# Geology

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 |
|---|---|---|
| **Course Requirements** [1] | | |
| GEOL 121 | Physical Geology (Lab) | 4 |
| GEOL 221 | Mineralogy (Lab) | 4 |
| GEOL 230 | Paleoecology | 4 |
| GEOL 325 | Field and Structural Geology (Lab) | 4 |
| GEOL 332 | Oral Presentations | 2 |
| Select five additional courses in Geology (GEOL) numbered 200 or above [1, 2] | | 20 |
| Select three of the following courses: [3] | | 12 |
| BIOL 203 | Comparative Vertebrate Anatomy (Lab) | |
| BIOL 206 | Plant Ecology (Lab) | |
| BIOL 210 | Ecology (Lab) | |
| BIOL 213 | Evolutionary Biology | |
| CHEM 120 | General Chemistry (Lab) | |
| CHEM 150 | Advanced General Chemistry (Lab) | |
| CHEM 201 | Organic Chemistry I (Lab) | |
| CHEM 210 | Solution and Solid State Chemistry (Lab) | |
| CSCI 157 | Introduction to Modeling and Programming | |
| ENST 217 | Fundamentals of GIS | |
| ENST 317 | Advanced Applications of GIS | |
| MATH 101 | Calculus I | |
| MATH 102 | Calculus II | |
| MATH 207 | Multidimensional Calculus | |
| MATH 210 | Linear Algebra | |
| MATH 212 | Differential Equations | |
| PHYS 101 | General Physics I (Lab) | |
| PHYS 102 | General Physics II (Lab) | |
| PHYS 103 | Modern Mechanics (Lab) | |
| PHYS 104 | Electric and Magnetic Interactions (Lab) | |
| PHYS 202 | Thermodynamics | |
| PHYS 250 | Solar System Astronomy (Lab) | |
| STAT 204 | Elementary Statistics | |
| **Total Semester Hours** | | **50** |

| Code | Title | Semester Hours |
|---|---|---|
| **Additional Requirements** | | |
| A comprehensive examination | | |
| A designated writing-intensive course in the major | | |
| Department capstone requirement, which may be satisfied by: | | |

a. Completing independent study project that culminates in a technical paper or a presentation at Scholarship Sewanee which as been approved by the department chair as fulfilling this requirement; or,

b. Completing a summer research experience, such as an NSF REU or Sewanee SURF which as been approved by the department chair as fulfilling this requirement; or,

c. Completing ESCI 450 during the spring semester of their senior year.

1

Must include at least one writing intensive geology course.

2

A field camp or research experience that has been pre-approved by your major advisor may substitute for up to four credits.

3

Students interested in attending graduate school are encouraged to take additional foundational math and sciences courses.

## Student Learning Outcomes

A student majoring in Geology will

1. Demonstrate ability to apply the scientific method (formulating and testing hypotheses, and interpreting and synthesizing data collected in the field and laboratory).
2. Demonstrate competence in the techniques and tools used to navigate, measure, analyze and study landscapes and the geologic features/resources they contain while in the field.
3. Demonstrate the ability to communicate clearly and effectively on a subject related to the discipline in both written and oral form.
4. Be able to describe, discuss and interpret natural landscapes, with a specific and developed emphasis on geologic and hydrologic features.
5. Properly evaluate and appraise policies and practices that impact the sustainable management specifically of geologic resources in the US and/or abroad.