

## Graduate Environmental Science Courses

**ENVS 5086. Environmental Problems. 1-3 Credit Hours (Lecture: 0 Hours, Lab: 1-3 Hours).**

Independent research under the supervision of an instructor. A formal report will be submitted to the instructor. A student may not count more than 6 hours of Environmental Science problems toward a degree. Lab fee \$10.

**ENVS 5088. Thesis. 1-6 Credit Hours (Lecture: 1-6 Hours, Lab: 0 Hours).**

Scheduled when the student is ready to begin the thesis. No credit until the thesis is completed. Prerequisite: BIOL 5398 and consent of major professor.

**ENVS 5185. Graduate Seminar. 1 Credit Hour (Lecture: 1 Hour, Lab: 0 Hours).**

A graduate seminar with content varying according to the needs and experiences of students and the instructor of record. May be repeated for up to three hours credit as content varies.

**ENVS 5300. The Regulatory Environment. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

A survey of local, state, national, and international regulatory agencies to include their organization and authority. Case studies of environmental problems and legislated regulations are covered.

**ENVS 5310. Environmental Geology. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

Explores the physical controls geology imparts to the global ecosystem through systems analysis of geologic processes. Hydrologic processes, river system processes and restoration, energy resources, coastal systems, and karst systems are all potential topics explored. Credit for both ENVS 5310 and GEOL 5310 will not be awarded. Prerequisites: GEOL 1403 or consent of department head.

**ENVS 5320. Issues in Water Resources. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

This course will provide a broad introduction to the critical issues relating to the world's freshwater resources. Students will examine the occurrence, use, management, and conservation of water and water resources in the U.S. and the world. Students will develop an understanding of the history and current issues in water resources and the environmental problems and political response to these issues.

**ENVS 5325. Environmental Hydrology. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

An examination of the processes that govern the earth's hydrologic cycle such as precipitation, evaporation and transpiration, runoff, infiltration and ground water and an exploration of anthropogenic effects on the hydrologic cycle. Topics include land-atmosphere interactions, movement of water in subsurface environments, contaminant transport in groundwater systems, streamflow generation, surface-water flow dynamics, urban runoff and flood control.

**ENVS 5329. Applications of Geographic Information Systems in Environmental Science. 3 Credit Hours (Lecture: 2 Hours, Lab: 3 Hours).**

Environmental and natural resource applications of Geographic Information Systems. Introduction to spatial analysis and 3-D analysis. The availability and uses of digital resources. Prerequisite: EASC 2320. Lab fee \$15.

**ENVS 5331. Advanced Meteorology. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

The study of the Earth's atmosphere and processes within it. Topics include weather, climate, heating, adiabatic processes, precipitation types and formation, wind currents, geostrophic effects, prediction, and warnings. Historical events will be discussed in context of modern understanding.

**ENVS 5335. Watershed Modeling. 3 Credit Hours (Lecture: 2 Hours, Lab: 3 Hours).**

The course will explore commonly used watershed models that can be used in linking sources of pollutants to receiving waterbodies. The course will explore large watershed, streamflow, water quality, urban watershed, and agricultural watershed models. Information will include model calibration and evaluation techniques.

**ENVS 5341. Environmental Site Assessment. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

Introduction to Phase I and Phase II investigations, principles of siting and installation of monitoring wells, a review of sampling methods and sample design, and the use of water quality data to characterize subsurface contamination. Prerequisite Course(s): Hydrogeology or consent of Department Head.

**ENVS 5345. Advanced Oceanography. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

An integrated study of our oceans from the physical, chemical, biological, and geological aspects. Theory reinforced by practical field experience. Include analysis of seawater components, the effects of pollutants, and the impacts of chemical processes on marine organisms, as well as studying the physical conditions and physical processes within the ocean such as waves, currents, eddies, gyres and tides; the transport of sand on and off beaches; coastal erosion; and the interactions of the atmosphere and the ocean.

**ENVS 5370. Research & Analytical Methods. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

Research and analytical methods for Environmental Scientists. Explores the various approaches, methodologies, and philosophies behind research techniques.

**ENVS 5380. Research and Writing in Agriculture and Environmental Science. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

Preparation of writing samples, technical reviews, and/or professional manuscripts related to various topics in agriculture or environmental science. Prerequisite: Approved research methodology course. Cross-listed with AGRI 5380.

**ENVS 5390. Topics in Environmental Science. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

Scientific aspects of varied environmental topics, which may include waste disposal, wetlands, air pollution, energy, bioremediation, or watershed analysis. May be repeated for credit as topics vary. Prerequisites: 12 hours of science (including six hours of chemistry) or approval of department head.

**ENVS 5460. Applied Remote Sensing. 4 Credit Hours (Lecture: 3 Hours, Lab: 3 Hours).**

An introduction to the features and interpretation of remotely sensed images from airborne and satellite platforms. Formats of imagery will include radar, thermal, and multispectral. Focus on interpretation of images for various usages, including agriculture, forestry, geology, urban landscapes, and geography. Factors affecting acquisition of a variety of features will be discussed. Introduction to the theory of color sensing and interpretation is included. Lab fee: \$2.