

ENVIRONMENTAL SCIENCE (ONLINE M.A.)

ESG 6320 Coastal Geology and Processes in the Great Lakes

ESG 6400 Isotopes: Applications in Geological and Environmental Sciences

The human impact on Earth's environment over past two centuries is unprecedented. An incredible 300% increase in human population growth in the 20th century has led to an increase in energy consumption by more than 1000% since 1950. Never in the history of the Earth has such a drastic increase in the atmospheric CO₂ occurred over such a short period of time. Education on the *science of the changing environment* is at the forefront of human endeavor, and a significant fraction of the global GDP is currently being spent on addressing this science (e.g. increasing spatial extent of harmful algal blooms, ocean acidification, ever increasing amount of micro-plastics in fresh and salt water systems, effects of global climate change including flooding/drought and other weather-related catastrophic events). This online master's program addresses many of the anthropogenic environmental changes listed above. This inter-disciplinary program includes courses from several branches of science including coastal and environmental geology, environmental biology, low-temperature aqueous geochemistry, environmental isotope geochemistry, biogeochemistry, remote sensing, big data analytics, climate science, toxicology, water quality, etc.

* The core course requirement for ESG 6400 - Isotopes: Applications in Geological and Environmental Sciences can be replaced with ESG 6180 - Environmental DNA for Ecosystem Monitoring and Conservation or ESG 6190 - Environmental Microbiology.

Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (<https://bulletins.wayne.edu/graduate/general-information/admission/>). The minimum grade point average required for regular admission to the program is 2.75. Specific admissions requirements include: evidence of a completed baccalaureate degree from an accredited college or university; college-level coursework in geology, biology, mathematics, physics, and chemistry; two letters of recommendation; and a one-page statement of purpose.

Program Requirements

The online M.A. in Environmental Science requires a minimum of 30 credits. The program is offered under master's program Plan C (coursework only). All course work must be completed in accordance with the regulations of the Graduate School (<https://bulletins.wayne.edu/graduate/general-information/academic-regulations/>) and the College of Liberal Arts and Sciences (<https://bulletins.wayne.edu/graduate/college-liberal-arts-sciences/academic-regulations/>).

Code	Title	Credits
Core Courses		
ESG 6400	Isotopes: Applications in Geological and Environmental Sciences *	
	or ESG 6180 Environmental DNA for Ecosystem Monitoring and Conservation	
	or ESG 6190 Environmental Microbiology	
ESG 5700	Environmental Law and Policy	
Capstone Course		
Elective Courses		
ESG 5420	Mathematical Methods in Earth Science	
ESG 6160	Applied Remote Sensing	
ESG 6165	Biodiversity Changes in the Anthropocene	
ESG 6170	Spatial Statistics and Analyses for Environmental Applications	
ESG 6180	Environmental DNA for Ecosystem Monitoring and Conservation	
ESG 6190	Environmental Microbiology	
ESG 6250	Fluvial Geomorphology	