GAYLORD NELSON INSTITUTE FOR ENVIRONMENTAL STUDIES

Administrative Unit: Gaylord Nelson Institute for Environmental Studies
College/School: Gaylord Nelson Institute for Environmental Studies
Admitting Plans: M.S., Ph.D.
Degrees Offered: M.S. in Environment and Resources; M.S. in Environmental Conservation; M.S. in Water Resources Management; Ph.D. in Environment and Resources
Minors and Certificates: Doctoral Minor in Air Resources Management; Doctoral Minor in Culture, History and Environment; Doctoral Minor in Environment and Resources; Doctoral Minor in Water Resources Management; Graduate/Professional Certificate in Culture, History and Environment; Graduate/Professional Certificate in Energy Analysis and Policy; Graduate/Professional Certificate in Transportation Management and Policy

AIR RESOURCES MANAGEMENT

Emissions from human activities have repercussions on terrestrial and aquatic ecosystems as well as on local and global economics. These emissions, often dispersed over wide areas at low concentrations, can have profound and complex effects on human health. Recognition of such ubiquitous impacts has resulted in significant state and federal legislation and international initiatives that redefine how people live, work, and define their quality of life.

Air Resources Management (ARM) was introduced in 1993 to help meet the nationwide need in government, business, and industry for professionals in air quality management. This need stemmed in part from the adoption across the country of stringent air quality laws and regulations, notably the federal Clean Air Act Amendments of 1990 and their state and local counterparts.

ARM prepares students for professional air quality management work in government, business, and industry. ARM addresses air management issues at the local and ecosystem scales through interdisciplinary studies in science, economics, health, engineering, ecology, and policy. It acquaints students with a carefully planned mix of pertinent topics, including air system behavior, multimedia issues, regulation, analysis, planning, design, and control.

CULTURAL, HISTORY AND ENVIRONMENT

The CHE certificate, administered by the Nelson Institute's Center for Culture, History, and Environment, captures the spirit of interdisciplinarity at the heart of CHE and the collaborations that have been forged across the Nelson Institute, the College of Letters & Science, and the College of Agricultural & Life Sciences. Departments, programs, and schools represented by CHE faculty and graduate students include American Indian Studies, Anthropology, Art History, Botany, Community and Environmental Sociology, English, Forest and Wildlife Ecology, Gender and Women's Studies, Geography, History, History of Science, Journalism and Mass Communication, Law, Landscape Architecture, Limnology, and Zoology.

The environmental challenges we face today arise as much from human actions as from natural processes. Only at our peril do we forget that nature, in all its myriad forms, is inextricably bound up with every aspect of human culture, economy, and politics. In attending to past environmental and cultural change, and in synthesizing diverse research methods and approaches drawn from across the full spectrum of humanities, natural sciences, and social sciences, the certificate in culture, history, and environment (CHE) contributes in important ways to the understanding of past, present, and future environmental issues through interdisciplinary education and research.

CHE is not available as a stand-alone graduate degree. Master's and doctoral students who complete the requirements receive a certificate in CHE to supplement their graduate degree, or doctoral students can instead complete the program as an external minor. Doctoral students cannot claim CHE as both a certificate and an external minor. They must choose one or the other.

ENERGY ANALYSIS AND POLICY

The energy analysis and policy certificate (EAP) provides students with the opportunity to customize their graduate experience, adding energy training to any graduate degree program offered at the University of Wisconsin–Madison. Graduate students can complete the EAP certificate by selecting courses that meet both their degree and EAP requirements. As such, most students can add EAP onto a degree without any additional time or cost. Many prospects choose UW–Madison specifically to participate in the EAP program, while others join EAP upon learning about it after matriculation.

Since its formation in 1980, EAP has provided students with the skills and knowledge needed by professionals in government, energy companies, consulting firms, and other organizations. EAP draws students from across campus. Particularly large student groups from public policy, environmental studies, engineering, and urban planning pursue the certificate because of the program's interdisciplinary curriculum which considers a wide range of technical, economic, political, and social factors that shape energy policy formulation and decision-making.

ENVIRONMENT AND RESOURCES

Environment and Resources is a research program offering master's and Ph.D. degrees based on the premise that solutions to environmental challenges require interdisciplinary approaches. Faculty and students are oriented to environmental problems rather than to disciplines. Students are encouraged to explore the specific area that interests them by drawing on the insights and methods of multiple disciplines. The focus is on gaining the knowledge needed to understand the intellectual context of their work and the skills necessary to conduct original research. The program fosters experimentation and innovation, not the mastering of a narrowly defined set of prepackaged competencies. The objective is to produce graduates who are prepared to function comfortably in the complex professional and social communities within which solutions to environmental problems must be found.

The program mandates interdisciplinarity through curriculum requirements, the structure of the student's faculty advisory committee, and the research endeavor. Students are required to take some courses in diverse disciplinary topics and other courses that are intended to strengthen problem-solving skills. A thesis (M.S.) or a dissertation (Ph.D.) is required of all students. Each student's faculty advisory committee must consist of persons who collectively ensure interdisciplinary support and evaluation. Students can pursue interests over the full range of environmental studies from more of a physical or biological science research project to those emphasizing more of the social sciences or humanities including policy, environmental history, community action,
or social justice. Students who feel a need to follow a more structured course of study may also pursue certificates in culture, history, and environment; energy analysis and policy; or transportation management and policy. Any bachelor’s degree from an accredited institution may be acceptable.

**ENVIRONMENTAL CONSERVATION**

This interdisciplinary professional master’s program in environmental conservation aims to empower graduates with the knowledge, experience, and practical training necessary to take on professional leadership positions that promote effective and equitable strategies to global challenges in conservation and sustainability. Students complete courses that integrate the study of conservation biology and ecology with social sciences and professional development tools courses.

The program leads to an M.S. degree in environmental conservation. The curriculum requires a total of 32 credits over 15 months, with the first seven months on campus and the remaining eight months through distance learning. The curriculum consists of 6 or 9 credits of a biology or ecology unit, 3 or 6 credits in social systems and sustainability courses, 4 credits in conservation planning, 3 credits in environmental policy, 9 credits in professional development and conservation tools, and 4 credits of independent practice.

**TRANSPORTATION MANAGEMENT AND POLICY**

The certificate in transportation management and policy (TMP) was created to satisfy the demand for transportation professionals who understand multiple dimensions of transportation management and planning, enabling them to make choices leading to more environmentally and socially sustainable transportation systems now and in the future. Students focus not only on making transportation sustainable itself, but also on the role transportation plays in supporting and impacting society, the economy, and the environment. TMP certificate participants gain a holistic understanding of the complexities and synergies that influence transportation including climate, energy, communities, land use, resource management, economic development, and social justice.

The certificate addresses multi-modal transportation forms including highways, mass transit, air, water, and rail. By integrating study of the environment, engineering, economics, spatial analysis, and decision-making with the study of political, legal, environmental, and social factors that shape transportation management, the certificate prepares students for professional work with public sector transportation agencies, consulting firms, and other organizations concerned with transportation management and policy.

**WATER RESOURCES MANAGEMENT**

The water resources management (WRM) program is an interdisciplinary graduate program leading to a master of science (M.S.) degree in water resources management. The program addresses the complex, interdisciplinary aspects of managing water resources by helping students integrate the biological and physical sciences (which identify and assess problems) with engineering (which defines technological alternatives) as well as law and the social sciences (which assess needs and potential for institutional response). Through the WRM program, a student gains breadth in relevant planning and management areas while developing depth in an area specialty.

The water resources management degree is designed to prepare students for employment as water resources management professionals. Rather than conduct individual research projects, WRM students participate in a summer group practicum workshop with a water resources management focus. Students who wish to add individual research credentials to their records frequently arrange to complete a second, simultaneous master’s program in one of the university’s traditional departments. Those interested primarily in individual research may wish to consider the Nelson Institute’s environment and resources program as an alternative. The WRM program does not offer a doctoral degree.

**DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES**

- Air Resources Management, Doctoral Minor (http://guide.wisc.edu/graduate/environmental-studies/air-resources-management-doctoral-minor)
- Culture, History and Environment, Doctoral Minor (http://guide.wisc.edu/graduate/environmental-studies/culture-history-environment-doctoral-minor)
- Culture, History and Environment, Graduate/Professional Certificate (http://guide.wisc.edu/graduate/environmental-studies/culture-history-environment-graduate-professional-certificate)
- Energy Analysis and Policy, Graduate/Professional Certificate (http://guide.wisc.edu/graduate/environmental-studies/energy-analysis-policy-graduate-professional-certificate)
- Environment and Resources, Doctoral Minor (http://guide.wisc.edu/graduate/environmental-studies/environment-resources-doctoral-minor)
- Environment and Resources, M.S. (http://guide.wisc.edu/graduate/environmental-studies/environment-resources-ms)
- Environment and Resources, Ph.D. (http://guide.wisc.edu/graduate/environmental-studies/environment-resources-phd)
- Environmental Conservation, M.S. (http://guide.wisc.edu/graduate/environmental-studies/environment-resources-ms)
- Transportation Management and Policy, Graduate/Professional Certificate (http://guide.wisc.edu/graduate/environmental-studies/transportation-management-policy-graduate-professional-certificate)
- Water Resources Management, Doctoral Minor (http://guide.wisc.edu/graduate/environmental-studies/water-resources-management-doctoral-minor)
- Water Resources Management, M.S. (http://guide.wisc.edu/graduate/environmental-studies/water-resources-management-ms)