or GEOL 444.

### Writing Portfolio Courses in the Department of Earth and Environmental Systems (three required):

Code	Title	Semester Hours
<b>Forestry Major</b>		
FORS 204	Forest Wildlife Management (project report)	4
FORS 262	Forest and Watershed Restoration (Lab) (class paper)	4
FORS 305	Forest Ecology (Lab) (lab report or paper)	4
FORS 312	Silviculture (lab report or paper)	4
FORS 319	Natural Resource Management and Decisions (project report)	4
<b>Geology Major</b>		
GEOL 222	Historical Geology (Lab) (term paper)	4
GEOL 305	Economic Geological Resources (Lab) (field trip report)	4
GEOL 314	Hydrology (Lab) (lab report)	4
GEOL 320	Igneous and Metamorphic Petrology (Lab)	4
<b>Natural Resources and the Environment Major</b>		
FORS 204	Forest Wildlife Management (project report)	4
FORS 262	Forest and Watershed Restoration (Lab) (class paper)	4
FORS 305	Forest Ecology (Lab) (lab report or paper)	4
FORS 312	Silviculture (lab report or paper)	4
FORS 319	Natural Resource Management and Decisions (project report)	4
GEOL 222	Historical Geology (Lab) (term paper)	4
GEOL 305	Economic Geological Resources (Lab) (field trip report)	4
GEOL 314	Hydrology (Lab) (lab report)	4
GEOL 320	Igneous and Metamorphic Petrology (Lab)	4