GEOLOGY

Bachelor of Science degree
with a major in Geology

Bachelor of Arts degree
with a major in Geology — Geosciences concentration

Minor in Geology

See Environmental Systems for details on the Master of Science degree.

Department Chair
Mark Hemphill-Haley, Ph.D.

Department of Geology
Founders Hall 7
707-826-3931
humboldt.edu/geology

The Program

The geology program provides students with a solid foundation in Earth system science, how the Earth and its processes affect humans, and how human activities affect the Earth.

Students completing this program will:

- understand the fundamental concepts of Earth's many systems
- be able to find, analyze, and assess scientifically credible information about the Earth in both printed and electronic forms
- communicate about Earth science in a meaningful way both verbally and in writing
- be able to make informed and responsible decisions regarding the Earth and its resources
- possess the skills and background to gain employment and/or admission to graduate studies in the Earth sciences.

The BS degree in geology is recommended for students who plan to seek work as professional geologists (e.g., engineering geology, hydrology, environmental geology, natural resource geology) and/or enter graduate school in the geosciences. The BA degree in geology with a concentration in geoscience is aimed toward students who are interested in careers or pursuing graduate work in broader fields of environmental science, hazard/resource management and planning, environmental policy, and teaching. The second discipline provides greater breadth and expertise in an additional field.

Humboldt's setting provides a natural laboratory to study earthquakes, tsunamis, mountain building, landsliding, river processes, natural mineral and metal resources, volcanism, and rapid coastal erosion. The area also contains good exposures of nearshore marine deposits and fossils recording the late Cenozoic history of the region. Students frequently take field trips to surrounding areas both along the coast and inland. Geology majors may also pursue a thesis project under the supervision of a faculty mentor.

At Humboldt, you will also be able to use research tools including petrographic microscopes, scanning electron microscope, geophysical exploration equipment and a real-time kinematic GPS unit. Employers seek out Humboldt geology graduates because of their competence in the field and rigorous scientific background.

Career opportunities include positions with local/state/federal government scientific and resource management agencies, geotechnical and environmental consulting firms, nonprofit conservation agencies, and universities/colleges/K-12 schools. Job titles of Humboldt geology graduates include: geologist, petrologist, volcanologist, consultant, technical writer or editor, seismologist, emergency manager, hazards mitigation specialist, field geologist, marine geologist, hydrologist, geomorphologist, museum curator, and science teacher.

Preparation

Students will be most successful if they take mathematics, chemistry, physics, biology and any environmental studies in high school if available. Students need to be able to write and speak effectively in English and are expected to be proficient in computer applications.

REQUIREMENTS FOR THE MAJORS

For a description of degree requirements to be fulfilled in addition to those listed below for the major, please see "The Bachelor's Degree" section of the catalog, pp. 66-81., and "The Master's Degree" pp. 82-84.

Core Courses

Lower Division Core

CHEM 109 (5) General Chemistry I
GEOL 109 (4) General Geology
GEOL 210 (3) Earth Systems History
MATH 109 (4) Calculus I

Upper Division Core

GEOL 306 (3) General Geomorphology
GEOL 312 (4) Earth Materials
GEOL 332 (4) Sedimentary Geology
GEOL 335 (2) Geologic Field Methods I
GEOL 435 (2) Geologic Field Methods II
GEOL 486 (1) Research Methods

BS in Geology

Core courses plus:

Lower Division

CHEM 110 (5) General Chemistry II
MATH 110 (4) Calculus II

One of the following:

MATH 210 (4) Calculus III, **or**
STAT 108 (3) Elementary Statistics, **or**
STAT 108i (3) Elementary Statistics with Integrated Support [Coreq: STAT 8], **or**
STAT 109 (4) Introductory Biostatistics

One of the following two series:

- PHYX 106 (4) College Physics: Mechanics & Heat
  PHYX 107 (4) College Physics: Electromagnetism & Modern Physics

OR

- PHYX 109 (4) General Physics A: Mechanics
  PHYX 210 (4) General Physics B: Thermodynamics, Waves & Optics

Upper Division

GEOL 314 (4) Petrology
GEOL 334 (4) Structural Geology
GEOL 475 (4) Geology Field Camp

Five units of approved upper division geology areas of specialization, including at least one of the following:

GEOL 457 (3) Engineering Geology
GEOL 460 (3) Solid Earth Geophysics
GEOL 470 (3) Volcanology
GEOL 482 (1-3) Instrumental Methods in Geology
GEOL 490 (1) Senior Thesis, **and**
GEOL 492 (2) Senior Thesis Project
GEOL 524 (3) Methods of Geochronology
GEOL 531 (1-3) Advanced Physical Geology
GEOL 550 (3) Fluvial Processes
GEOL 551 (3) Hillslope Processes
GEOL 553 (4) Quaternary Stratigraphy
GEOL 554 (2) Advanced Geology Field Methods
GEOL 555 (3) Neotectonics
GEOL 556 (4) Hydrogeology
GEOL 561 (3) Applied Geophysics

BA in Geology — Geosciences Concentration

Core courses plus:

Lower Division

PHYX 106 (4) College Physics: Mechanics & Heat
GEOL 110 (1) Field Geology of the Western US

One of the following:

STAT 108 (3) Elementary Statistics, **or**
STAT 108i (3) Elementary Statistics with Integrated Support [Coreq: STAT 8], **or**
STAT 109 (4) Introductory Biostatistics

Upper Division

GEOL 300 (3) Geology of California
GEOL 300L (1) Geology of California Field Trip
GEOL 455 (1) Geology Colloquium
GEOL 465 (2) Geosciences Senior Project

One of the following:

GEOL 303 (3) Earth Resources & Global Environmental Change, **or**
GEOL 308 (3) Natural Disasters

Complete 5 units of approved upper division geology courses.

Second Discipline

Complete at least 12 units of department approved courses within a discipline outside of the geology discipline (e.g., business chemistry, geospatial analysis). Students are encouraged, though not required, to pursue a minor in one of these fields so as to broaden technical skills and expertise.

REQUIREMENTS FOR THE MINOR

GEOL 109 (4) General Geology
GEOL 306 (3) General Geomorphology

One of the following:

GEOL 110 (1-2) Field Geology of the Western US
GEOL 335 (2) Geologic Field Methods I

At least one of the following four courses:

GEOL 300 (3) Geology of California
GEOL 303 (3) Earth Resources & Global Environmental Change
GEOL 305 (3) Fossils, Life & Evolution
GEOL 308 (3) Natural Disasters

One of the following:

GEOL 312 (4) Earth Materials
GEOL 332 (4) Sedimentary Geology

Plus 3 units of approved upper division GEOL coursework.