

ENVIRONMENTAL SCIENCE/ STUDIES (ENVS)

Courses

ENVS 582 ENVIRONMENTAL EDUCATION & SERVICE LEARNING IN THE TROPICS (3)

Designed for those majoring in the sciences or education fields with an interest in environmental education. Coursework will take place largely in the tropics of Costa Rica. Emphasis will be placed on the application of forest ecology concepts to PreK-12 environmental education and human use and management of natural resources in the tropics. Prerequisite: permission of instructor required.

ENVS 600 ENVIRONMENTAL SCIENCE AND SUSTAINABILITY COLLOQUIUM (1)

Current and emerging issues at the nexus of environmental science, sustainability, and policy. Professional development and career advancement skills will be covered. May be repeated for up to 3 units. Prerequisite: program admission or consent of instructor.

ENVS 601 TOPICS IN ENVIRONMENTAL GEOLOGY (4)

Geological concepts related to developed and developing areas; topics include earth materials, soils and soil formation, hydrological cycle, waste management; water management; geological issues in land-use decision making. Some field work might require weekend obligations. Prerequisite: admission into the graduate program in Environmental Science or consent of the instructor. Lab/Class fee will be assessed.

ENVS 602 ENVIRONMENTAL CHEMISTRY (4)

Principles of chemistry applied to environmental pollutants; physio-chemical processes controlling pollutant transport, fate and distribution; partitioning of water, soil and air as they relate to biotic systems. Some field work might require weekend obligations. Prerequisite: admission into the graduate program in Environmental Science or consent of the instructor. Lab/Class fee will be assessed.

ENVS 603 ENVIRONMENTAL LAW AND REGULATIONS (3)

Operation of the American legal system as it functions to control and remediate environmental problems; emphasis on the law and legal processes which govern environmental disputes; function of legal institutions in these disputes; role of regulations in environmental protection. Prerequisite: Admission into the graduate program in Environmental Science or consent of the instructor.

ENVS 604 ECOSYSTEM ECOLOGY (4)

Principles of ecosystem ecology; factors controlling ecosystem structure and function; energy balance and biogeochemical cycles. Emphasis on ecological impacts of human alterations and urbanized ecosystems. Development of student capacity for "systems thinking" via modeling in field and laboratory based investigative projects. Implications for environmental management from local to global scale. Some field work might require weekend obligations. Prerequisite: admission into the graduate program in Environmental Science or consent of the instructor. Lab/Class fee will be assessed.

ENVS 605 CHEMISTRY OF ENVIRONMENTAL SYSTEMS (3)

Chemical principles of environmental quality and contaminant fate in natural and engineered systems. Quantitative problem-solving involving acid-base reactions, oxidation-reduction reactions, and metal speciation. Case studies applying fundamental principles to important environmental phenomena. Prerequisites: program admission or consent of instructor.

ENVS 611 WATER POLICIES OF THE UNITED STATES (3)

History and application of the Clean Water Act, including ongoing actions and case studies. Prerequisite: program admission or consent of instructor.

ENVS 620 ENVIRONMENTAL POLICY AND SUSTAINABLE MANAGEMENT (3)

Analysis of the scientific approach to solve environmental problems within the socioeconomic concerns involved in formulating and administering environmental policy. Energy, management, policy, and sustainability are considered. Prerequisite: program admission or consent of instructor.

ENVS 625 SCIENCE AND POLICY OF THE CHESAPEAKE BAY RESTORATION (3)

Will provide students with a basic understanding of the key physical, chemical and biological processes taking place in America's largest estuary. The class will explore how an understanding of these important ecosystem components has informed scientist, managers, legislators and other stakeholders about the causes of the Bay's degradation and has provided insight into the formulation of a strategy for its protection and restoration. In addition to class lectures, projects and possibly in-field experiences, regional Chesapeake Bay experts from the academic, political and regulatory sectors will provide students with a "real world" perspective on both the opportunities and obstacles in the effort to "Save the Bay." Prerequisite: program admission or consent of instructor.

ENVS 630 CONCEPTS OF ENVIRONMENTAL ENGINEERING (3)

Introduction to the principles and concepts of environmental engineering for non-engineers; review and discuss methods of assessment and design; modeling methods used; critical assessment of design and different design paradigms; problem solving approaches.

ENVS 635 WETLANDS IDENTIFICATION, CONSERVATION AND DELINEATION (4)

The ecological, chemical and physical principles of wetlands biology; characterization, description and mapping of wetland habitats. Wetlands regulations and their ecological basis including hydric soil field indicators, interrelationship of landscape, vegetation and soils. Use of topographic maps, aerial photography, National Wetland Inventory maps and simple survey techniques. Some field work might require weekend obligations. Prerequisite: Admission into the graduate program in environmental Science or consent of the instructor.

ENVS 640 ECOTOXICOLOGY (3)

Fate, activity and dose-response relationships of organisms to environmental toxicants; their absorption, distribution, metabolism and excretion; evaluation of physical, chemical and biological factors that influence toxicity. Quantitative methods and models used in acute and chronic toxicity studies. Prerequisite: Admission into the graduate program in Environmental Science or consent of the instructor.

ENVS 650 AQUEOUS GEOCHEMISTRY (4)

Application of thermodynamics, mass balance, systems science, and kinetics to understanding mineral-water-contaminant interactions in natural and impacted aquatic systems on a variety of spatial and temporal scales. Some field work might require weekend obligations. Prerequisite: admission into the graduate program in Environmental Science or consent of the instructor.

ENVS 670 INDEPENDENT STUDY IN ENVIRONMENTAL SCIENCE AND STUDIES (1-3)

Studies in selected content areas tailored to student needs. This course may be repeated for a total of 3 units. Prerequisite: consent of department.

ENVS 680 SELECTED TOPICS IN ENVIRONMENTAL SCIENCE AND STUDIES (1-4)

Topics in environmental science and studies will be chosen. Course content will be determined as to complement course offerings in environmental science and studies. Repeatable for a maximum of 12 units. Some field work might require weekend obligations. Prerequisite: consent of department.

ENVS 701 SCIENCE OF ENVIRONMENTAL CHANGE (3)

Examination of physical, chemical, and biological processes causing environmental change. Overview of scientific approaches used to understand impacts to ecological and human systems. Prerequisite: admission to the MS in Environmental Studies, PhD in Sustainability and Environmental Change, or department consent.

ENVS 702 SUSTAINABILITY IN A COMPLEX WORLD (3)

Examination of social dimensions of sustainability and environmental change. Interdisciplinary survey of key issues and approaches from geography, political science, economics, and health sciences for understanding human impacts and responses to environmental change. Prerequisites: admission to the MS in Environmental Studies, PhD in Sustainability and Environmental Change, or department consent; recommended prerequisites are an undergraduate degree in environmental science and studies or cognate field, undergraduate coursework in environmental geography, environmental politics, environmental economics, and environmental health.

ENVS 795 DOCTORAL INDEPENDENT STUDY (1-6)

Independent study for doctoral students under the guidance of a faculty member. May be repeated for a maximum of 6 units. Graded S/U. Prerequisites: program admission and consent of the department.

ENVS 798 RESEARCH PRACTICUM (3)

Development of an analytical position paper on an approved, environmentally significant topic. Scientific literacy, communication skills, critical thinking, and critical analysis are emphasized. Prerequisites: completion of at least 12 units of coursework in the Graduate Program in Environmental Science and consent of department.

ENVS 896 THESIS (1-6)

Thesis research. Graded S/U. Prerequisites: Completion of two core courses in the graduate program in Environmental Science and endorsement by at least one member of the graduate faculty willing to serve as research adviser.

ENVS 899 THESIS CONTINUUM (1)

Continuation of thesis research. Graded S/U based on making satisfactory progress on thesis.

ENVS 990 DISSERTATION PROPOSAL (3)

Preparation and defense of a doctoral dissertation proposal under the guidance of the dissertation advisor. Graded S/U. Prerequisites: program admission and consent of the department.

ENVS 997 DISSERTATION RESEARCH (1-6)

Independent research guided by the dissertation advisor. May be repeated up to a total of 21 units. Graded S/U. Prerequisites: program admission and consent of the department.

ENVS 999 DISSERTATION CONTINUUM (1)

Continuing work on the doctoral dissertation under the guidance of the dissertation advisor. May be repeated up to a total of 15 units. Graded S/U based on making satisfactory progress on dissertation. Prerequisites: program admission and consent of the department.