

# GEOLOGY (GLY)

 - General Education Course

## GLY 100 Geologic Hazards & Resources 3 Credit hours

Introductory course for non-science majors focusing on (i) Earth Hazards; and mitigation, (ii) Climate change and its impacts; and (iii) Earth and Energy resources, their origin, development, and environmental impacts.

**Attributes:** Natural Sciences, Core II Natural Sciences

**Grade Mode:** Normal Grading Mode

## GLY 150 Intro Oceanography 3 Credit hours

Origin of the seas and ocean basins. Processes of marine sedimentation and seawater chemistry. Dynamics of air/sea interaction, circulation, waves and tides. Description of coastal and other marine environments.

**Attributes:** Natural Sciences, Core II Natural Sciences

**Grade Mode:** Normal Grading Mode

## GLY 150L Intro Oceanography Lab 1 Credit hour

A complementary laboratory to Introductory Oceanography, GLY 150. A series of exercises relating to bathymetry, acoustic profiling, marine charts, properties of seawater, sea floor sediments, currents, waves and tides.

**Co-req:** GLY 150

**Attributes:** Natural Sciences, Core II Natural Sciences

**Grade Mode:** Normal Grading Mode

## GLY 170 Geology of the National Parks 3 Credit hours

An introduction to U.S. Parks and Monuments including earth materials, plate tectonic setting, formative geologic processes, and natural history; brief overview of history and purpose of the National Park Service.

**Grade Mode:** Normal Grading Mode

## GLY 200 The Dynamic Earth 3 Credit hours

An elementary but comprehensive physical geology course that deals with the earth's origin, composition, structures, tectonics and processes. Intended primarily for, but not limited to, the science major. 3 lec.

**Attributes:** Natural Sciences, Core II Natural Sciences

**Grade Mode:** Normal Grading Mode

## GLY 201 The Earth Through Time 3 Credit hours

Introduction to 1) the principles used to interpret past physical, biologic, and chemical events archived in rock record, and 2) the history and development of the earth's lithosphere, biosphere, hydrosphere, and atmosphere.

**Attributes:** Natural Sciences, Core II Natural Sciences

**Grade Mode:** Normal Grading Mode

## GLY 210L Earth Materials Lab 1 Credit hour

An introduction to laboratory methods and materials as applied to the identification, classification, recovery and uses of earth resources. 2 lab.

**Attributes:** Natural Sciences, Core II Natural Sciences

**Grade Mode:** Normal Grading Mode

## GLY 211L Earth Through Time Lab 1 Credit hour

Reconstruction of events in earth history based on physical characteristics and arrangement of rock layers and their fossil contents. 2 hr lab (PR: 210L; CR: GLY 201)

**Attributes:** No Textbook Required, Natural Sciences, Core II Natural Sciences

**Grade Mode:** Normal Grading Mode

## GLY 212 Geologic Field Methods 3 Credit hours

Introduction to geologic map interpretation, qualitative and quantitative methods of geologic map and cross-section preparation, and basic ArcGIS mapping methods. 2 lec 1 lab. (Field Work).

**Pre-req:** (GLY 200 with a minimum grade of D or GLY 201 with a minimum grade of D) and (GLY 210L with a minimum grade of D or GLY 211L with a minimum grade of D).

**Attributes:** Natural Sciences

**Grade Mode:** Normal Grading Mode

## GLY 280 Special Topics 1-4 Credit hours

**Attributes:** Natural Sciences

**Grade Mode:** Normal Grading Mode

## GLY 281 Special Topics 1-4 Credit hours

**Attributes:** Natural Sciences

**Grade Mode:** Normal Grading Mode

## GLY 282 Special Topics 1-4 Credit hours

**Attributes:** Natural Sciences

**Grade Mode:** Normal Grading Mode

## GLY 283 Special Topics 1-4 Credit hours

**Attributes:** Natural Sciences

**Grade Mode:** Normal Grading Mode

## GLY 313 Structural Geology 4 Credit hours

Analysis, classification and origin of depositional and deformational structures common to all classes of rocks; their structural history, relationships, and stresses which caused them. 3 lec-2 lab.

**Pre-req:** GLY 110 or GLY 200.

**Attributes:** Natural Sciences

**Grade Mode:** Normal Grading Mode

## GLY 314 Mineralogy 4 Credit hours

Identification, classification, origin, occurrences, and economic uses of minerals and their crystallographic forms. 3 lec-2 lab.

**Pre-req:** GLY 200 with a minimum grade of D and CHM 211 with a minimum grade of D.

**Attributes:** Natural Sciences

**Grade Mode:** Normal Grading Mode

## GLY 320L Geology Lab Techniques 2 Credit hours

Techniques of collection, preparation and analysis of mineral, rock and water samples, and the use of different instruments for obtaining quality data. Will also cover tools used for data interpretation.

**Pre-req:** GLY 200 (may be taken concurrently) with a minimum grade of D and GLY 210L (may be taken concurrently) with a minimum grade of D.

**Concurrent PR:** GLY 200 and GLY 210L

**Grade Mode:** Normal Grading Mode

**GLY 325 Stratigraphy & Sediment****4 Credit hours**

Formation, organization, sequence, and correlation of sedimentary rocks; study of the origin, transportation and deposition of rock-forming sediments. 3 lec-2 lab.

**Pre-req:** GLY 201 with a minimum grade of D and GLY 211L with a minimum grade of D.

**Attributes:** Natural Sciences

**Grade Mode:** Normal Grading Mode

**GLY 330 Tectonics****3 Credit hours**

Overview of tectonic processes at plate boundaries, orogenic systems, formation of continents and ocean basins, and tectonic analytical methods.

**Pre-req:** GLY 200 and GLY 201 and GLY 210L and GLY 211L.

**Grade Mode:** Normal Grading Mode

**GLY 410 Big Bend Field Excursion****2 Credit hours**

Field trip to Big Bend National Park, Texas to study the structure, stratigraphy, igneous geology, metamorphic geology, paleontology and natural history of this national park.

**Attributes:** Natural Sciences

**Grade Mode:** Normal Grading Mode

**GLY 418 Invertebrate Paleontology****4 Credit hours**

Taxonomy, morphology, and paleoecology of body and trace fossils representing the major invertebrate phyla; analysis and interpretation of faunal assemblages; evolution and extinction of species. (PR: GLY 201)

**Pre-req:** GLY 201 with a minimum grade of D and GLY 211L with a minimum grade of D.

**Attributes:** Natural Sciences

**Grade Mode:** Normal Grading Mode

**GLY 420 Principles of Geochemistry****3 Credit hours**

Application of chemical principles to geology. Topics include cosmochemistry; distribution of elements in minerals and rocks; aqueous solutions and water-rock interaction; radiometric age dating and stable isotope geology.

**Pre-req:** CHM 211 with a minimum grade of D and GLY 200 with a minimum grade of D.

**Grade Mode:** Normal Grading Mode

**GLY 421 Igneous & Metamorphic Petrology****4 Credit hours**

Identification and classification of igneous, and metamorphic rocks, their origin and occurrence; their geologic and economic importance. 3 lec-2 lab.

**Pre-req:** GLY 200 with a minimum grade of D and GLY 314 with a minimum grade of D.

**Attributes:** Natural Sciences

**Grade Mode:** Normal Grading Mode

**GLY 423 Sedimentary Petrology****4 Credit hours**

Microscopic description of minerals, textures, and fossils in sedimentary rocks, their classification, and interpretation of source area, depositional environment and post-depositional history. 3 lec-2 lab.

**Pre-req:** GLY 201.

**Attributes:** Natural Sciences

**Grade Mode:** Normal Grading Mode

**GLY 426 Geophysics****3 Credit hours**

Development of seismic, gravity, magnetism, electrical and thermal methods of studying the structure and dynamics of the earth. 3-lec

**Pre-req:** GLY 200 with a minimum grade of D and GLY 210L with a minimum grade of D and (PHY 201 with a minimum grade of D or PHY 211 with a minimum grade of D) and MTH 229 with a minimum grade of D.

**Attributes:** Natural Sciences

**Grade Mode:** Normal Grading Mode

**GLY 427 Fossil Fuels****4 Credit hours**

Origin and distribution of coal, oil and gas, and methods of exploration and reserve evaluation. 3 lec-2 lab.

**Pre-req:** GLY 200.

**Attributes:** Natural Sciences

**Grade Mode:** Normal Grading Mode

**GLY 451 Principles Geomorphology****4 Credit hours**

Principles of identification and analysis of the world's surficial features in terms of stratigraphy, structure, processes, tectonics and time. 3 lec. 2 lab.

**Pre-req:** GLY 200 and GLY 210L.

**Attributes:** Natural Sciences

**Grade Mode:** Normal Grading Mode

**GLY 455 Hydrogeology****3 Credit hours**

The properties of water, the hydrologic cycle with emphasis on surface and groundwater processes, the uses, needs and problems associated with water resources. 3 lec.

**Pre-req:** GLY 200 with a minimum grade of D and (MTH 132 with a minimum grade of D or MTH 229 with a minimum grade of D or MTH 229H with a minimum grade of D).

**Attributes:** Natural Sciences

**Grade Mode:** Normal Grading Mode

**GLY 455L Hydrogeology Laboratory****1 Credit hour**

A two-hour laboratory of practical hydrogeologic problem solving. For non-majors, elective.

**Pre-req:** GLY 455 (may be taken concurrently) with a minimum grade of D.

**Concurrent PR:** GLY 455

**Attributes:** Natural Sciences

**Grade Mode:** Normal Grading Mode

**GLY 456 Environmental Geology****4 Credit hours**

Consideration of risks posed by natural geo-hazards and from physical/chemical contamination of geologic media. (PR: GLY 200, GLY 210L or equivalent; Recommended: GLY 451)

**Pre-req:** GLY 200 with a minimum grade of D and GLY 210L with a minimum grade of D.

**Attributes:** Natural Sciences

**Grade Mode:** Normal Grading Mode

**GLY 457 Engineering Geology****4 Credit hours**

Consideration of geotechnical problems faced by geologists and engineers. Major topics include mechanics and classification of soil and rock, and geotechnical aspects of groundwater.

**Pre-req:** GLY 200 with a minimum grade of D and GLY 210L with a minimum grade of D and (MTH 132 with a minimum grade of D or MTH 229 with a minimum grade of D).

**Attributes:** Natural Sciences

**Grade Mode:** Normal Grading Mode

**GLY 480 Special Topics****1-4 Credit hours**

**Attributes:** Natural Sciences

**Grade Mode:** Normal Grading Mode

**GLY 481 Special Topics 1-4 Credit hours**

**Attributes:** Natural Sciences  
**Grade Mode:** Normal Grading Mode

**GLY 482 Special Topics 1-4 Credit hours**

**Attributes:** Natural Sciences  
**Grade Mode:** Normal Grading Mode

**GLY 483 Special Topics 1-4 Credit hours**

**Attributes:** Natural Sciences  
**Grade Mode:** Normal Grading Mode

**GLY 485 Independent Study 1-4 Credit hours**

**Attributes:** No Textbook Required, Natural Sciences  
**Grade Mode:** Normal Grading Mode

**GLY 486 Independent Study 1-4 Credit hours**

**Attributes:** Natural Sciences  
**Grade Mode:** Normal Grading Mode

**GLY 487 Independent Study 1-4 Credit hours**

**Attributes:** Natural Sciences  
**Grade Mode:** Normal Grading Mode

**GLY 488 Independent Study 1-4 Credit hours**

**Attributes:** Natural Sciences  
**Grade Mode:** Normal Grading Mode

**GLY 491  Capstone Experience 2-4 Credit hours**

An independent study involving a research project or internship. Must be approved by Geology faculty. (PR: 20 hours of Geology coursework).

**Attributes:** Capstone Course, Natural Sciences  
**Grade Mode:** Normal Grading Mode

**GLY 492  Capstone Experience 2-4 Credit hours**

An independent study involving a research project or internship. Must be approved by Geology faculty. (PR: 20 hours of Geology coursework).

**Attributes:** Capstone Course, Natural Sciences  
**Grade Mode:** Normal Grading Mode