Program Overview: Bachelor of Science in Geosciences, Environmental Geology Concentration

About This Major . . .

The Bachelor of Science degree with a major in Geosciences and a concentration in Environmental Geology is designed for students who (1) desire a strong liberal arts education with emphasis on environmental issues within the earth sciences, (2) wish to pursue a graduate degree in environmental geology, or (3) desire a professional or technical career. The Environmental Geology concentration has the same basic framework as the Geology concentration with a stronger emphasis on ground water and surface water hydrology, and geologic hazards.

Most classes have a strong field component so that students can enjoy the diverse geological setting of the Grand Junction area. Equipment available includes hydrologic research equipment including flow meters, stream tables, surveying equipment, and GPS units. Computer facilities include modern PC systems with software for communications, database management, word-processing, geographical information systems (GIS), and geostatistics.

Environmental geology students receive an education that includes all necessary courses required to be a professional geologist. These include courses covering basic geology as well as courses in hydrology, ground water, geomorphology, environmental geology, and a six-week summer field course. Students also engage in a capstone research project/thesis during their senior year that involves independent research and the completion of a professional report and presentation. This capstone experience develops professional skills and provides students with a portfolio of their work for future employers or graduate schools.

Recent graduates are attending graduate programs at major universities or have entered the work force as geological technicians or professional geologists.

For more information on what you can do with this major, go to http://www.coloradomesa.edu/career/whatmajor.html

All CMU baccalaureate graduates are expected to demonstrate proficiency in critical thinking, communication fluency, quantitative fluency, and specialized knowledge/applied learning.

Students completing this major will be able to:

1. articulate the fundamental knowledge base and ideas of the major fields of geoscience. (Specialized Knowledge)
2. collect and interpret geoscience field data. (Applied Learning/Critical Thinking)
3. collect and interpret geoscience laboratory data. (Applied Learning/Critical Thinking)
4. use technology (e.g. computer software) for evaluating quantitative geoscience data. (Quantitative Fluency)
5. write an effective report on a geoscience study. (Communication Fluency)
6. give an effective oral presentation on a geoscience study. (Communication

Program Highlights:

A Field-based Science
Field-oriented curriculum that allows students at all levels, from introductory to advanced courses, to learn geology in the field.

Students participate in field-based research projects. Sites include the San Juan Mountains, the Rocky Mountains, the Colorado River, and Moab, Utah.

Internship opportunities are available with the US Geological Survey, US Forest Service, Bureau of Land Management, and other federal agencies.

Qualified students can join the local chapter of Sigma Gamma Epsilon, the earth science honor society.

Launch Your Career
According to the US Bureau of Labor Statistics, job growth by 2022 is projected to be 16% and 17,000 openings for geoscientists are expected to occur between 2012 and 2022.

Life After Mesa
Past graduates routinely find employment in environmental consulting and resource management.

Many of our geoscience graduates go on to graduate school to complete advanced degrees.

Program Requirements

A student must follow CMU graduation requirements by completing 120 semester credit hours, including 40 credits of coursework at the 300+ level. See the "Undergraduate Graduation Requirements" in the catalog for additional graduation information. Students should work closely with a faculty advisor when selecting and scheduling courses prior to registration. In general, CMU's programs of study are based on two curriculum groups:

1. Essential Learning

CMU's Essential Learning program provides the foundation of skills and information that cuts across all fields of study and the support for advanced concepts that students will later encounter in their majors. Before moving into work at the 300+ level, students complete the Maverick Milestone and its co-requirement, Essential Speech. This pair of courses is a capstone experience where students integrate what they have learned from their foundation courses by making connections among diverse areas of knowledge. The capstone is also an opportunity for students to work with disparate ideas, a critical skill expected of all CMU graduates that will aid them in solving the complex and unscripted problems they will encounter in their personal, professional, and civic lives.

2. What You Will Study in This Major. . .

Foundational Courses

Environmental Geologists must have a basic understanding of math and other physical sciences.

- General Chemistry I and Lab
- General Physics I and Lab
- Probability and Statistics
- Calculus I

Core Courses

These courses are comparable to all environmental geology programs nation-wide.

- Principles of Physical Geology and Lab
- Principles of Historical Geology and Lab
- Introduction to Field Studies
- Computer Applications in Geology
- Structural Geology and Lab
- Crystallography and Mineralogy and Lab
- Applications of Geomorphology and Lab
- Stratigraphy and Sedimentation and Lab
- Summer Field Camp
- Capstone Seminar

Courses Required for Concentration

Additional courses that provide a well-rounded environmental geology education.

- Environmental Geology
- Basic Hydrology
- Ground Water and Lab

Geology Electives

These courses allow environmental geology students a degree of specialization.

- Geophysics and Lab
- River Dynamics and Lab
- Natural Resources of the West
- Environmental Politics and Policy
- Soil Science and Sustainability
- Survey of Energy-Related Natural Resources
- Survey of Mineral-Related Natural Resources
- Renewable Energy
- Structured Research
- Statistical Methods
- Calculus II
- General Chemistry II and Lab
- General Physics II and Lab

Electives

Electives are an opportunity for you to supplement or complement your core courses with additional work in geology, the minor in Geographic Information Systems and Technology, the minor in Watershed Science, or any other discipline that may interest you. A strategic selection of electives can help you "cross-pollinate" your understanding of environmental geology with concepts from other fields.

- Introduction to Cartography
- Introduction to GIS
- Introduction to Remote Sensing
- Global Positioning Systems for GIS
- Advanced GIS
- Geospatial Database and Design
- Pollution Monitoring and Investigation
- Water Quality
- Restoration of Aquatic Systems
- Aquatic Biology

For more information about this major, go to: http://www.coloradomesa.edu/geosciences/index.html or contact the Department of Physical and Environmental Sciences, 232 Wubben Hall, 970.248.1993.