

GEOS 325 Geology of California 3.0 Fall

Prerequisites: GEOS 101 or GEOS 102 or consent of instructor. Geologic setting of California and historical development of its geologic provinces. The impact of earthquakes, volcanic activity, coastal erosion, and earth resources on California. Field trip required. Special fee required; see the *Class Schedule*.

GEOS 330 Environmental Science 3.0 Fa/Spr

Prerequisites: One course from Breadth Area B1 and one course from Breadth Area B2 of the General Education requirements. Human impact on life-support systems; use of physical and ecological principles in environmental management and protection; discussion of land use and its environmental impact; and an evaluation of human influence on natural cycles. This is an approved General Education course.

GEOS 331 Environmental Science Lab 2.0 Fall

Prerequisites: Either CHEM 107 or CHEM 111, one course from Breadth Area B2. A laboratory designed to complement GEOS 330. Physical, chemical, and ecological concepts as related to the field and laboratory experience in environmental science. 1.0 hours lecture, 3.0 hours laboratory. Special fee required; see the *Class Schedule*.

GEOS 340 Environmental Geology 3.0 Fa/Spr

Prerequisites: One course from Breadth Area B1 and one course from Breadth Area B2 of General Education requirements. Provides the non-major with a geologic approach to current environmental problems relating to the origin and use of energy, mineral, and water resources, and the causes and mitigations of geologic hazards. This is an approved General Education course.

GEOS 341 Teaching Practicum in Geological and Environmental Sciences 3.0 Fa/Spr

Prerequisites: GEOS 102, GEOS 105, GEOS 203, GEOS 306, GEOS 321. This course provides students with classroom experience that utilizes a variety of interactive, engaging teaching styles that develop and reinforce skills and concepts through open-ended activities such as direct instruction, discourse, demonstrations, individual and cooperative learning explorations, peer instruction, and student-centered discussion. 1.0 hours lecture, 4.0 hours activity.

GEOS 342 Concepts in Earth and Space Science 3.0 Fa/Spr

Prerequisites: GEOS 141 or faculty permission. Fundamental concepts in (1) the solar system and the universe, (2) the structure and composition of the solid Earth, and (3) Earth's atmosphere and water. Intended for Liberal Studies majors and students pursuing a single subject teaching credential in science. 1.0 hours lecture, 4.0 hours activity. Special fee required; see the *Class Schedule*.

GEOS 343 Oceanography 3.0 Fall

Prerequisites: A lab course in the biological sciences and a lab course in the physical sciences. Study of ocean currents and water masses; nutrient distribution and productivity; morphology and sediment distributions of ocean basins, continental shelves, and shorelines; sea floor spreading; and marine field techniques.

GEOS 350 American Science and Technology 3.0 Fa/Spr

Prerequisites: Completion of the General Education Breadth Areas B1, The Physical Universe, and B2, Life Forms. A consideration of the scientific principles underlying key scientific and technological occurrences in the United States, and the relationship of these occurrences to other aspects of American life. This is an approved General Education course.

GEOS 351 Science and the American Idea 3.0 Spring

Prerequisites: Completion of the General Education Breadth Areas B1, the Physical Universe, and B2, Life Forms. Major issues in the evolution of science within the development of the United States. This is an approved General Education course.

GEOS 354 Science and Ethics 3.0 Spring

Prerequisites: Completion of the General Education Breadth Area B requirement, PHIL 321. The process of science and the scientific method. The Darwinian revolution and its social and ethical implications. Proteins and nucleic acids. Technological and ethical issues in biotechnology. Nuclear weapons. Conservation and environmental ethics. This course cannot be used for credit toward a geosciences major or minor. This is an approved General Education course.

GEOS 355 Geologic Hazards 3.0 Fa/Spr

Prerequisites: One course from Breadth Area B1 and one course from Breadth Area B2 of General Education requirements. A discussion of the geologic processes that cause geologic hazards; the methods of measuring their magnitude and frequency; the various ways in which hazards affect humans and their environment; the methods by which geologic hazards can be predicted and mitigated; and the various stages of recovery from catastrophic geologic hazards. This is an approved General Education course.

GEOS 360 Field Methods 2.0 Spring

Prerequisites: GEOS 306, GEOS 307. Elementary geologic field methods, descriptive geometry, photogeology, and geologic mapping. Ten days in the field during January intersession.

GEOS 361 Preparation of the Geological Report 1.0 Spring

Prerequisites: ENGL 130 (or its equivalent) with a grade of C- or higher, GEOS 360. This is a writing proficiency, WP, course; a grade of C- or better certifies writing proficiency for majors.

GEOS 370 Energy in the Human Environment 3.0 Spring

Prerequisites: One course from Breadth Area B1. Analysis of present and long-term global energy crises; coverage of scientific concepts needed to understand energy and its environmental interactions; in-depth examination of alternative energy sources and their environmental impact. This is an approved General Education course.

GEOS 380 Hydrology 3.0 Fall

Prerequisites: GEOS 270; PHYS 202A or PHYS 204A (may be taken concurrently). A survey of the mass transfer processes and storage elements within the hydrologic cycle: precipitation, interception, surface runoff, infiltration, evapo-transpiration, soil water and groundwater. Quantitative methods for estimating flow and storage, use of probability concepts to predict extreme hydrologic events in a time series. 2.0 hours lecture, 3.0 hours laboratory.

GEOS 381 Hydrologic Field Methods 2.0 Fall

Prerequisites: GEOS 270 (may be taken concurrently), GEOS 380, GEOS 415, prior hydrology course work, or consent of instructor. Develops field and related laboratory skills in performing common measurements in all areas of the hydrologic cycle. Students learn to critically evaluate the theoretical basis for field methods and hydrologic characterization approaches. 1.0 hours lecture, 3.0 hours laboratory.

GEOS 390 Surficial Processes 3.0 Fall

Prerequisites: MATH 120; either PHYS 202A or PHYS 204A. A survey of the processes governing uplift and denudation of landscapes, including isostasy, chemical and physical weathering, mass movements, surface water erosion, formation of channels, and flow and sediment transport. 2.0 hours lecture, 3.0 hours laboratory.

GEOS 399 Special Problems 1.0-3.0 Fa/Spr

Prerequisites: Faculty permission. This course is an independent study of special problems offered for 1.0-3.0 units. You may take this course more than once for a maximum of 6.0 units. Credit/no credit grading only.

GEOS 400 Physical Meteorology 3.0 OddFa

Prerequisites: MATH 121; either PHYS 202B or PHYS 204C. Recommended: GEOS 321. The physical processes of the atmosphere: atmospheric hydrostatics and thermodynamics; aerosol physics; cloud microphysics and dynamics; radiative transfer. The role of these processes in cloud and storm development is also covered.

GEOS 402 Optical Mineralogy 1.0 Spring

Prerequisites: GEOS 306 with grade of C- or better. Must be taken concurrently with GEOS 403. Theory and practice of identification of minerals with the petrographic microscope. Emphasis on the common rock-forming silicates. 3.0 hours laboratory.

GEOS 403 Igneous and Metamorphic Petrology 4.0 Spring

Prerequisites: GEOS 306 with grade of C- or better. Must be taken concurrently with GEOS 402. Physical-chemical development and geotectonic settings of igneous and metamorphic rocks. Analysis of rock thin sections. Field trip required. 3.0 hours lecture, 3.0 hours laboratory.

GEOS 405 Solar System Astronomy 3.0 OddSp

Prerequisites: PHYS 202A or equivalent, or faculty permission. Study of planets, asteroids, meteors, and comets, including the dynamics of their orbits, the geology of their surfaces, and their origin. Study of planetary atmospheres, including their origin, evolution, dynamics and climate. Space colonies and the possible colonization of other planets will also be discussed.