

GEOLOGY (GLY)

GLY 1010C - Physical Geology (4 Credits)

Using the scientific method, critical thinking skills, 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.

Attribute(s): GENC - Gen. Ed -Natural Sci+Lab, Gen. Ed -Natural Sci+Lab, SCIQ - Scientific Inquiry, Scientific Inquiry

GLY 2030C - Environmental Geology (3 Credits)

Environmental issues as they relate to earth science systems, which include volcanic and earthquake hazards, energy resources, air and water pollution, waste disposal, and other global change topics.

Attribute(s): ESSE - Earth and Space Science, GENC - Gen. Ed -Natural Sci+Lab, Gen. Ed -Natural Sci+Lab, SCIQ - Scientific Inquiry, Scientific Inquiry

GLY 2100C - Historical Geology (3 Credits)

This course is designed to introduce students to the geological and biological history of Earth beginning with the formation of the Earth-Moon system and continuing through the evolution of life on this planet. Students will explore basic geologic principles as well as how scientists apply these principles to unravel Earth's history. Topics include absolute and relative correlations, plate tectonics, geologic time, major extinction events, and the origin and evolution of the lithosphere, biosphere, and atmosphere.

Attribute(s): GENC - Gen. Ed -Natural Sci+Lab, Gen. Ed -Natural Sci+Lab, SCIQ - Scientific Inquiry, Scientific Inquiry

GLY 3091 - Overview of Env Geology (1 Credits)

This is an orientation course for students enrolled in or interested in enrolling in the Environmental Geology Major. The course has several objectives. The first is to orient students to the Environmental Geology Program requirements. Students will also be provided with career and graduate school information. Additionally, students will discuss local and regional environmental geology issues and begin student career counseling.

Prerequisite(s): (GLY 1010C (may be taken concurrently) or (GLY 1010 (may be taken concurrently) and GLY 1010L (may be taken concurrently))) or (GLY 1000C (may be taken concurrently) or (GLY 1000 (may be taken concurrently) and GLY 1000L (may be taken concurrently))) and GLY 2100C (may be taken concurrently) and (GLY 2030C (may be taken concurrently) or (GLY 2030 (may be taken concurrently)))

GLY 3202C - Mineralogy & Petrology (3 Credits)

Overview of the origin and occurrence of geologic materials with an emphasis on the identification and classification of minerals and rocks. Course 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(s): (GLY 1010C or (GLY 1010 and GLY 1010L)) or (GLY 1000C or (GLY 1000 and GLY 1000L)) and (CHM 1045C or (CHM 1045 and CHM 1045L))

GLY 3420C - Tectonics (4 Credits)

This lecture and lab combined course will cover the basic principles of plate tectonics including plate motion and mountain building.

Prerequisite(s): GLY 1010C or (GLY 1010 and GLY 1010L) and GLY 2100C

Attribute(s): ESSE - Earth and Space Science, MRSE - Marine Sci Restrict Elec

GLY 3603C - Paleontology (3 Credits)

Reviews the basic principles of paleontology and its application to problems in the geological, biological & environmental sciences.

Prerequisite(s): GLY 1010C or (GLY 1010 and GLY 1010L)

Attribute(s): ESSE - Earth and Space Science, MRSE - Marine Sci Restrict Elec

GLY 3820C - Introduction to Hydrology (3 Credits)

Study of the principles and applications of ground and surface water flow. Combined lecture and laboratory.

Prerequisite(s): (GLY 1010C or (GLY 1010 and GLY 1010L)) or (GLY 1000C or (GLY 1000 and GLY 1000L)) or PCB 3043C

GLY 4071C - Paleoclimatology (3 Credits)

Paleoclimatology will provide an introduction to Earth's climate and variations of climate through geological and historical time. The course will look at methods used in paleoclimate reconstruction and paleoclimate archives preserved in ice cores, marine sediments, terrestrial sediments and fossil records. The course will help students understand past climate variability and provide key insights into how climate may change in the future.

Prerequisite(s): (CHM 1045C or (CHM 1045 and CHM 1045L)) or (GLY 1000C or (GLY 1000 and GLY 1000L)) or (GLY 1010C or (GLY 1010 and GLY 1010L))

GLY 4074C - Meteorology & Climatology (3 Credits)

Atmospheric processes of weather and climate and their effects upon marine and terrestrial systems are explored. Historical records of climate and the methods employed in their study are introduced and used to understand modeling of future climate change.

Attribute(s): ESSE - Earth and Space Science, MRSE - Marine Sci Restrict Elec, SUSC - Sustainability Component

GLY 4244C - Biogeochemistry (3 Credits)

The importance of chemical cycling of life's most critical elements (e.g. carbon, oxygen, nitrogen, phosphorus, & sulfur) among the earth's spheres is considered in this upper division, course.

Prerequisite(s): CHM 1084C or (CHM 1045C or (CHM 1045 and CHM 1045L)) and (GLY 1010C or (GLY 1010 and GLY 1010L)) or (GLY 1000C or (GLY 1000 and GLY 1000L))

Attribute(s): MRSE - Marine Sci Restrict Elec

GLY 4400C - Structural Geology (3 Credits)

This course covers structural features of the Earth's crust such as faults, folds, and earthquakes. This course also covers the mechanics for the deformation of the Earth's crust.

Prerequisite(s): GLY 2100C (may be taken concurrently) and GLY 1010C or (GLY 1010 and GLY 1010L) or GLY 1000C

GLY 4520C - Organic Geochemistry (3 Credits)

An introduction to and broad overview of the field of Organic Geochemistry: the structure and fate of organic molecules in the geosphere. Students will learn the classes of natural organic compounds and their structures, production, preservation, distribution and fate in geological environments (sediments, waters and soils). Students will learn how organic source markers and process markers can be applied to paleoenvironmental reconstructions and palaeotemperature indicators. The analytical techniques currently employed in this field shall also be covered. Course structure includes lecture and laboratory experiments for the isolation and characterization of organic molecules from environmental samples.

Prerequisite(s): (CHM 1046 and CHM 1046L) or CHM 1084C

GLY 4544C - Sedimentology and Stratigraphy (3 Credits)

Geological and hydrological processes that occur at the earth's surface. Topics include: physical and chemical weathering, soil formation, sedimentology and stratigraphy, geomorphology and physiography, survey of sedimentary rock types, principles of description and classification, sediment genesis and origin of sedimentary deposits, analysis and synthesis of stratigraphic sequences, depositional systems, physical and biostratigraphy, geochronology and chronostratigraphy, magnetic, seismic, and sequence stratigraphy, tectonic vs. Climatic controls.

Prerequisite(s): GLY 1010C or (GLY 1010 and GLY 1010L)

GLY 4700C - Coastal & Watershed Geology (3 Credits)

Considers those geological and hydrological processes that occur at the Earth's surface. Topics include: physical and chemical weathering, soil formation, sedimentology and stratigraphy, geomorphology and physiography, surface and groundwater hydrology, and human-induced effects and environmental problems.

Prerequisite(s): GLY 1010C or GLY 1000C

Attribute(s): ESSE - Earth and Space Science, SUSC - Sustainability Component

GLY 4730C - Marine Geology (3 Credits)

Examination of the physical processes operating in the world ocean; marine tectonics; ocean history; marine sediments; ocean circulation; marine energy; sea-level change; marine research methods.

Prerequisite(s): GLY 1010C or (GLY 1010 and GLY 1010L)

GLY 4732C - Coastal Dynamics (3 Credits)

Students will learn fundamental dynamics of coastal sedimentary systems and how natural changes in coastal areas can impact human development and vice versa. Students will also learn ways in which coastal issues can be managed including creating effective plans for interventions.

Prerequisite(s): GLY 1010C or (GLY 1010 and GLY 1010L) and (PHY 2053 and PHY 2053L) and (STA 2023 or MAC 2311)

GLY 4822C - Hydrogeology (3 Credits)

An introductory treatment of the physical processes and geological constraints that govern the occurrence and movement of subsurface waters. Topics will include aquifers, well construction, groundwater contamination, and groundwater modeling.

Prerequisite(s): GLY 1010C or (GLY 1010 and GLY 1010L)

Attribute(s): WBLI - Work based learning indicator

GLY 4892 - Senior Capstone: Env Geology (3 Credits)

This capstone course is a culminating of students' experiences from the Environmental Geology degree program.

Prerequisite(s): (GLY 3820C or GLY 4071C or GLY 4700C) and (ISC 4910 or ISC 4940)

GLY 4930 - Special Topics in Geology (3 Credits)

Special sessions exploring the current issues in the Geological sciences. Topics may vary and are selected on the basis of what is new or currently relevant in the field.

Prerequisite(s): (GLY 1010C or (GLY 1010 and GLY 1010L)) or (GLY 1000C or (GLY 1000 and GLY 1000L))

GLY 4952 - Carbonate Deposition Environs (3 Credits)

Summer course in San Salvador, Bahamas. Pleistocene and Holocene limestones are compared against modern tropical environments using principles from sedimentology, stratigraphy, petrography, and paleontology. Provides intensive field and laboratory experiences for geologists and environmental scientists. GLY 4702C with a C or better or permission of instructor is required.

Prerequisite(s): GLY 4702C

Attribute(s): ENVE - Envir.Stud.Elect.Pathway

GLY 5266C - Advanced Biogeochemistry (3 Credits)

The importance of chemical cycling of life's most critical elements (e.g. carbon, oxygen, nitrogen, phosphorus & sulfur) among the earth's spheres and how these cycles are impacted by global climate change is considered in this course.

GLY 5661C - Conservation Paleobiology (3 Credits)

Application of principles and methods from paleontology, sedimentology, and stratigraphy to contemporary problems in environmental science, management, and restoration of both regional and global concern.

GLY 6249C - Organic Geochemistry (3 Credits)

An introduction to and broad overview of the field of Organic Geochemistry: the structure and fate of organic molecules in the geosphere. Students will learn the classes of natural organic compounds and their structures, production, preservation, distribution and fate in geological environments (sediments, waters and soils). Students will learn how organic source markers and process markers can be applied to paleoenvironmental reconstructions and palaeotemperature indicators. The analytical techniques currently employed in this field shall also be covered. Course structure includes lecture, presentation and discussion of relevant literature and laboratory experiments for the isolation and characterization of organic molecules from environmental samples.

Prerequisite(s): CHM 1046 or CHM 1084C

GLY 6566 - Carbonate Sed Petrol Stratigr (3 Credits)

Summer course in San Salvador, Bahamas. Pleistocene and Holocene limestones are compared against modern tropical environments using principles from sedimentology, stratigraphy, petrology, and paleontology. Provides intensive field and laboratory experiences for geologists and environmental scientists. Permission of Instructor required.