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**NRC Natural Resource Conservation and Management**

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- \*NRC 301 NATURAL RESOURCE CONSERVATION AND MANAGEMENT. (3)**  
An introductory course in conservation and management of natural resources at an ecosystem level. Students will write a range of paper about natural resource issues. An overnight field trip is required. Prereq: ENG 104 and sophomore standing.
- \*NRC 320 DATA COLLECTION TECHNIQUES. (3)**  
A field-oriented course taught off campus as a three-week summer camp in August. Emphasis is placed on methodologies for field data collection necessary to evaluate a variety of natural resources on forest, agricultural, and surface mined lands. Students will become familiar with sampling instrumentation, collection, preservation, analysis and data interpretation. Lecture, 10 hours; laboratory, 30 hours per week (Monday-Friday) for three weeks. Prereq: BIO 150/152 and CHE 105.
- \*NRC 330 NEPA COMPLIANCE. (3)**  
This course focuses on federal agency compliance activities associated with the National Environmental Policy Act. Implementing regulations and guidelines for NEPA compliance are examined in the context of various agencies. Prereq: NRC 301W or consent of instructor.
- NRC 380 ANALYSIS OF NATURAL RESOURCE SYSTEMS. (3)**  
An intermediate course that teaches the analysis of complex natural resource systems through case studies, with emphasis on the scientific basis of such systems, but including interactions with social factors. Prereq: NRC 301.
- \*NRC 381 NATURAL RESOURCE POLICY ANALYSIS. (3)**  
An examination of historical policy development and the policy process. Overview of basic theoretical and analytical tools necessary to evaluate the performance of natural resource policies, including case studies of specific resource and environmental policies. Prereq: NRC 301 or consent of instructor.
- \*NRC 395 INDEPENDENT STUDY IN NATURAL RESOURCES. (1-6)**  
Study and independent work on selected problems related to conservation and management of natural resources. May be repeated to a maximum of six credits. Prereq: Consent of appropriate faculty and a plan of learning objectives approved by the NRCM Internship Coordinator.
- \*NRC 399 EXPERIENTIAL EDUCATION IN NATURAL RESOURCES. (1-6)**  
A field-based pre-professional learning experience in natural resources under the supervision of a faculty member and completion of a learning contract. May be repeated to a maximum of six credits. Prereq: Consent of appropriate faculty and approval by NRCM Internship Coordinator.
- \*NRC 420G TAXONOMY OF VASCULAR PLANTS. (4)**  
A survey of the evolutionary relationships among the major of vascular plant groups, concentrating heavily on important families flowering plants. Issues in contemporary systematics, including cladistic methods, will be covered. Students will gain practical experience learning the language of descriptive botany and using botanical keys in technical manuals for species identification. Field trips highlight the local spring flora. Lecture, three hours; laboratory, three hours; plus two Saturday field trips. Prereq: Junior standing; BIO 150, 152 or one course in introductory botany, or consent of instructor. (Same as BIO 420G.)
- \*NRC 450G BIOGEOCHEMISTRY. (3)**  
A lecture and lab course emphasizing the role of microbial processes on elemental and pollutant cycling in terrestrial soils and aquatic sediments. Soils and sediments from different ecosystems are evaluated for microbial community composition and biogeochemical cycling of organic and inorganic nutrients and pollutants using advanced molecular and laboratory techniques. Several all day field trips and laboratory exercises required. Limited to eight students at the senior or higher level standing. Prereq: CHE 105, 107, 111, 113. (Same as PLS 450G.)
- NRC 455G WETLAND DELINEATION. (3)**  
Basic concepts of natural wetland ecosystems, their importance, functions, and major features used for their identification and classification. Application of basic hydrology, hydrophytic vegetation and hydric soil indicators for identification of jurisdictional wetlands utilizing documentation and analysis of field collected data. Three laboratory exercises and four short field trips required. Prereq: PLS 366 or consent of instructor. (Same as PLS 455G.)

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**NRC 456G CONSTRUCTED WETLANDS. (3)**

Important aspects of the functions of natural and constructed wetlands as water purifiers. Principles and mechanisms of the purification process, design, construction, operation and management criteria for efficient usage. Case studies and design problems of constructed wetlands on mining, agricultural, industrial and municipal wastewater treatment applications. Two all day field trips are required. Prereq: PLS 366 or consent of instructor. (Same as PLS 456G.)

**\*NRC 471 SENIOR PROBLEM IN NATURAL RESOURCES. (3)**

This course is designed to provide students with the opportunity to apply the skills and information acquired in previous courses to a real world natural resource problem. The class will focus on a single current natural resource issue in Kentucky and will research the issue in depth, using a variety of techniques, including library research, interviews, and data collection and analysis. In addition to research and problem-solving skills, written and oral skills will be emphasized. Lecture, one hour; laboratory, four hours per week. Prereq: NRC 301, NRC 320, NRC 380 and NRC 381 and senior standing.

**NRC 477G LAND TREATMENT OF WASTE. (3)**

Resource management with emphasis on principles and methods of soil application of wastes (agricultural, industrial, and municipal). Topics include chemical and biological systems; soil and plant management; development, monitoring, and record keeping. Prereq: PLS 366. (Same as PLS 477G.)

**NRC 545 RESOURCE AND ENVIRONMENTAL ECONOMICS. (3)**

This course builds on the principles of economics to analyze the problems in achieving an efficient allocation of resources. It provides the theoretical concepts for evaluating environmental policies and the tools necessary in the application of benefit/cost analysis. Prereq: ECO 201. (Same as AEC 545.)

**\*NRC 555 GEOGRAPHIC INFORMATION SYSTEMS AND LANDSCAPE ANALYSIS. (3)**

An introduction to the concepts and methods of compilation, management, analysis, and display of spatially-referenced data. Lectures will be complemented with computer based laboratory exercises. Lecture, two hours; laboratory, four hours per week. Prereq: Third year or above LA major, junior/senior, or graduate student, CS 101, FOR 200 or GEO 415, or permission of instructor. (Same as LA 855.)