Geology (GEOL)

Courses

GEOL 1010 Physical Geology (4 Credits)
Physical geology examines the internal structure of the Earth, the nature and properties of Earth materials, their distribution through the Earth, and the processes by which rocks are formed, altered, and transported. This course serves as an introduction to the geological sciences and is a prerequisite to advanced study.

GEOL 1992 Directed Study (1-10 Credits)

GEOL 2020 Historical Geology (4 Credits)
Historical geology is the study of the evolution of Earth through geologic time. Geologic features such as rock types and fossils are used to interpret and date past events. This course specifically introduces the basic geologic principles underlying historical geology, the geologic evolution of North America, and the evolution of life on Earth.

GEOL 2380 Rocks and Minerals (4 Credits)
This class focuses on the identification, classification, and formation of common rock types and rock-forming minerals. Students will learn to reconstruct geologic conditions and earth history from rock and mineral features. Prerequisite: GEOL 1010, GEOG 1203 or permission of instructor.

GEOL 2400 Geology and Ecology of the Southwest (5 Credits)
This field class emphasizes firsthand observations of the interactions among environmental properties (including substrate geology, soils, and climate) and natural vegetation in the Colorado Front Range, Rio Grande Rift, and Chihuahuan desert regions of New Mexico and southeastern Arizona. The course also examines Pliocene and Quaternary volcanism in southern Colorado and New Mexico in addition to Paleozoic and Mesozoic geology along the uplands of the Rio Grande Rift. Prerequisite: permission of instructor.

GEOL 2800 Geology of National Parks (4 Credits)
The geology and landforms of the United States are not better illustrated than in our national parks. This course presents the physical and geological processes that have shaped many of our national parks. Focus of the course will include Yosemite, Grand Canyon, Rocky Mountain, Yellowstone, Grand Teton, Zion, and Bryce National Parks as well as selected others. Prerequisites: one of the following: GEOG 1203, GEOG 1217, GEOL 1010, an introductory course in geology, or instructor's permission.

GEOL 2992 Directed Study (1-10 Credits)

GEOL 3010 Process Geomorphology (4 Credits)
The land surface of Earth is continuously altered by geomorphic processes. This class focuses upon the nature of these processes, the work that they perform and the resulting landforms. In addition, the student becomes familiar with various methods of geomorphic analysis through the laboratory component of the class. Cross listed with GEOG 3910. Prerequisite: GEOL 1010, GEOG 1202 or permission of instructor.

GEOL 3100 Environmental Geology (4 Credits)
Environmental geology examines geologic hazards, both natural and those attributable to human impacts on the environment from urban and regional development. Specific topics may include disposal of municipal solid waste and radioactive waste; flood, earthquake, volcanic hazards; groundwater pollution and withdrawal; mass-wasting phenomena; and energy-related issues. Prerequisite: GEOL 1010, GEOG 1203 or instructor's permission.

GEOL 3200 Sedimentology/Stratigraphy (4 Credits)
This course reviews the origin, geologic history, and depositional environments of sediments and sedimentary rocks. Course work concentrates on the identification of sedimentary rocks and depositional environments by first-hand observations of rocks in the Denver area. Prerequisite: GEOL 1010, GEOG 1203 or instructor's permission.

GEOL 3300 Petroleum Geology (4 Credits)
This class examines the geological occurrences of petroleum including the origin, migration, and accumulation of oil and natural gas. This class differs from traditional petroleum geology classes by offering an examination of the economics and politics underlying the oil and gas industry, and by considering alternatives to traditional hydrocarbon resources. Prerequisite: GEOL 1010, GEOG 1203 or instructor's permission.

GEOL 3520 Erosion Process & Measurement (4 Credits)
Soil erosion is arguably the most serious environmental problem worldwide. This course focuses upon the significance of this problem, the factors affecting erosion rates, the nature of the processes themselves, methods of measurement, estimation of erosion rates and erosion control practices. Prerequisites: GEOG 1203, GEOG 1218, or GEOG 1266.

GEOL 3540 Hydrology (4 Credits)
This course provides an overview of the hydrologic cycle with emphasis placed on the study of applied hydrology. Discussions include the fundamental characteristics of precipitation, runoff processes, calculation of flood hazards, aquifers (porosity and permeability), the geologic settings of groundwater, the basic physics of groundwater flow, and water supply and use. Prerequisite: GEOL 1010, GEOG 1203 or instructor's permission. Recommended prerequisite: one introductory statistics course.
GEOL 3900 Geomorphology Seminar (1-5 Credits)
Hill slopes comprise the vast majority of the Earth’s land surface. It is upon these surfaces that nearly all of the human population must exist and, hopefully, flourish. Hill slopes assume various forms, and their shape influences their utility for various human endeavors. Numerous geomorphic processes operate upon hill slopes to determine their form, and human activities strongly influence the frequency and magnitude of these geomorphic processes. Consequently, hill slopes are an interface between the Earth and the human population. Prerequisite: GEOL 3010 or permission of instructor.

GEOL 3991 Independent Study (1-5 Credits)
GEOL 3992 Directed Study (1-10 Credits)