GEOSCIENCES (GEOS)

GEOS 120 — Geohazards Course count: 1
This introductory geoscience course will provide an examination of the causes, effects, and options available to mitigate natural disasters, such as hurricanes, floods, sinkholes, earthquakes, volcanoes, tsunami, landslides, and meteorite impacts. While the focus will be on the science, we will also discuss big-picture concepts such as hazard and risk, resilience and recovery, environmental social justice, and the earth as a connected system. This course is appropriate for current or potential geoscience and environmental studies minors, as well as students interested in a natural science course. There will be three exams plus readings from the popular and scientific literature, hands-on data analysis, writing assignments, and a group oral presentation. One Unit.

GPA units: 1
Common Area: Natural Science
Typically Offered: Alternate Years

GEOS 130 — Habitable Planets Course count: 1
Is there life elsewhere in the solar system or in the universe? How and where did life begin? What conditions are required for life? How do geologic processes affect the habitability of planets, moons, and exoplanets? In this class, we will explore theories about the formation of the solar system, evidence for the appearance and evolution of life, and describe how geologic processes and planetary evolution are related to life and habitability. This course will draw on important concepts in biology, geology, astronomy, planetary science, and philosophy.

GPA units: 1
Common Area: Natural Science
Typically Offered: Fall

GEOS 150 — Introduction to Geology Course count: 1
This course covers the physical processes and history of the Earth. Topics typically include the formation of the Earth, physical properties and identification of minerals and rocks, plate tectonics, earthquakes, volcanoes, geologic time, surface processes, the geology of energy resources, and global climate change. Field trips to local geologic sites provide hands-on experience using classic and modern approaches to investigating the Earth and its history. Includes laboratory.

GPA units: 1.25
Common Area: Natural Science
Typically Offered: Annually

GEOS 210 — Geomorphology Course count: 1
Geomorphology is an introduction to landforms and the geological processes that modify Earth's surface. Topics include tectonic, wind, soil, hillslope, glacial, and river processes; modern quantitative methods of investigating landscapes, including numerical modeling and GIS; and the influences of humans, climate, and biologic activity on surface processes and the physical environment. Includes computer and field work in the weekly laboratory.

Prerequisite: BIOL 117 or BIOL 163 or CHEM 181 or PHYS 115 or GEOS 120 or GEOS 150 or by permission.
GPA units: 1.25
Common Area: Natural Science
Typically Offered: Alternate Years

GEOS 270 — Watershed Hydrology Course count: 1
Watershed Hydrology is an introduction to the movement and storage of atmospheric, surface, and ground water within a watershed. This class examines hydrologic processes and the geologic and topographic characteristics that control them, as well as how hydrologic data are collected and analyzed. Topics include the hydrologic cycle, water budgets, precipitation, evaporation, snow hydrology, infiltration, groundwater hydrology and contamination, runoff, stream flow, hydrographs, and flooding. Hydrology is a highly quantitative discipline and math at the pre-calculus level will be used extensively in this course. Prior college math or geoscience coursework is recommended but not required. Includes laboratory.

Prerequisite: BIOL 163 or CHEM 141 or CHEM 181 or ENVS 117 or ENVS 125 or PHYS 115 or GEOS 120 or GEOS 150 or MATH 133 or MATH 135 or permission of the instructor.
GPA units: 1.25
Typically Offered: Alternate Years

GEOS 310 — Paleoclimatology Course count: 1
This advanced-level lecture and discussion course examines the changes in Earth's climate throughout geologic history from the Precambrian to the Anthropocene. Topics include an overview of Earth's climate system, paleoclimate proxies and archives, distinctive intervals in Earth's climate history, and how modern climate change is interpreted in a geological context. Paleoclimatology is highly interdisciplinary, drawing on methods and principles of geology, chemistry, physics, and biology. Students should have prior natural science coursework and be prepared to read and discuss primary scientific literature.

Prerequisite: GEOS 120 or GEOS 130 or GEOS 150 or GEOS 210 or GEOS 270 or GEOS 350 or CHEM 181 or by permission.
GPA units: 1
Typically Offered: Alternate Years

GEOS 350 — Oceanography Course count: 1
This course is an introduction to the inter-disciplinary study of the world's oceans, and provides an overview of the main oceanographic sub-disciplines: biological, chemical, geological, and physical oceanography. The course will cover topics related to the science underlying global climate change, ocean acidification, ocean warming, sea level rise, marine pollution, resource extraction, and meteorology. A solid understanding of how the world ocean works and humanity's association with it is fundamental to the appreciation, preservation, utilization, and protection of oceanic environments worldwide.

Enrollment limited to 3rd and 4th year Science Majors or by instructor permission.
GPA units: 1
Typically Offered: Alternate Years

GEOS 401 — Undergraduate Research Course count: 1
Individual investigation and associated study of the scientific literature under the direct supervision of a member of the faculty. The number of positions is limited; students contemplating research should make inquiries early in the year preceding the term in which research is to be initiated.

GPA units: 1.25
Typically Offered: Fall, Spring

GEOS 405 — Directed Reading Course count: 1
An in-depth literature study of a topic of interest to the student under the tutorial supervision of a member of the faculty.

GPA units: 1
Typically Offered: Fall, Spring

GEOS 407 — Honors Research Course count: 1
Open only to students in the College Honors Program. Individual investigation and associated study of the scientific literature under the direct supervision of a faculty member. Students contemplating research should make inquiries early in the year preceding the term in which research is to be initiated. Honors thesis credit can be counted toward the Environmental Studies major or minor, and toward the Geosciences minor.

GPA units: 0
Typically Offered: Annually

GEOS 408 — Honors Research Course count: 1
Open only to students in the College Honors Program. Individual investigation and associated study of the scientific literature under the direct supervision of a faculty member. Students contemplating research should make inquiries early in the year preceding the term in which research is to be initiated. Honors thesis credit can be counted toward the Environmental Studies major or minor, and toward the Geosciences minor.

GPA units: 2.5
Typically Offered: Annually