

# Geology (GL)

---

## Courses

### GL 110. Introduction to Geology. 4 Credits.

An introduction to Earth's internal and external physical processes, its materials and landforms, and the connection between natural phenomena and humans. Topics include: minerals, rocks, water and natural resources; plate tectonics, mountain building, volcanism, earthquakes, slope failure and related hazards; rivers and flood management; erosion, soil degradation, desertification and sustainable agriculture; sea-level rise, coastal and wetland erosion and shore zone management. Discussion of human interaction with the Earth will range from local policy to global economic decisions. Offered fall and spring semesters. Classroom 3 hours, laboratory 2 hours.

### GL 111. Oceanography. 4 Credits.

A basic survey of the physical, chemical, and geologic character of the world's oceans. Topics include patterns of energy exchange, chemical cycles, geological environments within the sea, and evolution of ocean basins. Classroom 3 hours, laboratory 2 hours. Offered spring semester only.

### GL 156. Historical Geology. 4 Credits.

The origin and history of the earth and the evolution of life as disclosed by the rock and fossil record. The laboratory work consists of the study of fossils and geologic maps, plus field trips. Classroom 3 hours, laboratory 2 hours. Offered spring semester only.

### GL 199. Geology Elective. 4 Credits.

### GL 251. Sophomore Seminar in Geology. 1 Credit.

This course introduces the fundamentals of scientific investigation and communication. A research project introduces the Scientific Method, while reading and comprehension of scientific literature is coupled with instruction in and application of technical and scientific writing. Other forms of scientific communication, including poster and oral presentations, are addressed. Students learn the appropriate techniques for displaying and interpreting scientific data. Students may not earn credit for both ES 251 and GL 251. Offered Fall semester.

### GL 253. Geomorphology. 4 Credits.

A course on the origin and evolution of topographic features by geological processes acting upon various earth materials and geological structures. Classroom 2 hours, laboratory and/or field work 4 hours. Prerequisite: GL 112, GL 153 or GL 156. Offered spring of even-numbered years.

### GL 257. Sedimentation. 4 Credits.

A course that provides the analysis and interpretation of sedimentary rocks, sedimentary processes and environments of deposition. Classroom 2 hours, laboratory and/or field work 4 hours. Prerequisite: GL 112, GL 153 or GL 156. Offered fall of even-numbered years.

### GL 258. Stratigraphy. 4 Credits.

A study of the description and correlation of layered rocks and the interpretation of the stratigraphic record based on examples from North America and Europe. Classroom 2 hours, laboratory and/or field work 4 hours. Prerequisite: GL 112, GL 153 or GL 156. Offered spring of odd-numbered years.

### GL 260. Projects in Geology. 1-4 Credit.

A course that provides a geological field or laboratory project on a topic chosen by mutual consent of the student and the instructor. A written report is required. Prerequisites: GL 153 or GL 156 and permission of the instructor.

### GL 261. Field Geology. 4 Credits.

A study of the techniques used in the measurement of large and small scale geologic structures. Emphasis is placed on field recognition of features such as bedding, cleavage, folds, faults and their use in geologic mapping. Classroom 2 hours, laboratory 4 hours. Prerequisite: GL 153 or permission of the instructor. Offered fall of even-numbered years.

### GL 262. Structural Geology. 4 Credits.

A course that provides the analysis and interpretation of patterns in the structural features of the Earth's crust. Topics include the genesis of tectonic features, analysis of strain in rocks, the interpretation of multiply-deformed rocks, and modeling of faults and fractures. Classroom 3 hours, laboratory 3 hours. Prerequisite: GL261 or permission of the instructor. Offered spring of odd-numbered years.

### GL 263. Mineralogy. 4 Credits.

Introductory crystallography and crystal chemistry are used to explain the properties of minerals. Each of the major mineral groups is studied in the laboratory with a focus on developing competency in the identification of the ore minerals and the rock-forming minerals. Development of an understanding of mineral associations is emphasized and field trips allow opportunity to improve these skills. Classroom 2 hours, laboratory 4 hours. Prerequisite: GL 153 or permission of the instructor. Offered fall of odd-numbered years.

### GL 264. Petrology. 4 Credits.

Following an introduction to optical identification of the rock-forming minerals using the polarizing microscope, the mineralogy and textures of common rocks are studied by means of thin sections. The genesis of these rocks is explained through a study of the physical and chemical systems they represent. Classroom 2 hours, laboratory 4 hours. Prerequisite: GL 263. Offered spring of even-numbered years.

### GL 265. Glacial Geology. 4 Credits.

A study of the origin and development of glaciers, interpretation of Pleistocene glacial features with emphasis on New England. Classroom 2 hours, laboratory and/or field work 4 hours. Prerequisite: GL 112, GL 153 or GL 156. Offered fall of odd-numbered years.

### GL 399. Junior Topics. 4 Credits.

### GL 450. Directed Study in Geology. 4 Credits.

A capstone course in which there is preparation of a geological report based on a project of original research involving field, laboratory, or library study or some combination of these. Conference schedules will be determined by the nature of the project and the student's schedule. Prerequisite: permission of the instructor. Offered fall semesters as needed. Student cannot receive credit for this course and ES 450.

### GL 451. Geology Seminar. 3 Credits.

A capstone course for fourth-year students designed to review advanced geological concepts in a seminar format. The course also includes oral and poster presentations of senior research projects, and examination of codes of ethics in the geological sciences. Prerequisite: Senior Geology major or permission of the instructor. Offered spring semester as needed. Student cannot receive credit for this course and ES 451.