MAJOR IN GEOLOGY

The Major in Geology provides a rigorous academic and practical basis for diverse professional geosciences careers that include private and public sector water, energy, mineral and other natural resources, geologic hazards, resources and environmental management, and education. The major also provides a solid science and general education background for subsequent graduate training in specialized fields, including hydrology, geophysics, environmental geology, economic geology, resources management, public policy, and many other areas.

The Geology curriculum encompasses a strong geosciences education within the broader framework of a liberal education. Emphasis is placed on integrating field studies in the Colorado Rocky Mountains and elsewhere with on-campus classroom and laboratory work. In addition to obtaining a solid core in geosciences, students complete substantial course work in math, physical sciences, communications, and the liberal arts that lead to effective quantitative, decision making, and communications skills. Four concentrations are offered to address specialized career interests: Geology, Environmental Geology, Geophysics, and Hydrogeology.

Learning Outcomes

Students will demonstrate:

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

Potential Occupations

Many opportunities exist for geology graduates in the private and public sectors in a wide range of societally important and satisfying careers. Energy resources, water resource and management, industry service, mining, power generation, computer software, and many other companies employ geoscientists in exploration, development, production, communications, management, and research. Federal agencies employ geoscientists for resource mapping and assessment, oil-gas-coal-groundwater-geothermal resource evaluation and development, resource and environmental water studies, leasing and conservation, resource restoration and rehabilitation, hazards assessment and mitigation, regulatory activities, national defense, and research. State and local governments also employ geoscientists for geologic and soils mapping and resource management, natural resource and hazards evaluation and mitigation, public information activities, consulting, management, and communications. Environmental, engineering, and groundwater firms further employ geoscientists for mapping, restoration and rehabilitation planning, monitoring and evaluation of geologic hazards, and in site feasibility evaluation and implementation of construction projects, water management and reuse evaluation, groundwater pollution assessment and remediation, and contaminant prevention. Schools, colleges, universities, national laboratories, and private research firms employ geoscientists in a variety of teaching, research, and administrative positions.

Participation in internships, volunteer activities, and cooperative education and public outreach are highly recommended and supported by the department via faculty, staff, and alumni mentoring to enhance training and career opportunities. Graduates who go on to pursue advanced degrees acquire a strong disciplinary base for diverse areas of graduate study, including environmental studies, energy, seismology, hydrology, meteorology, oceanography, and the space sciences. Geoscientists with advanced degrees can often more effectively attain management-level positions. Careers include, but are not limited to: educator, professor, environmental or geological entrepreneur or consultant, exploration professional geologist, petroleum geologist, environmental geologist, geophysicist, hydrologist, mining geologist, oceanographer, production geologist, researcher, resource evaluator, geobiologist, or seismologist. With additional training and diversification, geosciences graduates may also pursue associated careers in business, law, medicine, public policy, and other diverse professional fields. By obtaining teaching certification, graduates can become primary and secondary educators in earth sciences.

Concentrations

- Environmental Geology Concentration
- Geology Concentration
- Geophysics Concentration
- Hydrogeology Concentration