

GEOLOGICAL SCIENCES

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

More Info (<https://one.uf.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

Email (info@geology.ufl.edu) | 352.392.2231

P.O. Box 112120

241 WILLIAMSON HALL

GAINESVILLE FL 32611-2120

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

Curriculum

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

Courses

ESC 1000 Introduction to Earth Sciences 3 Credits

Grading Scheme: Letter Grade

Using the scientific method, critical thinking skills, and data analysis, this course will examine the fundamental processes of the earth system, composed of an atmosphere, hydrosphere, lithosphere, biosphere, and exosphere, through time. The course will also explore interactions between these spheres, including critical analysis of scientific theories and emphasize Earth's connections with humans.

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

Prerequisite: Minimum 15 credits earned in enrollment, test, or transfer credit.

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.

GLY 1102 Age of Dinosaurs 3 Credits

Grading Scheme: Letter Grade

An examination of unique episodes in the physical and biological history of the earth. This course affords students the ability to critically examine and evaluate the principles of the scientific method, model construction, and use the scientific method to explain natural experiences and phenomena.

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

GLY 1150L Florida Geology Laboratory 1 Credit**Grading Scheme:** Letter Grade

A laboratory course designed to provide a basic understanding of Florida's geology, geologic history, geologic resources and geologically related environmental problems. This course affords students the ability to critically examine and evaluate the principles of the scientific method, model construction, and use the scientific method to explain natural experiences and phenomena.

Attributes: General Education - Physical Science**GLY 1880 Earthquakes, Volcanoes and Other Hazards 3 Credits****Grading Scheme:** Letter Grade

An overview of important topics in earth science through the examination of hazards, ranging from earthquakes and volcanoes to global warming and impacts from space. Designed for students not majoring in science. This course affords students the ability to critically examine and evaluate the principles of the scientific method, model construction, and use the scientific method to explain natural experiences and phenomena.

Attributes: General Education - Physical Science**GLY 2010C Physical Geology 4 Credits****Grading Scheme:** Letter Grade

Using the scientific method, critical thinking skills, and data analysis, this course will examine the fundamental processes of the earth system, composed of an atmosphere, hydrosphere, cryosphere, lithosphere, biosphere, and exosphere through time. The course will also explore interactions between these spheres, including critical analysis of scientific theories and emphasize lithospheric connections with humanity.

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.

GLY 2038 Sustainability and the Changing Earth 3 Credits**Grading Scheme:** Letter Grade

Within the realm of earth surface processes, we will examine sustainability challenges to society and seek solutions that optimize economic, societal and environmental benefits. 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) This course affords students the ability to critically examine and evaluate the principles of the scientific method, model construction, and use the scientific method to explain natural experiences and phenomena.

Attributes: General Education - Physical Science**GLY 2040 Is the Planet Dying? 3 Credits****Grading Scheme:** Letter Grade

This course aims to provide a comprehensive view of how the earth functions as an ever-changing dynamical system. This journey through earth system science will integrate multiple disciplines that include biology, chemistry, geology, geophysics, hydrology, oceanography and meteorology. Students will learn the origin and dynamics of the great forces that shape the evolution of our planet, from the deep interior to its surface. They will also learn that the earth is made up of an interconnection of dynamical systems exhibiting complex behaviors at multiple spatial and temporal scales, which are relevant to society. This course affords students the ability to critically examine and evaluate the principles of the scientific method, model construction, and use the scientific method to explain natural experiences and phenomena.

Prerequisite: Quest 1 Course with a minimum grade of C.**Attributes:** Quest 2, 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.

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

GLY 2890 Hazards and Humans 3 Credits**Grading Scheme:** Letter Grade

Uses geologic principles to evaluate earthquake and volcanic hazards. Explores the limits of predictive abilities, the challenges of forecasting weather disasters in a changing climate, and the necessity for decision-making despite scientific uncertainty

Attributes: Quest 2**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.

Prerequisite: Minimum 15 credits earned in enrollment, test, or transfer credit.**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.

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

Prerequisite: Minimum 15 credits earned in enrollment, test, or transfer credit.**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.

Prerequisite: 3 credits of GLY, ESC or OCE courses.**Attributes:** Artificial Intelligence**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.**GLY 4041 Survey of Geobiology and Astrobiology 3 Credits****Grading Scheme:** Letter Grade

Chemical and physical processes in the atmosphere, hydrosphere, cryosphere and the solid earth influence life processes, which can also influence planetary processes. Explores life as a geological agent and examines the interaction between biology and the earth system during the roughly 4 billion years since life first appeared.

Prerequisite: GLY 2010C.**GLY 4043 Cosmochemistry 3 Credits****Grading Scheme:** Letter Grade

Chemistry of early Solar System and planetary processes. Emphasizes planetary materials and the accretion, differentiation, and magmatic evolution of the terrestrial planets and asteroids.

Prerequisite: GLY 4310C or GLY 3202C.

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.

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

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.

Attributes: Artificial Intelligence

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 4 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.**Attributes:** Artificial Intelligence**GLY 4956 Overseas Studies 1-15 Credits****Grading Scheme:** Letter Grade**OCE 1001 Introduction to Oceanography 3 Credits****Grading Scheme:** Letter Grade

Using the scientific method, critical thinking skills, and data analysis, this course will examine the fundamental processes of the ocean system, composed of an atmosphere, hydrosphere, lithosphere, and biosphere, through time. The course will also explore interactions between these spheres, including critical analysis of scientific theories and emphasize oceanic connections with humanity.

Attributes: General Education - Physical Science
