

Environmental Science (ENSC)

Courses

ENSC 1001L. Environmental Science Laboratory. 1 Hour.

Laboratory, field trip, and discussion sessions covering the concepts and information allowing students to critically evaluate environmental issues. Topics will include: laboratory safety, recycling, composting, geographic information systems, soil testing, water quality, hazardous wastes, waste disposal, wetlands, wastewater treatment, and sustainable food systems. Laboratory 2 hours/week. Corequisite: ENSC 1003.

This course is cross-listed with BIOL 1001L.

ENSC 1001M. Honors Environmental Science Laboratory. 1 Hour.

Laboratory, field trip, and discussion sessions covering the concepts and information allowing students to critically evaluate environmental issues. Topics will include: laboratory safety, recycling, composting, geographic information systems, soil testing, water quality, hazardous wastes, waste disposal, wetlands, wastewater treatment, and sustainable food systems. Laboratory 2 hours/week. Corequisite: ENSC 1003.

This course is cross-listed with ENSC 1001L, BIOL 1001L.

ENSC 1003. Environmental Science. 3 Hours.

Series of lectures and discussions introducing the topic of environmental science including factors related to water, soil, and air quality. Corequisite: ENSC 1001L.

This course is cross-listed with BIOL 1003.

ENSC 1003H. Honors Environmental Science. 3 Hours.

Series of lectures and discussions introducing the topic of environmental science including factors related to water, soil, and air quality. If taking course for University core Natural Science credit, ENSC 1001L is a co-requisite. Corequisite: ENSC 1001L.

This course is cross-listed with ENSC 1003, BIOL 1003.

ENSC 1833. Soils and Civilization. 3 Hours.

Humankind's use of and dependence on soil from the Neolithic Revolution to the present day. The composition and basic properties of soils. The importance of soils as components of ecosystems, and ecosystem services provided by soils. The nature and causes of soil degradation. The need for conservation of soils. Soil as a key factor in sustaining life on Earth.

ENSC 3003. Introduction to Water Science. 3 Hours.

Properties, occurrence, and description of the types, functions, quality and quantity, potential contaminants, uses, and guiding policies and regulations of the various water resources in the environment. Prerequisite: MATH 1203 AND (ENSC 1003 OR CHEM 1053 (or higher) OR GEOS 1113 (or higher) OR BIOL 1543).

ENSC 3103. Plants and Environmental Restoration. 3 Hours.

Selection, establishment, and use of plants to promote soil stabilization, water quality, and wildlife habitat. Principles and practices of managing plants for soil remediation, nutrient and sediment trapping, and restoration of plant communities. Prerequisite: CSES 1203 or HORT 2003 or BIOL 1613.

ENSC 3103H. Honors Plants and Environmental Restoration. 3 Hours.

Selection, establishment, and use of plants to promote soil stabilization, water quality, and wildlife habitat. Principles and practices of managing plants for soil remediation, nutrient and sediment trapping, and restoration of plant communities. Prerequisite: CSES 1203 or HORT 2003 or BIOL 1613 and honors standing. This course is equivalent to ENSC 3103.

ENSC 3221L. Ecosystems Assessment Laboratory. 1 Hour.

The purpose of this laboratory is to complement concepts learned in lecture by carrying out experiments that familiarize students with methods used in soil and aquatic ecology. Students will collect samples, analyze and interpret data obtained from soil and water samples. Lab will meet once per week for 3 hours. Corequisite: ENSC 3223.

ENSC 3223. Ecosystems Assessment. 3 Hours.

Application of basic ecological principles to gain an appreciation for ecosystem assessment and management. Lecture 3 hours per week. Prerequisite: BIOL 1543.

ENSC 3263. Soil and Water Conservation. 3 Hours.

Effect of land use on water quality. Major sources of agricultural nonpoint pollutants. Best management practices used to minimize water quality impacts. Prerequisite: CSES 2203.

ENSC 3413. Principles of Environmental Economics. 3 Hours.

An introductory, issues-oriented course in the economics of the environment. What is involved in society making decisions about environmental quality will be studied. Environmental issues important to the State of Arkansas and the United States will be emphasized. Prerequisite: AGECE 1103 or ECON 2023.

This course is cross-listed with AGECE 3413.

ENSC 3603. GIS for Environmental Science. 3 Hours.

Provide instruction on the uses of GIS techniques in solving practical environmental and agricultural land use problems. Areas include: 1) an introduction to spatial variability in soils with an emphasis on the application of GIS techniques to map and understand spatial parameters important to different land uses, and 2) development of individual experience in the use of GIS in solving environmental and agricultural problems using an oral and written term project. Prerequisite: CSES 2203.

ENSC 3933. Environmental Ethics. 3 Hours.

The course addresses ethical questions about nature and the natural environment. Topics of discussion include anthropocentric and biocentric ethics, population control, obligations to future generations, animal rights, moral considerability, Leopold's land ethic, deep ecology, and ecofeminism. Lecture/discussions 3 hours per week. Prerequisite: ENSC 1003 or PHIL 2003 or PHIL 2103.

This course is cross-listed with PHIL 3113.

ENSC 400V. Special Problems. 1-3 Hour.

Work on special problems in environmental science or related fields. May be repeated for up to 8 hours of degree credit.

ENSC 4021L. Water Quality Laboratory. 1 Hour.

Field and laboratory experience in physical, chemical, and biological characteristics of natural waters (rain, river, lake, soil, ground, etc.). Laboratory experiments in water sampling, measurement of water quality parameters such as pH, alkalinity and acidity, redox, hardness, BOD, TSS, etc., and instrumentation. Prerequisite or Corequisite: ENSC 4023

ENSC 4023. Water Quality. 3 Hours.

Physical, chemical, and biological characteristics of natural waters (rain, river, lake, soil, ground, etc.). Discussion of water quality parameters such as pH, alkalinity and acidity, redox, hardness, BOD, TSS, etc. Aquatic processes of pollutants and principles of modeling. Prerequisite: CHEM 1123 and CHEM 1121L and BIOL 1543 and BIOL 1541L.

ENSC 4034. Analysis of Environmental Contaminants. 4 Hours.

Methods of analysis for inorganic and organic contaminants, radionuclides and microorganisms in soil and water. Quality assurance and quality control, sampling protocols, sample handling, instrumentation and data analysis. Lecture 2 hours and laboratory 4 hours per week. Corequisite: Lab component. Pre- or Corequisite: CHEM 2613 and CHEM 2611L or CHEM 3603 and CHEM 3601L.

ENSC 404V. Special Topics. 1-3 Hour.

Studies of selected topics in environmental sciences not available in other courses. May be repeated for up to 12 hours of degree credit.

ENSC 4263. Environmental Soil Science. 3 Hours.

Study of the behavior of pesticides, toxic organic compounds, metals, nutrients, and pathogenic microorganisms in the soil/plant/water continuum. Lecture 3 hours per week. Pre- or Corequisite: PHYS 2013 and PHYS 2011L. Prerequisite: CSES 3214.

ENSC 4401. Professional Certification Preparation. 1 Hour.

This class is meant to reinforce concepts and skills already learned in other soil and environmental science and related courses and to provide the opportunity to prepare to take a national certification examination. If so chosen, students may pursue certification as soil or environmental science professionals. Prerequisite: Senior standing.

ENSC 5021L. Water Quality Laboratory. 1 Hour.

Field and laboratory experience in physical, chemical, and biological characteristics of natural waters (rain, river, lake, soil, ground, etc.). Laboratory experiments in water sampling, measurement of water quality parameters such as pH, alkalinity and acidity, redox, hardness, BOD, TSS, etc., and instrumentation.

ENSC 5023. Water Quality. 3 Hours.

Physical, chemical, and biological characteristics of natural waters (rain, river, lake, soil, ground, etc.). Discussion of water quality parameters such as pH, alkalinity and acidity, redox, hardness, BOD, TSS, etc. Aquatic processes of pollutants and principles of modeling. Prerequisite: CHEM 1123, CHEM 1121L, BIOL 1543 and BIOL 1541L or equivalent courses from undergraduate institution.

ENSC 5034. Analysis of Environmental Contaminants. 4 Hours.

Methods of analysis for inorganic and organic contaminants in soil and water. Quality assurance and quality control, sampling protocols, sample handling, instrumentation and data analysis. Corequisite: Lab component. Prerequisite: (CHEM 2613 and CHEM 2611L) or (CHEM 3603 and CHEM 3601L) or equivalent chemistry course.

ENSC 5401. Professional Certification Preparation. 1 Hour.

This class is meant to reinforce concepts and skills already learned in other soil and environmental science and related courses and to provide the opportunity to prepare to take a national certification examination. If so chosen, students may pursue certification as soil or environmental science professionals.