ENVIRONMENTAL SCIENCE COURSES (ENVS)

ENVS 101-102 EARTH AND ENVIRONMENTAL SCIENCE I, II (3, 3) *Corequisite: 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 201 HISTORY OF EARTH AND LIFE (4) *Prerequisites: ENVS 101/101L-102/102L.* This course provides an overview of the Earth's composition, structure, and the geologic processes that continually shape the planet. Special attention will be given to rocks, minerals, plate tectonics, and the history of

the geology. The biological evolution of life on Earth will be studied by examination of fossils and the fossil record.

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 238 INTRODUCTION TO RESEARCH (1-3) *Prerequisite: Consent of supervising instructor.* This course provides the beginning student the opportunity to conduct lab, field, or library research under the supervision of a faculty member. Credit is dependent upon the scope of the work.

ENVS 321 CONSERVATION ECOLOGY (4) *Prerequisites: BIOL 113-114 or ENVS 101/101L-102/102L.* Three hours lecture and three hours laboratory. This course addresses biological diversity at the genetic, population, and species levels. In particular, human impacts on diversity are investigated, and practical approaches to understanding and preventing extinction are explored. In addition, the mechanisms underlying large-scale ecological processes and their changes across space and time are examined, with the relationships among landscape structure, resource distributions, and populations also studied.

ENVS 324 SUSTAINABLE FOREST MANAGEMENT (4) *Prerequisites: satisfactory completion of the following: BIOL 113 or ENVS 101/101L and 102/102.* 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 overriding theme of the course.

ENVS 331 PRINCIPLES OF HYDROLOGY (4) *Prerequisites: CHEM 111, MATH 103.* 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: BIOL 113-114 or ENVS 101/101L-102/102L.* Three hours lecture and three hours laboratory. This course focuses on ways in which oceans function and 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: BIOL 113-114 or ENVS 101/ 101L-102/102L, 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: BIOL 113-114 or ENVS 101/101L-102/102L.* 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.

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 be discussed.

ENVS 340 REMOTE SENSING (2) *Prerequisites: BIOL 113-114 or ENVS 101/101L-102/102L.* 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 (3) *Prerequisites: ENVS 101/101L-102/102L.* This class investigates the structure, components and processes of the earth's atmosphere. Global circulation patterns, pre-

cipitation, tropical systems, severe weather events, and air pollution issues are all studied. Understanding how to analyze and produce weather forecasts will be emphasized.

ENVS 347 CLIMATOLOGY (3) *Prerequisites: ENVS 101/101L-102/102L.* This course explores how the atmosphere, oceans, and land masses all interact to influence earth's climate. Various local climates on our planet will be studied along with influencing factors such as latitude, topography, land-water interactions, and air and ocean circulation. A special emphasis will be placed on understanding both short- and long-term natural climate changes, and how humans might influence such variability.

ENVS 365 WETLANDS (4) *Prerequisites: ENVS 101/101L-102/102L.* This course provides an overview of the general ecology, hydrology, vegetation types, wildlife habitats, biogeochemistry, and conservation issues of wetlands. Special attention will be given to the legal and mitigation issues surrounding wetland conservation and preservation.

ENVS 375 FRESHWATER ECOLOGY (4) *Prerequisites: BIOL 113-114 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 397 INDEPENDENT STUDY IN ENVIRONMENTAL SCIENCE (1-3) *Prerequisites: Approval of faculty sponsor and school dean; junior or senior standing.* This course provides students the opportunity to pursue individual study of topics not covered in other available courses. The area for investigation is developed in consultation with a faculty sponsor and credit is dependent on the nature of the work. May be repeated for no more than six credits.

ENVS 398 SPECIAL TOPICS IN ENVIRONMENTAL SCIENCE (1-4) [credit depends on topic] *Prerequisite: A background of work in the discipline.* This course will focus on an aspect of the discipline not otherwise covered by the regularly offered courses. The topic will vary according to professor and term; consequently, more than one may be taken by a student during his/her matriculation.

ENVS 399 INTERNSHIP IN ENVIRONMENTAL SCIENCE (1-12) *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 428 INDIVIDUAL RESEARCH IN ENVIRONMENTAL SCIENCE (1-6) *Prerequisites: Junior or senior standing; consent of supervising instructor.* This independent opportunity to conduct a field, laboratory, or literary study project culminates in a formal paper and/or presentation as directed by the supervising instructor. Credit is dependent on the nature of the work but may not exceed three credit hours per semester.

ENVS 490 ENVIRONMENTAL SCIENCE SEMINAR (1) *Prerequisite: Senior Standing.* This seminar is intended as a capstone course and provides an opportunity for students to study a range of biological questions presented by outside speakers. Additionally, students' communication skills are assessed through oral presentations on interships or individual research projects, as well as other topics.