

ENVIRONMENTAL SCIENCE COURSES (ENVS)

ENVS 101-102 **EARTH AND ENVIRONMENTAL SCIENCE I-II (3, 3)** *Co-requisite: ENVS 101L-102L.* Three hours lecture. This course sequence offers an interdisciplinary introduction to the scientific study of the earth's physical and biological systems with an emphasis on environmental changes and their implications.

ENVS 101L-102L **EARTH AND ENVIRONMENTAL SCIENCE LABORATORY I-II (1, 1)** *Corequisite: ENVS 101-102.* Three hours laboratory to accompany ENVS 101-102.

ENVS 211 **PHYSICAL GEOGRAPHY (3)** Three hours lecture. This course provides a broad natural science background for students. The interrelationship of the lithosphere-hydrosphere-atmosphere, climate-soil-vegetation, and landforms of the world bring into perspective observable natural phenomena.

ENVS 240 **INTRODUCTION TO ENVIRONMENTAL RESEARCH (3)** *Prerequisite: Approval of sponsoring instructor.* This course provides an independent opportunity to be involved with research on an environmental topic of interest. Students conduct literature reviews and/or assist in equipment preparation and maintenance, field and laboratory work, and data collection and assessment.

ENVS 320 **CONSERVATION BIOLOGY (2)** *Prerequisites: ENVS 101/101L-102/102L or BIOL 111/111L-112/112L (or permission of instructor).* Three hours lecture and three hours laboratory. One-half semester modular course paired with another related half-semester modular course. This multi-disciplinary course addresses biological diversity at the genetic, population, and species levels. In particular, human impacts on diversity are studied and practical approaches to understanding and preventing extinction are explored.

ENVS 324 **SUSTAINABLE FOREST MANAGEMENT (4)** *Prerequisites: satisfactory completion of the following: ENVS 101, 101L and ENVS 102, 102L or BIOL 111, 111L.* This course teaches the principles and techniques of forest management from both economic and environmental standpoints. Students will be trained in silviculture, dendrology, and timber cruising and harvesting during lectures, labs, and field trips. Topics related to timber harvesting such as watershed management, wildlife conservation, rangeland management, global climate change, and outdoor recreation will also be explored. The importance of managing forests so that they do not become depleted will be the over-riding theme of the course.

ENVS 325 **LANDSCAPE ECOLOGY (2)** *Prerequisites: ENVS 101/101L-102/102L or BIOL 111/111L-112/112L (or permission of instructor).* Three hours lecture and three hours laboratory. One-half semester modular course paired with another related half-semester modular course. This course examines the mechanisms underlying large-scale ecological processes and their changes across space and time. The relationships among landscape structure, resource distributions, and populations are studied with an emphasis at the ecosystem level.

ENVS 331 **PRINCIPLES OF HYDROLOGY (4)** *Prerequisite: MATH 103, CHEM 104-105 (or permission of instructor).* Three hours lecture and three hours laboratory. This course is a study of the principles and theory of surface water and groundwater flow, chemistry, and quality; understanding and determination of water budget, hydrologic cycle, and Darcy's law; social, political, and economic issues related to hydro-logical systems.

ENVS 333 **PHYSICAL OCEANOGRAPHY (4)** *Prerequisites: ENVS 101/101L-102/102L or BIOL 111/111L-112/112L (or permission of instructor).* Three hours lecture and three hours laboratory. This course focuses on ways in which oceans function and ocean interact with earth systems. Consideration is given to ocean currents and vertical mixing, water chemistry, heat and energy transfer, sea floor geology, and coastal processes.

ENVS 336 **PHYSICAL GEOLOGY (4)** *Prerequisites: ENVS 101/101L-102/102L or BIOL 111/111L-112/112L (or permission of instructor).* Three hours lecture and three hours laboratory. This course is a study of the earth's structure, composition, surface features and processes, rocks, minerals, mountain building, volcanoes, earthquakes, and the weathering and erosional effects of wind, water, and ice.

ENVS 337 **HISTORICAL GEOLOGY (4)** *Prerequisites: ENVS 101/101L-102/102L or BIOL 111/111L-112/112L (or permission of instructor).* Three hours lecture and three hours laboratory. This course looks through the earth's past through the record hidden in the rocks and the fossils contained within and includes a study of the development of life on earth as well as the climate and geologic changes of the earth's surface from the Precambrian until the present. examined in this course.

ENVS 338 ENVIRONMENTAL GEOLOGY (4) Three hours lecture and three hours laboratory. This course is a systematic study of processes that operate at or near earth's surface and influence the development, preservation, and destruction of natural environments. Topics covered include the influence of fluvial, atmospheric, mass-wasting, glacial, volcanic and tectonic systems on the environment. Mitigation strategies to prevent environmental degradation will also be discussed.

ENVS 340 REMOTE SENSING (2) *Prerequisites: ENVS 101/101L-102/102L or BIOL 111/111L-112/112L (or permission of instructor).* Three hours lecture and three hours laboratory. One-half semester modular course paired with another, related half-semester modular course. Fundamental principles of remote sensing from satellites and other sources for environmental science are examined in this course.

ENVS 345 METEOROLOGY (2) *Prerequisites: ENVS 101/101L-102/102L or BIOL 111/111L-112/112L (or permission of instructor).* Three hours lecture and three hours laboratory. One-half semester modular course paired with another related half-semester modular course. This study of the earth's atmosphere and all of its associated characteristics is designed for environmental scientists.

ENVS 350 ENVIRONMENTAL LAW AND POLICY (2) *Prerequisites: ENVS 101/101L-102/102L or BIOL 111/111L-112/112L (or permission of instructor).* Three hours lecture and three hours laboratory. One-half semester modular course paired with another related half-semester modular course. This course is a study of national and local laws and their application to the policies formulated by governments.

ENVS 355 ENVIRONMENTAL IMPACT ASSESSMENT (2) *Prerequisites: ENVS 101/101L-102/102L or BIOL 111/111L-112/112L (or permission of instructor).* Three hours lecture and three hours laboratory. One-half semester modular course paired with another related half-semester modular course. This course examines the methods of conducting an environmental impact assessment and the preparation of an environmental impact statement.

ENVS 375 FRESHWATER ECOLOGY (4) *Prerequisite: BIOL 111/111L-112/112L or ENVS 101/101L-102/102L.* Three hours lecture and three hours laboratory. This course focuses on the physical, chemical, and biological properties of the freshwater environment. A special emphasis will be placed on studying anthropogenic impacts on aquatic habitats and their organisms.

ENVS 377 STUDY ABROAD (3) This course provides students with the opportunity to study principles of environmental science in foreign settings.

ENVS 380 GEOGRAPHIC INFORMATION SYSTEMS (GIS) (4) *Prerequisite: Junior/ senior standing.* Three hours lecture and three hours laboratory. This course introduces students to the theory and practice of Geographic Information Systems (GIS) and prepares them for its use across numerous fields of study. Geographic Information Systems (GIS) is specially designed hardware and software for the analysis and display of spatially explicit data. With intelligent digital maps, such systems allow users to store, query, and retrieve information based on desired parameters.

ENVS 399 INTERNSHIP IN ENVIRONMENTAL SCIENCE (1-6) *Prerequisites: Juniors or seniors with a 2.25 minimum QPA; approval of written proposal by internship coordinator, and supervising faculty prior to registration.* This internship is offered to qualified students allowing them to gain personal and practical experience in various areas of environmental science. Internships include but are not limited to working in environmental laboratories, natural resources conservation, restoration of natural areas, and help with research projects conducted by senior scientists and engineers.

ENVS 440 ENVIRONMENTAL RESEARCH (3) *Prerequisite: At least forty hours in the environmental science major curriculum and approval of sponsoring instructor.* Students conduct a specially designed research project devoted to solving an environmental science problem. A paper is submitted and a seminar presented on the study results.

ENVS 490 ENVIRONMENTAL SCIENCE SEMINAR (1) *Prerequisite: At least forty hours from the environmental science major curriculum.* This seminar course provides an opportunity for students to study a range of biological questions presented by outside speakers. Additionally, student communication skills are assessed through oral presentations on internships or individual research projects, as well as other topics. Intended as a capstone course.