

Environmental Geoscience is the discipline focused on understanding the physical Earth and the processes that shape landscapes, water resources, soils, sediments, and ecosystems. Environmental geoscientists apply principles from geology, geomorphology, hydrology, geochemistry, climatology, and environmental science to address challenges related to natural hazards, resource management, environmental contamination, climate change, and ecosystem resilience. Environmental geoscience provides the scientific foundation for many environmental management, consulting, hazard assessment, and restoration efforts. Some of the critical questions that might be addressed with a career in these fields include:

- *How do rivers, coastlines, wetlands, and watersheds respond to natural and human-induced change?*
- *How will climate change alter hydrologic systems, erosion patterns, sediment transport, and landscape processes?*
- *How do contaminants move through soils, groundwater, and surface waters?*
- *What geologic and geomorphic factors contribute to environmental hazards such as flooding, landslides, erosion, and coastal vulnerability?*
- *How can Earth-system science inform environmental restoration, resource management, and sustainability?*
- *How have landscapes changed over time, and what can those changes tell us about future environmental conditions?*



Careers

Environmental Geoscience careers involve studying Earth processes, managing natural resources, evaluating environmental impacts, assessing hazards, and supporting environmental decision-making through scientific analysis.

Career	Potential Employers
Research and Applied Science	
Environmental Geoscientist	Universities, Research Institutes, Government Agencies
Geomorphologist	Universities, Consulting Firms, USGS
Hydrologist	USGS, EPA, NOAA, Consulting Firms
Watershed Scientist	Government Agencies, NGOs, Consulting Firms
Geochemist	Research Laboratories, Environmental Consulting Firms
Environmental Scientist	Consulting Firms, Industry, Government Agencies
Environmental Consulting	
Environmental Consultant	Environmental and Engineering Consulting Firms
Site Assessment Specialist	Environmental Consulting Firms
Contaminated Site Investigator	EPA, State Agencies, Consulting Firms
Groundwater Specialist	Consulting Firms, Utilities, Government Agencies
Natural Resources and Restoration	
Watershed Manager	Watershed Organizations, NGOs, Government Agencies
Coastal Resource Specialist	NOAA, State Coastal Programs, Consulting Firms
Wetland Scientist	Consulting Firms, Regulatory Agencies, NGOs
Restoration Scientist	Government Agencies, Nonprofits, Consulting Firms
Hazards and Climate Resilience	
Climate Adaptation Specialist	Government Agencies, NGOs, Consulting Firms
Hazard Assessment Scientist	USGS, NOAA, Emergency Management Agencies
Coastal Resilience Analyst	State Agencies, NGOs, Consulting Firms

Coursework & Degree Options

The **Environmental Geoscience** pathway is a natural fit for Environmental Science majors but may also be pursued by Environmental Studies students interested in physical geography, hydrology, climate science, environmental consulting, or Earth-system science. Students interested in careers in environmental geoscience may wish to consider the following courses to fill elective requirements within the Environmental majors.



4-cr. Science & Technology laboratory courses:

- GEV 4323 – Watershed Biogeochemistry
- GEV 4324 – Wetland Science and Management
- GEV 4362 – Coastal Geohazards

3-cr. Science & Technology elective courses:

- GEV 4514 – Geomorphology
- GEV 4511 – Climate Variability
- GEV 2500 – Global Change in Local Places



3-credit elective Environmental Policy & Management courses:

- GEV 3570 – Land Use Planning and Management
- GEV 3580 – Natural Resources and Conservation
- GEV 4331 – Environmental Policy and Management



3-credit elective Environmental Social Science and Humanities courses:

- GEV 3004 – Geographies of Environmental Justice

Degree Options

- Students may wish to consider a **Double Major in Geography**.

Notes:

- Students should seek opportunities to participate in field research, independent studies, undergraduate research experiences, and internships.
- Many study abroad programs offer coursework related to geology, coastal systems, water resources, climate science, and environmental management that may complement this pathway.
- There are additional thematic courses offered every semester that may support this pathway.

Alumni Spotlight

Mary Rose Makoski

B.S. Environmental Science and Geography, Class of 2016

Project Manager and Sustainability Advisor, GHD

Rosie is a project manager with GHD, an environmental consulting company, where she leads environmental remediation projects. She earned an M.S. in Sustainable Management at the University of Wisconsin, and worked as an Environmental Scientist at Advantage Engineers and then Kleinfelder before joining GHD.

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To learn more about this and other career pathways, use the QR code, contact your academic advisor, or contact the Chair of the Department of Geography and the Environment for guidance.

The GEV Career Pathways Page:

