ENVIRONMENTAL GEOSCIENCES



Students on an MU Geology Club trip at one of the Seven Sisters glaciers near College Fjord, Alaska.

Located in the Appalachian Mountain belt, Millersville Geosciences explores the Earth's diverse systems. By studying everything from stream hydrology to coastal ocean systems to large-scale plate tectonics, our majors leave Millersville University well-versed in the environmental geosciences and confident that they have the skills necessary for success.

DEGREES/CONCENTRATIONS

BACHELOR OF SCIENCE (B.S.)

The Environmental Geosciences program offers small class sizes, hands-on learning opportunities in both the field and laboratory as well as robust research experiences. Students choose one of two concentrations:

Geology – Students develop a strong foundation in modern geoscience while developing proficiency with the tools, technologies and analytical techniques used to address complex environmental challenges. Extensive hands-on fieldwork builds practical skills valued by employers. This concentration fulfills all of the academic requirements for licensure as a professional geologist.

Earth and Ocean Sciences – This multidisciplinary program provides students with a broad foundation in Earth and ocean systems, natural resources and environmental science. The concentration develops practical skills in environmental sampling, data collection and field-based techniques. Through field-intensive courses offered at the Chincoteague Bay Field Station (CBFS) students gain hands-on experience conducting environmental investigations and making scientific measurements in real-world settings.

WHY BE AN ENVIRONMENTAL SCIENTIST?

The increased need for energy, environmental protection, and responsible land and water resource management is projected to spur demand for geoscientists. Employment is projected to grow 5% from 2025 to 2035, faster than the average for all occupations (Bureau of Labor Statistics, 2026). According to the U.S. Department of Labor, the median annual salary for geoscientists is slightly over $100,000, and job growth through the next decade is projected to be faster than average. www.bls.gov/ooh/life-physical-and-social-science/geoscientists.htm

INTERNSHIPS AND RESEARCH

We encourage every student majoring in geosciences to pursue an internship experience. In recent years, students have had paid internships with both regional and national geologic engineering and environmental geoscience firms. Our students have also secured paid internships with the PA Department of Environmental Protection, the PA Department of Conservation and Natural Resources, and the Susquehanna River Basin Commission. In addition, many students undertake significant scientific research projects, working closely with faculty advisors to solve real-world problems in environmental geosciences.

FACULTY AND CLASS SIZE

All classes and labs are taught by faculty with Ph.D.s. Classes for majors have a maximum size of 24, and most are smaller. Instead of sitting in a large lecture hall with hundreds of other students and having labs taught by teaching assistants, Millersville Environmental Geosciences students receive personalized attention from faculty.



Students deploy a fishing net from the stern of the research vessel (R.V.) Mollusk *in Chincoteague Bay, Virginia, during a CBFS summer course.*

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Fieldworkis a critical component of the Environmental Geosciences curriculum at Millersville. Our students learn standard field techniques and apply their learning in dedicated field courses, weekend field trips throughout the region and local field trips. Left: Students measuring beach profiles at Chincoteague Bay Field Station. Middle: Students posing after a daylong field trip in geomorphology. Right: Dr. Walsh explaining folding at Silver Mine Park.

FACILITIES AND EQUIPMENT

Computing Facilities – In addition to GIS and statistical software, the department has licenses for ENVI/IDL software, as well as multiple LiDAR hardware/software systems, including Terrasolid, LP360 Global Mapper and LAStools.

Equipment – The department's hydrodynamics lab includes a 15-foot Emriver Stream Table to model dynamics of floodplains, deltas, longshore currents and groundwater processes. In addition, the lab includes a 20-foot wave tank with a variable-speed wave generator and a rotating table to conduct experiments in geophysical fluid dynamics. Ocean Sciences equipment includes an acoustic current meter with wave gauge, WEATHERPAK portable weather station, Sea-Bird SeaCAT profiler, as well as temperature/salinity/oxygen sensors. The department has a fully equipped rock preparation lab, petrography lab, and structural modeling lab, to which students have full access.

CLUBS AND ACTIVITIES

The Geology Club provides opportunities for students to become better acquainted, to promote interest in geology and the earth sciences, and to provide opportunities to explore geology beyond the classroom. Highlights of the club include mineral and fossil digging, trips to regional natural history museums and a trip to one of our national parks.

The Ocean Science Club members enjoy a casual and inspiring learning atmosphere where students explore career opportunities, learn to scuba dive and visit marine research stations.



Students and faculty at the Geological Society of America meeting in Pittsburgh, Pennsylvania.

> *"I think my greatest achievement while at Millersville was learning how to learn – from facts and data, from people and from mistakes. As a senior program assistant at the National Academy of Sciences, I am learning something new every day."*
> – Samuel Kraft '21, B.S. Geology

ROCK-SOLID PREPARATION

Millersville University geology graduates pass the Fundamentals of Geology examination for professional licensure at a rate well above the national average. In nearly all content domains of the exam, MU geology alums and/or graduating seniors exceeded the national average, especially in areas like hydrology. We encourage our students to prepare for and take the exam in their senior year.

ABOUT OUR GRADUATES

Geosciences majors leave Millersville University with a broad range of skills that open many job opportunities, including hydrology, petroleum and mineral exploration, and environmental consulting/remediation. Students also have the skills necessary to immediately enter graduate school. Geosciences majors who continue on to graduate school find themselves able to hit the ground running. One Millersville alum who recently completed a master's program at Temple University said, "I was very happy with how Millersville prepared me for graduate school." Feedback from alums who go into industry has been similar–they feel that they have better preparation in skills needed for their jobs than graduates of other programs.

ALUMNI SPOTLIGHT



Mark Sutcliffe, Exploration Geologist

Mark received his B.S. from Millersville in 2007, with a double major in geology and economics. His experiences attending Geological Society of America meetings while attending Millersville encouraged him to pursue geology. He went on to earn an M.S. in structural geology/metamorphic petrology from the University of Missouri-Columbia. He is now Vice President of Geology at Staghorn Petroleum II in Tulsa, Oklahoma.

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