

Climate Change Science & Solutions is the interdisciplinary field focused on understanding the causes, impacts, and solutions to climate change. Professionals in this field study how changes in Earth's climate system affect ecosystems, water resources, landscapes, human communities, and the global environment while developing strategies to reduce greenhouse gas emissions, increase resilience, and promote sustainable development. Climate change is one of the defining environmental challenges of the 21st century, influencing everything from extreme weather and sea-level rise to biodiversity, agriculture, public health, water resources, and economic systems. Addressing these challenges requires professionals who can integrate climate science, environmental monitoring, sustainability, policy, planning, and community engagement to develop effective solutions. Some of the critical questions that might be addressed with a career in these fields include:

- *How is Earth's climate changing, and what is driving those changes?*
- *How will climate change affect ecosystems, water resources, coastlines, and human communities?*
- *How do carbon, water, nutrients, and energy move through environmental systems?*
- *What strategies can reduce greenhouse gas emissions and support sustainable development?*
- *How can communities adapt to climate change and become more resilient to environmental hazards?*
- *How can scientific research inform climate policy, planning, and decision-making?*



Careers

Climate change professionals work in research, environmental consulting, sustainability, climate adaptation, environmental policy, resource management, and corporate climate strategy. Careers often involve understanding environmental change and helping organizations and communities respond effectively.

Career	Potential Employers
Research and Climate Science	
Climate Scientist	NOAA, NASA, Universities, Research Institutes
Environmental Scientist	Universities, Government Agencies, Consulting Firms
Global Change Scientist	Research Institutes, Universities
Climate Data Analyst	NOAA, NASA, Research Organizations
Climate Adaptation and Resilience	
Climate Adaptation Specialist	Government Agencies, NGOs, Consulting Firms
Climate Resilience Planner	Municipal Governments, Consulting Firms
Climate Risk Analyst	Consulting Firms, Financial Institutions
Sustainability and Resilience Coordinator	Universities, Governments, NGOs
Sustainability and Corporate Climate Strategy	
Sustainability Analyst	Corporations, Universities, NGOs
Carbon Management Specialist	Corporations, Consulting Firms
ESG and Climate Analyst	Financial Institutions, Corporations
Corporate Sustainability Specialist	Private Industry, Consulting Firms
Environmental Policy and Planning	
Climate Policy Analyst	Government Agencies, Think Tanks
Environmental Policy Analyst	Government Agencies, NGOs
Environmental Planner	Municipal Governments, Consulting Firms
Science Advisor	Government Agencies, Nonprofits

Coursework & Degree Options

The **Climate Change Science & Solutions** pathway is a natural fit for all majors interested in climate science, environmental change, sustainability, resilience, climate policy, adaptation, environmental policy, or environmental research. Students interested in this discipline may wish to consider the following courses to fill elective requirements within the Environmental majors:



4-cr. Science & Technology laboratory courses

- GEV 4322 – Ocean Environments
- GEV 4323 – Watershed Biogeochemistry
- GEV 4324 – Wetland Science and Management
- GEV 4362 – Coastal Geohazards
- BIO 3385 – Global Change Ecology¹
- BIO 3655 – Ecosystem Ecology¹

3-cr. Science & Technology elective courses:

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



3-credit elective Policy & Management courses:

- GEV 3001 – Introduction to Sustainability Studies
- GEV 4001 – Advanced Sustainability Studies
- GEV 3580 – Natural Resources and Conservation
- GEV 4331 – Environmental Policy and Management
- GEV 4336 – Environmental Economics



3-credit elective Environmental Social Science and Humanities courses:

- GEV 3004 – Geographies of Environmental Justice
- PHI 2121 – Environmental Ethics
- HIS 2276 – American Environmental History

Degree Options

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

Notes:

- Students should seek opportunities for undergraduate research, internships, and field experiences related to climate science, sustainability, environmental monitoring, resilience planning, and environmental policy.
- ¹ Courses in the Biology Department require the introductory Biology sequence (BIO 2105 and/or BIO 2106) with labs. Students without these prerequisites will need to ask permission to enroll in these courses.
- Many study abroad programs have courses that are relevant to this pathway and may count towards major requirements. Your academic advisor and the Chair of the Department can provide guidance, along with the Office of Education Abroad, about programs and courses that would be a good fit with this pathway.
- There are additional thematic courses offered every semester that can count towards elective requirements that may be relevant to this pathway.

Alumni Spotlight

Katie O’Gara

B.A. Environmental Studies, Class of 2009

Program Manager for Climate and Nature Finance at the Climate and Land Use Alliance

Since graduating, Katie has built an international career in climate and conservation finance, leading initiatives at the Climate and Land Use Alliance and previously at the World Bank that support nature-based climate solutions, forest conservation, sustainable land management, and equitable climate adaptation across the globe.

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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:

