

EcoValuation Working Group: Course Guide and Curriculum Framework
Ecosystem Structure and Ecosystem Function

School of Natural Resources & Environment
University of Michigan

Updated: September 2012

Here we present courses offered at the University that graduate students can take to explore ecosystem services, ecosystem valuation, conservation and ecosystem finance, and ecosystem management and decision making.

Ecosystem Structure and Ecosystem Function: These courses will teach students about the fundamental physical, chemical and biological concepts and basic techniques necessary for the study of aquatic and terrestrial ecosystems, and also approaches to management of wildlands and natural systems. Students will come out with a better understanding of the composition, structure and function of Earth's ecosystems, and applications for their conservation. These courses provide understanding of the essential scientific concepts inherent to ecosystem services and therefore to ecosystem services valuation and options for management.

NRE 430: Soil Ecology: Professor Don Zak. Fall 2012

Description: Soils are central components of terrestrial ecosystems. Major emphasis is placed on physical, chemical, and biological properties and their relationships to plant growth and ecosystem processes. Understanding is developed using a combination of lectures, field- and lab-based exercises, and individual research

NRE 476: Ecosystem Ecology: Professor Don Zak. Winter Term.

Description: Ecosystem Ecology focuses on current theories regarding the control and function of aquatic and terrestrial ecosystems, the approaches and techniques being used to test these theories, and the application of theory to the management and restoration of ecosystems. The scope includes examples from terrestrial, marine, and freshwater ecosystems.

NRE 508: Wetland Ecology: Professors Martha Carlson Mazur and Kurt Kowalski. Winter Term

Description: This course covers most components of wetland science, from wetland types, functions, and values to hydrology, biogeochemistry, development and succession, and plant/animal communities. The course is directed toward practical application of knowledge gained and concludes with a discussion of wetland management and restoration and a comprehensive final exam consisting of management problems.

NRE 501.055: Macroecology: Professor Elizabeth Pringle. Winter Term

Description: What are the global patterns in ecology, what fundamental processes generate these patterns, and can we use macroecological pattern and process to design effective conservation strategies? In this course, we will explicitly consider the "big picture" in ecology by examining proposed ecological patterns at large spatial scales and across taxonomic groups. We will then consider the processes that drive these large-scale patterns and the current methodological approaches used to study them. Finally, we will examine whether we can effectively apply our understanding of macroecology to conservation design and utilize GIS-based methods to put these concepts into practice. An emphasis will be placed on the process of ecological research through the discussion of primary literature and critical examination of proposed patterns and the hypotheses proposed to explain them.

For a full list of ecosystem structure and function courses go the [Conservation Ecology course page](#)