

# GEOLOGICAL SCIENCES

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Not all courses are offered every semester. Refer to the schedule of courses for each term's specific offerings.

More Info (<https://one.ufl.edu/soc/>)

*Unless otherwise indicated in the course description, all courses at the University of Florida are taught in English, with the exception of specific foreign language courses.*

## Department Information

The Department of Geological Sciences aims to provide a comprehensive understanding of Earth and Planetary sciences along with their formative and evolutionary processes. Geological Sciences trains students to excel in the geoscience workforce and create sustainable solutions to societal needs.

**Website** (<http://geology.ufl.edu/>)

### CONTACT

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Map (<http://campusmap.ufl.edu/#/index/0100>)

### Curriculum

- Combination Degrees
- Geological Sciences Certificate
- Geology
- Geology Minor
- Geology UF Online

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## Courses

### ESC 1000 Introduction to Earth Science 3 Credits

**Grading Scheme:** Letter Grade

Integrated application of the scientific method to the earth sciences, including geologic materials, resources and processes; surface, groundwater and climate; environmental problems; and related topics. Emphasizes Florida examples. (P)

**Attributes:** General Education - Physical Science

### ESC 3075 Deltas and Humans 3 Credits

**Grading Scheme:** Letter Grade

Examines the historical relationship between humans and deltas, outlining possible coastal management plans in response to sea level rise

### GEO 4281 River Forms and Processes 3 Credits

**Grading Scheme:** Letter Grade

Examines the nature and variety of fluvial processes and the origin and modification of fluvial landforms. Includes discussion of environmental changes in rivers and human activities in drainage basins.

**Prerequisite:** GEO 2200 or GLY 2010C, or instructor permission.

### GLY 1000 Exploring the Geological Sciences 3 Credits

**Grading Scheme:** Letter Grade

Selected topics in the geological sciences. For those not majoring in science. (P)

**Attributes:** General Education - Physical Science

### GLY 1102 Age of Dinosaurs 3 Credits

**Grading Scheme:** Letter Grade

Examination of unique episodes in the physical and biological history of the earth. (B or P)

**Attributes:** General Education - Biological Science, General Education - Physical Science

### GLY 1150L Florida Geology Laboratory 1 Credit

**Grading Scheme:** Letter Grade

Laboratory provides a basic understanding of Florida's geology, geologic history, geologic resources and geologically related environmental problems. (P)

**Attributes:** General Education - Physical Science

**GLY 1880 Earthquakes, Volcanoes and Other Hazards 3 Credits**

**Grading Scheme:** Letter Grade

Overview of important topics in Earth science through the examination of hazards, ranging from earthquakes and volcanoes to global warming and impacts from space. For those who are not majoring in science. (P)

**Attributes:** General Education - Physical Science

**GLY 2010C Physical Geology 4 Credits**

**Grading Scheme:** Letter Grade

Materials, structures and surface features of the earth and processes which have produced them. Related laboratory demonstrations and experiences. (P)

**Attributes:** General Education - Physical Science

**GLY 2030C Environmental and Engineering Geology 3 Credits**

**Grading Scheme:** Letter Grade

Hazardous geologic processes and current environmental concerns are related to the earth, the forces acting upon it and the resulting surface features and materials. Human interaction with the environment is illustrated using modern case studies. (P)

**Attributes:** General Education - Physical Science

**GLY 2038 Sustainability and the Changing Earth 3 Credits**

**Grading Scheme:** Letter Grade

Introduces planet Earth as a dynamic and complex global system which has changed due to human interaction. Course materials demonstrate physical and chemical links between the geosphere, hydrosphere, biosphere and atmosphere that directly impact the sustainability of human lifestyles at a variety of timescales. (P)

**Attributes:** General Education - Physical Science

**GLY 2042 Planetary Geology 3 Credits**

**Grading Scheme:** Letter Grade

Introduces recent geological exploration of recent terrestrial planets and moons, comets and asteroids, focusing on comparisons of composition and tectonics on the solid planets and moons.

**GLY 2100C Historical Geology 4 Credits**

**Grading Scheme:** Letter Grade

Evolution of the earth and its life, including the major physical events and evolutionary changes recorded in the geologic past. Related laboratory, demonstrations and exercises. (P)

**Prerequisite:** GLY 2010C or GLY 2030C, or instructor permission.

**Attributes:** General Education - Physical Science

**GLY 2110 Climate Change Science and Solutions 3 Credits**

**Grading Scheme:** Letter Grade

Examines the evidence and effects of climate change and uses the issue of climate change to deepen student's understanding of science and its role in society. Working collaboratively, students integrate insights from a variety of natural, social and engineering sciences to develop and evaluate climate change mitigation approaches.

**Prerequisite:** Any Quest 1 course with a minimum grade of C.

**Attributes:** Quest 2, General Education - International, General Education - Physical Science

**GLY 3074 Oceans and Global Climate Change 3 Credits**

**Grading Scheme:** Letter Grade

Examines the role the oceans play in determining climate and regulating global climate change on a range of timescales from decades to millions of years. (P)

**Attributes:** General Education - Physical Science

**GLY 3083C Fundamentals of Marine Sciences 3 Credits**

**Grading Scheme:** Letter Grade

Introduces the basic disciplines of marine sciences, including geology, chemistry, physics, biology and conservation, with an emphasis on marine research. Includes three mandatory Saturday field trips.

**Prerequisite:** OCE 1001.

**GLY 3105C Evolution of Earth and Life 4 Credits**

**Grading Scheme:** Letter Grade

Advanced examination of the geologic history of planet earth with an emphasis on North America. (P)

**Prerequisite:** GLY 2010C or GLY 2030C.

**Attributes:** General Education - Physical Science

**GLY 3163 Geology American National Parks 3 Credits**

**Grading Scheme:** Letter Grade

Introduces geological concepts in the context of selected US national parks. Relates geology to the cultural aspects of these parks and present-day environmental concerns. (P)

**Attributes:** General Education - Physical Science

**GLY 3200C Principles of Mineralogy 4 Credits****Grading Scheme:** Letter Grade

Concepts of crystallography, crystal chemistry, physical properties of minerals, mineral genesis and systematic study of the rock-forming or otherwise important minerals including the theory and use of the petrographic microscope for study and identification of these minerals in thin section.

**Prerequisite:** CHM 1030 or CHM 1025, and GLY 2010C or GLY 2030C.**GLY 3202C Earth Materials 3 Credits****Grading Scheme:** Letter Grade

Overview of the origin and occurrence of earth materials with a particular emphasis on the identification and classification of minerals and rocks. Activities involve lecture and a fully integrated laboratory component where students learn to identify and classify minerals and rocks through both macroscopic and microscopic investigation.

**GLY 3603C Paleontology 4 Credits****Grading Scheme:** Letter Grade

Investigation of the history of life on earth, including aspects of invertebrate and vertebrate paleontology, micropaleontology and paleobotany.

**Prerequisite:** refer to the department.**GLY 3882C Hydrogeology and Human Affairs 3 Credits****Grading Scheme:** Letter Grade

Insight into current scientific, political, legal, social, and economic aspects of hydrogeology.

**Prerequisite:** Junior standing or higher.**Attributes:** General Education - Physical Science**GLY 4155C Geology of Florida 3 Credits****Grading Scheme:** Letter Grade

Principles of physical and historical geology as applied to the geology and mineral resources of Florida. (P)

**Prerequisite:** GLY 2010C or GLY 2030C, or instructor permission.**Attributes:** General Education - Physical Science**GLY 4310C Igneous and Metamorphic Petrology 4 Credits****Grading Scheme:** Letter Grade

Fundamental concepts, principles and data that pertain to the genesis of igneous and metamorphic rocks. Emphasizes mineral phase relations, interpretive petrochemistry, magma genesis and tectonic relationships.

**Prerequisite:** CHM 1025 and GLY 3200C.**GLY 4400C Structural Geology and Tectonics 4 Credits****Grading Scheme:** Letter Grade

Structural features of the earth, their causes, recognition and interpretation; includes the mechanics of folding, faulting, and other deformations of the earth's crust.

**Prerequisite:** (GLY 2010C or GLY 2030C) and MAC 1147 and GLY 4552C.**GLY 4450 Geophysics 3 Credits****Grading Scheme:** Letter Grade

Introduces the basic types of geophysical data used to characterize the subsurface. Learn about seismic refraction and reflection, gravity, magnetics, heat flow, and electromagnetic methods.

**Prerequisite:** (GLY 2010C or GLY 2030C or GLY 1000) and (MAC 2311 or MAC 2233).**GLY 4552C Sedimentary Geology 4 Credits****Grading Scheme:** Letter Grade

Basic disciplines important in understanding the origin and classification of sedimentary rocks including sedimentary petrology, sedimentology, and stratigraphy.

**Prerequisite:** (GLY 2100C or GLY 3105C) and GLY 3200C.**GLY 4700 Geomorphology 3 Credits****Grading Scheme:** Letter Grade

Introduces the processes responsible for the formation and evolution of Earth surface features and landscapes. Emphasizes understanding of how first principles of physics and chemistry can be used to explain landform shaping.

**Prerequisite:** (GLY 2010C or GLY 2030C) and an additional 3 credits of GLY.**GLY 4726 Chemical Oceanography 3 Credits****Grading Scheme:** Letter Grade

Focuses on chemical properties and processes in the oceans, exploring the links between chemistry, biology, geology, and global change within a marine context. Topics include elemental composition and speciation, biogeochemical cycles, chemical and isotopic tracers, chemistry of marine sediments, and oceanic uptake of anthropogenic carbon.

**Prerequisite:** CHM 2045 and (OCE 1001 or GLY 2010C or GLY 2030C).

**GLY 4734 Coastal Morphology and Processes 3 Credits**

**Grading Scheme:** Letter Grade

Examines the nature and variety of coastal processes, and the origin and modification of environmental changes along coasts, including human activities in the coastal zone.

**Prerequisite:** GEO 2200 or GLY 2010C or GLY 2030C.

**GLY 4750L Geological Field Methods 2 Credits**

**Grading Scheme:** Letter Grade

Methods and techniques used in geological fieldwork.

**Prerequisite:** GLY 3105C or GLY 2100C, or instructor permission.

**GLY 4790 Geology Summer Field Camp 6 Credits**

**Grading Scheme:** Letter Grade

Summer geology field camp in northern New Mexico. Application of field procedures and techniques to the solution of geologic problems and construction of geologic maps.

**Prerequisite:** GLY 4750L and instructor permission.

**GLY 4822 Groundwater Geology 3 Credits**

**Grading Scheme:** Letter Grade

Introduces the concepts of groundwater flow and its relationship to subsurface geology. Practice in applying groundwater flow concepts and problem solving.

**Prerequisite:** Any GLY 2000-level course or higher and (MAC 1147 or MAC 2311).

**GLY 4862 Quantitative Methods in Earth Sciences 3 Credits**

**Grading Scheme:** Letter Grade

Provides the skills to analyze data and construct simple numerical models to investigate problems in earth sciences. Topics include statistical/time series/geospatial analyses, dynamic systems modeling, and numerical solutions to differential equations.

**Prerequisite:** MAC 2311 or equivalent.

**GLY 4905 Individual Work 1-3 Credits**

**Grading Scheme:** Letter Grade

For work in addition to that offered in regular courses in mineralogy, petrology, paleontology, stratigraphy, sedimentology and structural geology.

**Prerequisite:** 15 credits of geology and instructor permission.

**GLY 4911 Undergraduate Research in Geology 0-3 Credits**

**Grading Scheme:** Letter Grade

Provides firsthand, supervised research in geology. Projects may involve inquiry, design, investigation, scholarship, discovery or application in geology.

**GLY 4930 Special Topics in Geology 1-3 Credits**

**Grading Scheme:** Letter Grade

Lecture, conferences or laboratory sessions covering selected topics of current interest in modern geology.

**Prerequisite:** three courses in geology or instructor permission.

**GLY 4956 Overseas Studies 1-15 Credits**

**Grading Scheme:** Letter Grade

**OCE 1001 Introduction to Oceanography 3 Credits**

**Grading Scheme:** Letter Grade

Explores the geological, physical, and biological characteristics of Earth's marine realm. Includes discussion of scientific methods, the history of oceanography, and emphasizes understanding of the mutual interactions between humans and the ocean. (P)

**Attributes:** General Education - Physical Science

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