Major in Geology

The Geology major is broad-based, allowing students to obtain a sound academic and practical basis for professional careers in private sector resource industries, federal and state natural resource management and regulatory agencies, or in education; or for graduate training in specialized areas of geology or related fields in the geosciences.

The Geology curriculum provides a technical background within the broader framework of a liberal education. Emphasis is placed on integrating field studies in the Rocky Mountains and elsewhere with on-campus work in both the classroom and the laboratory. In addition to a solid core in geology, students complete course work in math, the physical sciences, communications, and the liberal arts. Four Geology major concentrations are offered: Environmental Geology, Geology, Geophysics, and Hydrogeology.

Learning Outcomes

Students will demonstrate:

• A solid foundation in the physical sciences and broad understanding of geological processes
• Application of scientific reasoning skills to data analysis and problem solving in the geosciences, both individually and in teams
• An awareness of sociopolitical and economic factors and ethical practices and standards that apply to careers in geosciences

Potential Occupations

A variety of opportunities exist for Geology graduates in the private and public sectors, and in education. Energy companies, industry service companies, mining companies, power companies, computer software companies, and diverse entrepreneurs all hire geologists for exploration, development, mining, production, and research. Federal government agencies use geologists for geologic mapping, oil-gas-coal-groundwater-geothermal resource evaluation, geochemical and resource-related water studies, leasing and conservation studies, resource restoration and rehabilitation programs, hazards mitigation, and research. State and local governments typically hire geologists for geologic and soils mapping, natural resource and hazards evaluation, public information, consulting, and writing. Environmental, engineering, and groundwater firms use geologists for mapping, restoration and rehabilitation planning, monitoring and evaluation of geologic hazards, and site evaluation for feasibility and implementation of construction projects, water management and reuse evaluation, groundwater pollution assessment, groundwater remediation, and contaminant prevention. Schools, colleges, universities, national laboratories, and private research firms employ geologists in a variety of teaching, research, and administrative positions.

Participation in internships, volunteer activities, or cooperative education and public outreach is highly recommended to enhance practical training and development. Graduates who go on for advanced studies can acquire a strong disciplinary base to continue in one of a number of geological disciplines or can opt for related fields of study, including seismology, hydrology, meteorology, oceanography, and the space sciences. Those with advanced degrees can attain more responsible positions with the possibility of rising to top professional levels. Some examples of career possibilities include, but are not limited to: educator, professor, environmental consultant, exploration geologist, petroleum geologist, environmental geologist, geologist, geophysicist, hydrologist, mining geologist, oceanographer, production geologist, researcher, resource evaluator, geobiologist, or seismologist. With additional training, geologists may also pursue careers in business, law, medicine, and other diverse professional fields. By obtaining a teaching certificate, graduates can teach earth sciences and related subjects in primary and secondary schools.

Concentrations

• Environmental Geology Concentration
• Geology Concentration
• Geophysics Concentration
• Hydrogeology Concentration