

ENVIRONMENTAL SCIENCE TECHNOLOGY (EST)

EST 140 (3 credit hours)

Introduction to Ecology

Introduces basic concepts and current applications of ecology relevant to environmental issues. Emphasizes relationships between organisms and the environment; influencing factors affecting distribution and abundance; population structure and regulation; energy flow and nutrient cycling through the environment; and development, structure, and response to distribution of organismal communities. Lecture: 3 credits (45 contact hours).

Attributes: SN - Science, Other

Components: LEC: Lecture

EST 141 (1 credit hours)

Introduction to Ecology Laboratory

Reinforces concepts covered in EST 140 Introduction to Ecology and provides activities to apply those concepts to real life situations. Examines relationships between organisms and the environment; influencing factors affecting distribution and abundance; population structure and regulation; energy flow and nutrient cycling through the environment; and development, structure, and response to distribution of organismal communities. Laboratory: 1 credit (30 contact hours).

Pre- or co-requisite: EST 140.

Attributes: SL - Science Laboratory, Other

Components: LAB: Laboratory

EST 150 (4 credit hours)

Introductory Ecology

Introduces basic concepts and current applications of ecology relevant to environmental issues. Emphasizes relationships between organisms and the environment; influencing factors affecting distribution and abundance; population structure and regulation; energy flow and nutrient cycling through the environment; and, development, structure, and response to distribution of organismal communities. Includes weekly laboratories to provide hands-on field experiences to reinforce concepts learned in lecture. Lecture: 3 credits (45 contact hours). Laboratory: 1 credit (30 contact hours).

Attributes: SL - Science Laboratory, SN - Science

Components: LAB: Laboratory, LEC: Lecture

EST 160 (3 credit hours)

Hydrological Geology

This course provides an introduction to geology and hydrology with an emphasis on understanding natural processes and the effects of human activities. Major topics covered include: plate tectonics; formation and classification of rocks and minerals; the processes affecting the hydrologic cycle; soil formation and classification; subsurface geology and groundwater movement; stream formation and flow; floods; and human impacts to stream hydrology and morphology. Lecture: 3 credits (45 contact hours).

Attributes: SN - Science

Components: LEC: Lecture

EST 161 (1 credit hours)

Hydrologic Geology Lab

Reinforces concepts covered in EST 160 Hydrologic Geology and provides activities to apply those concepts to real life situations. Includes mineral and rock identification, map interpretation, groundwater protection, erosion and sediment control, stream dynamics and restoration. Lab 1 credit (30 contact hours).

Pre- or co-requisite: If yes, list: EST 160 Hydrologic Geology or approval of the Environmental Science Technology Program Coordinator.

Attributes: SL - Science Laboratory

Components: LAB: Laboratory

EST 170 (2 credit hours)

Environmental Sampling Laboratory

A laboratory course which provides the fundamentals in evaluating and designing sampling approaches for different situations and different media. The course will provide students with field experience in sampling soil, surface water, groundwater, and benthic invertebrates. Laboratory: 2 credits (60 contact hours).

Pre-requisite: EST 150 or consent of instructor.

Attributes: Technical

Components: LAB: Laboratory

EST 220 (3 credit hours)

Pollution of Aquatic Ecosystems

Examines freshwater ecosystems and typical aquatic pollutants. Discussion topics focus on the sources, transport, fate, and effects of common pollutants such as domestic wastewater, metals, acidity, and pesticides. Explores methods to minimize or eliminate the sources and effects of pollutants. Lecture: 3 credits (45 contact hours).

Pre- or co-requisite: (EST 140 or EST 150) and EST 160, CHE 170, and CHE 175 or consent of instructor.

Attributes: Technical

Components: LEC: Lecture

EST 230 (2 credit hours)

Aquatic Chemistry Laboratory

Provides focused study on the chemistry of water and provides students with laboratory experience in analyzing surface, ground, and drinking waters for a variety of chemical constituents. Laboratory: 2 credits (60 contact hours).

Pre- or co-requisite: CHE 170, CHE 175, and EST 220.

Attributes: Technical

Components: LAB: Laboratory

EST 240 (4 credit hours)

Sources and Effects of Air Pollution

Introduces the study of ambient and indoor air pollution with an emphasis on sources, dispersion, and health and welfare effects of the major pollutants. Explores regulatory and engineering controls of stationary and mobile sources. Provides laboratory experience with sampling and analysis of air pollutants. Lecture: 3 credits (45 contact hours); Laboratory: 1 credit (30 contact hours).

Pre- or co-requisite: [(EST 140 and EST 141) or EST 150] and Digital Literacy Course (OST 105 or CAD 100 or IMD 100 or CIT 105) or consent of instructor.

Attributes: Technical

Components: LAB: Laboratory, LEC: Lecture

EST 250 (3 credit hours)

Solid and Hazardous Waste Management

This course examines methods of managing solid and hazardous waste, with an emphasis on pollution prevention. Topics covered include relevant legislation, recycling, incineration, landfill operations, management of radioactive waste, remediation of waste sites and site worker health and safety. Lecture: 3 credits (45 contact hours).

Pre-requisite: EST 150 and EST 160, or consent of instructor.

Attributes: Technical

Components: LEC: Lecture

EST 260 (2 credit hours)

Environmental Analysis Laboratory

Introduces the fundamentals of analyzing environmental media. Provide students with laboratory experience in analyzing soil, surface water, groundwater, air and microbial samples. Laboratory: 2 credits (60 contact hours).

Pre- or co-requisite: CHE 170, CHE 175, EST 170.

Attributes: Technical

Components: LAB: Laboratory

EST 270 (3 credit hours)

Environmental Law and Regulation

This course is structured to provide the student with a basic understanding of major current federal and state environmental legislation and regulation with an emphasis on those portions that affect the regulated community. The course will also include an examination of the role of common law and the branches of government in environmental protection. Lecture: 3 credits (45 contact hours).

Pre- or co-requisite: EST 220, EST 240, and EST 250 or consent of instructor.

Attributes: Technical

Components: LEC: Lecture

EST 290 (2 credit hours)

Applied Projects in Environmental Science Technology

Outlines varies as determined by project and instructor. Lecture: 1 credit (15 contact hours). Lab: 1 credit (30 contact hours).

Pre-requisite: Consent of EST Program Coordinator.

Attributes: Technical

Components: LEC: Lecture