

Department of

Environment and Society

College of Natural Resources

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Degrees offered: Bachelor of Science (BS) in Environmental Studies; BS, Master of Science (MS), and Doctor of Philosophy (PhD) in Recreation Resource Management; BS, Bachelor of Arts (BA), MS, and Master of Arts (MA) in Geography; MS in Bioregional Planning (offered jointly with Department of Landscape Architecture and Environmental Planning)

Vision/Mission: The vision of the Department of Environment and Society is one of bringing people and science together for healthy communities and enduring ecosystems. The mission of the department is based on three goals: (1) to promote scholarship and creativity in the discovery, synthesis, and transfer of knowledge relating to the human dimensions of natural resource and environmental management; (2) to apply social science concepts and approaches to better understand human-environment interactions at a range of spatial scales; and (3) to enhance the effectiveness of policies, planning, and administrative processes that affect sustainable use of the natural world.

To this end, the department's academic programs provide undergraduate and graduate students with a balanced exposure to the social, physical, and biological sciences within an interdisciplinary framework. This combination has great relevance for students aspiring to careers in natural resource and environmental policy, planning, management, education, and science, as well as careers in geography. The program is designed to provide students with a working knowledge of the human aspects of ecosystems and a speaking knowledge of the biophysical aspects, as well as experience using "state of the art" tools and techniques for integrating this knowledge.

Undergraduate Programs

Objectives

The department offers three undergraduate degrees: Environmental Studies, Geography, and Recreation Resource Management. Each of these degrees offers a balanced exposure to key ideas and principles of the social, biological, and physical sciences, placing special emphasis on the human dimensions of natural resources and environmental management. The department's

goal is to train professionals who can lead the way toward finding and keeping a sustainable balance between protecting the environment and enhancing human societies.

Departmental programs offer learning experiences in the classroom and in the field, frequent individual contacts with faculty as teachers and advisors, and opportunities to take part in student and professional organizations. Seasonal employment, internships, and other activities promoting hands-on experience in natural resource and geographic professions are strongly encouraged.

The **Environmental Studies** curriculum is designed for students who wish to acquire a broad understanding of natural resources and human-environment relationships, together with the technical background needed to understand environmental issues. In many ways, the curriculum provides a traditional “liberal arts education” with a strong natural resources emphasis. Moreover, it offers flexibility for the development of either specialization or breadth of content to match the student’s interests.

The **Geography** curriculum provides a broad background in the basic themes of geography—human (cultural), physical, and regional geography—with a particular focus on environmental and earth resources geography. In addition, students acquire technical geographic analysis skills. Students also have the opportunity to study in a systematic, regional, or technical area of geography.

The **Recreation Resource Management** curriculum prepares students for careers in managing outdoor recreation settings, such as public forests and rangelands, state and national parks, and wilderness areas. Because these jobs require an understanding of both the land and the people who visit it, the major offers courses in both the natural and social sciences, along with an emphasis on communication skills.

Requirements

Admission Requirements. Admission requirements for the Department of Environment and Society are the same as those described for the College of Natural Resources (see pages 100-101).

Graduation Requirements. All Natural Resources core courses and all courses listed as major subject courses must be taken on an *A-B-C-D-F* basis. The grade point average for all courses taught by the College of Natural Resources must be 2.5 or higher.

All students earning undergraduate degrees in the College of Natural Resources (except those majoring in Geography or Geography Teaching) must complete six core courses in natural resource science and management. In addition, students must complete a series of basic lower-division courses providing the disciplinary foundation for natural resource professions before moving on to professional coursework. Equivalents of these foundation courses may be taken at many two- and four-year colleges. Some foundation and core courses may also be used toward the University Studies requirements, as shown by the University Studies designations listed in parentheses following the course numbers.

Environmental Studies Major

The Environmental Studies major consists of 92 credits. This total includes the College of Natural Resources core, lower-division foundation, professional courses, and a specialization option of 15 or more credits.

Lower-division Foundation: Biol 1210, 1220 (BLS); Chem 1110; Engl 1010 (CL), 2010 (CL); Math 1050 (QL); Spch 1050 (CI); Stat 2000 (QI); USU 1300 (BAI).

College of Natural Resources Core: EnvS 2340 (BSS); Geog 1130 (BPS) or Geol 1150 (BPS); NR 2220, 3000, 3600 (QI), 4000.

Professional Coursework: AWER 3700; EnvS 1990, 4000 (DSS), FRWS 3100, 3250 (or 5610 or 5640), 3500; NR 5000; Soil 3000.

Specialization Option: Students work with their faculty advisor to develop a specialization option fitting their interests and career goals. The option consists of 15 or more credits, and may include any approved University minor or a suite of courses meeting the student’s particular needs. *Examples* of specialization options include:

Environmental Interpretation: Art 2810; Anth 3110 or 4110 (DSS); EnvS 4600, 5110; Spch 5250.

Environmental Policy: EnvS 4110, 4130, 5300; PolS 3810 (DSS) or 4810, 4820 (DSS).

Geographic Analysis: AWER 3900, 4750, 4930, 5930; Geog 3850 or EnvS 5100.

Geography Major

The Geography major consists of 60-61 credits, including the College of Natural Resources core, lower-division foundation, and professional courses. After meeting the University Studies, USU upper-division, and geography major requirements, students may take the remainder of their 120 required credits in any discipline from any department. Students interested in using their elective credits to develop a field of specialization should consult with their advisor to select appropriate courses.

Lower-division Foundation: Geog 1030 (BSS), 1130 (BPS), 1140, 2030 (BSS); Math 1050 (QL); Stat 2000 (QI).

College of Natural Resources Core: EnvS 2340 (BSS); NR 2220, 3000, 3600 (QI), 4000.

Professional Coursework: Geog 4200 (CI); 6-7 credits of techniques courses; and 14 credits of geography electives. Students should request a major requirement sheet from the department office and consult their faculty advisor for a list of specific techniques and elective courses.

Geography Teaching Major

The teaching major in Geography consists of both the geography courses (36-37 credits) and the Secondary Teacher Education Program (STEP) (35 credits). For details about the STEP, students are referred to the geography major requirement sheet, or the STEP information listed in the Department of Secondary Education section (pages 418-419). Students may select their remaining geography credits from courses numbered 2000 or above. It is recommended that students take additional regional, systematic, technology in geography education, or classroom technology practicum credits. All electives must be coordinated with a geography education advisor. A geography teaching major also requires a teaching minor in another field of study.

Lower-division Foundation: Geog 1030 (BSS), 1130 (BPS), 1140, 2030 (BSS), 4200 (CI).

Professional Coursework: AWER 4930; Geog 3850, 4300, 4800, 4850.

Recreation Resource Management Major

The Recreation Resource Management major consists of 95 credits, including the College of Natural Resources core, lower-division foundation, and professional courses. For most students, these courses will cover all but 9 credits of the University Studies requirement.

Lower-division Foundation: Biol 1210, 1220 (BLS); Chem 1110; Engl 1010 (CL), 2010 (CL); Math 1050 (QL); Soc 1010 (BSS); Spch 1050 (CI); Stat 2000 (QI); USU 1300 (BAI).

College of Natural Resources Core: EnvS 2340 (BSS); Geog 1130 (BPS) or Geol 1150 (BPS); NR 2220, 3000, 3600 (QI), 4000.

Professional Coursework: AWER 3700; EnvS 1990, 3300, 4000 (DSS), 4130, 4500 (CI), 4600 or 5110, 4750, 5300; FRWS 3250, 3500, 4520; NR 5000; PRP 4400; Soc 3500 or 4620 (DSS); Soil 3000; 3 credits of special topics or special projects courses (EnvS 4920 or 4950).

Environment and Society Minors

The department offers minors in Environmental Studies, Geography, Geography Teaching, and Recreation Resources. Students in all University majors may complete a Geography, Geography Teaching, or Recreation Resources minor. The Environmental Studies minor is open to all majors, *except* those in the College of Natural Resources. Because the same courses cannot be counted toward both a student's major and minor, students must take additional courses beyond those listed here if their majors require courses that are also included in the minor. Students wishing to minor in the above areas should contact the department to meet with the designated advisor for that minor.

The **Environmental Studies** minor totals 17-19 credits and includes NR 2220, 3000, and 4000, plus two of the following courses: EnvS 4000 (DSS); NR 3600 (QI); or any approved upper-division course in ecology, policy, economics, or assessment.

The **Geography** minor totals 25 credits and includes AWER 3900; EnvS 1710; and Geog 1030 (BSS), 1130 (BPS), 1140, 2030 (BSS), 2230, 3850, 4200 (CI).

The **Geography Teaching** minor totals 23-24 credits and includes Geog 1030 (BSS), 1130 (BPS), 1140, 2030 (BSS), 3850, 4200 (CI), 4300, 4800, 4850 (or AWER 4930); and 3 elective credits from courses numbered 2000 or above. All electives must be coordinated with the geography education advisor. An approved teaching major in another subject is also *required*.

The **Recreation Resources** minor totals 15 credits and includes EnvS 3300, 4130, 4500 (CI), 4600; plus one of the following: EnvS 4000 (DSS), 4750, or 5110.

Financial Assistance

The main opportunities for undergraduates to find financial support through grants, work-study, and loans are listed on pages 22-25 in the *Financial Aid and Scholarship Information* section. In addition, more than 30 scholarships for eligible students in the College of Natural Resources are listed on pages 37-38 of the same section. Some students may be able to find paid internships

with private or governmental organizations, or work for a faculty member on a research project. Interested persons should contact the department for more information on financial assistance for undergraduate students.

Additional Information

For additional information about the Bachelor of Science requirements, course sequencing, and departmental specialization options and their related coursework, as well as updated information describing current programs and courses offered by the Department of Environment and Society, visit the Environment and Society main office, Natural Resources 201, or visit: <http://www.cnr.usu.edu> and link to the departmental website.

Graduate Programs

Admission Requirements

See general admission requirements on pages 72-73. Applicants for graduate study in the Department of Environment and Society should have a bachelor's degree from an accredited college or university, a cumulative GPA of at least 3.0 (out of 4.0), and GRE scores (quantitative and verbal) above the 40th percentile. Foreign students should submit a TOEFL score of at least 550. Exceptions to these standards will be considered on a case-by-case basis. Written statements of interest help match applicants with faculty advisors. A faculty member must agree to serve as the major professor in order for an applicant to be accepted. Prospective students are encouraged to contact faculty members early in the application process to investigate mutual interests, projects, and prospects for financial support.

The department's graduate programs focus on providing students with a broad foundation in the social and natural sciences as they relate to the study, planning, and management of ecosystems. The curriculum is designed to enhance interdisciplinary integration by emphasizing current and future environmental issues facing humanity. Coursework and research are focused on problem solving through application of social research methods, case studies, computer mapping, and other analytical techniques.

The department values intellectual, academic, and social diversity in the applicants for graduate study. Mature professionals seeking education to augment life experiences, or practical training to pursue new career paths, are also encouraged to apply. Knowledge gaps will be identified early in a student's program and addressed on a case-by-case basis through agreements between students and their graduate advisory committees.

Degree Programs

The department offers opportunities for graduate study through the MS, MA, PhD, and graduate certificate programs listed below. The department also offers opportunities to participate in a college-wide Master of Natural Resources (MNR) program administered through the Dean's Office of the College of Natural Resources. This program is described more fully on page 374.

The MS degree requires a minimum of 30 credits, of which 24 must be in residence. Candidates for the MA must complete the requirements for the MS, with the addition of at least two years

(approximately 16 credits) of an approved foreign language or some other demonstration of foreign language proficiency. There are two options available in both the MS and MA programs. The **Plan A** requires students to complete coursework, as well as a research thesis. The **Plan B** is a nonthesis, terminal degree, based largely on coursework and a professional paper or project.

For the PhD degree, there is a more variable amount of required coursework, as well as a research dissertation. Compared to the MS degree, the PhD degree has a greater emphasis on theory, research methods, writing research proposals, and publishing research in peer-reviewed outlets.

Bioregional Planning. Graduate education in bioregional planning recognizes the importance of how the biophysical attributes of a region influence the human dimensions of settlement and culture. The reciprocal is also addressed. The two-year Master of Science degree in Bioregional Planning, offered jointly with the Department of Landscape Architecture and Environmental Planning, presents an interdisciplinary core of courses and faculty for the purpose of addressing complex issues in the areas of environmental analysis, planning, and policy. Emphasis is placed on four problematic content areas associated with environmental planning: social/behavioral, biophysical, economic, and public policy. The spatial focus is on planning for large regional landscapes with dispersed populations with a primary economic base in agriculture, energy development, tourism/recreation, retirement communities, and natural resources. The program prepares future planners and managers to work within an interdisciplinary environment, providing better alternatives for decisions and policy implementation. Bioregional planning is practiced in both the private and public sectors, which may include offices of the National Park Service, U.S. Forest Service, Bureau of Land Management, and various state, county, and community organizations. For further information, see page 320.

Geography. Graduate education in Geography provides opportunities for students to gain advanced technical knowledge and skills in formal specializations that include: (1) Human-Environment Interactions, (2) Geographic Information Systems, (3) International Rural Development, (4) Geographic Education, and (5) Environmental Education.

Recreation Resource Management. Graduate education in Recreation Resource Management provides opportunities for students to gain advanced knowledge and skills in topics such as: (1) outdoor recreation behavior and attitudes, (2) resource-based conflict and crowding, (3) natural resource-based tourism, (4) natural history interpretation, and (5) integration of outdoor recreation with protected area management or rural development.

Graduate Certificate Programs

Faculty in the Department of Environment and Society also administer two graduate certificate programs, including **Natural Resource and Environmental Policy (NREP)** and **National Environmental Policy Act (NEPA)**. By meeting certain core requirements, students are able to obtain a certificate in one or both of these areas complementing their degree program. See pages 372-373 for a description of the NREP Program. The NEPA certificate is subject to final approval by the Board of Regents; details of this program can be found in the online version of the catalog.

Proposed Degrees and Certificates

The department has several degree and certificate programs in the proposal stage, with the objective of having them available for the Fall 2003 semester. MS, MA, and PhD degrees in **Human Dimensions of Natural Resources and Environment** would provide opportunities for students to gain knowledge and skills in the social aspects of ecosystem management and planning. Plan C (MS and MA) degrees in **Geography**, based solely on coursework, would be available *only* for elementary or secondary teachers seeking a master's degree in Geographic Education or Environmental Education. A graduate certificate in **Natural Resource and Environmental Education** would provide students having an interest in this area with an opportunity to complement their matriculation in a wide array of degree programs currently offered by the University. Contact the department for the status of these offerings.

Research

The generation of new knowledge through research is one of the key contributions that an academic department makes to professions and society at large. Research is also a major venue for the interaction of graduate students and faculty in the Department of Environment and Society. Although faculty and students work on many different issues, the research strives to be interdisciplinary and focuses on merging the relevant social and natural sciences. Work is undertaken in Utah and beyond, including several projects elsewhere in the United States and in developing nations. Funding comes from a variety of public and private sources. The department houses one institute and three programs that also collaborate on research. These include the Institute for Outdoor Recreation and Tourism, the Natural Resource and Environmental Policy Program, the Geographic Education Program, and the Environmental Education Program.

Financial Assistance

General aspects of financial support for graduate students at Utah State University are listed on pages 71-72 in the *Graduate Financial Assistance* section. This includes important information on the University-wide policies and terms of reference for research and teaching assistantships, graduate tuition obligations and benefits, Western Regional Graduate Programs, and competitive University-wide fellowships and scholarships.

The Department of Environment and Society intends that all graduate students be financially supported. Graduate research assistantships are available through major professors having contracts, grants, or other awards. Internships may also be created on a case-by-case basis. A student may want to author or co-author a proposal with a faculty member to fund a new initiative. There are also open competitions for graduate scholarships and fellowships through the College of Natural Resources. The department also has a few graduate teaching assistantships where graduate students typically help instructors with teaching, grading, or recitation in large courses. Interested persons should contact the department early in the application process for more information on financial assistance for graduate students. Prospective students may also visit <http://www.cnr.usu.edu> and link to the departmental website.

Environment and Society *Courses (EnvS)*

EnvS 1710. Human Impact on Environment. Provides assessment of natural and man-related processes acting together to modify the global environment. Examines nature of global environmental change and contribution of human species to this change. (3 cr) (Sp)

EnvS 1990. Professional Orientation. Introduction to forestry, outdoor recreation, environmental studies, and related careers. Offers new students an orientation to College of Natural Resources faculty, college and University programs, careers in natural resources, and professional societies. (1 cr) (F)

EnvS 2250. Introductory Internship/Co-op. Introductory-level educational experience in internship/cooperative education position approved by department. (1-3 cr) (F,Sp,Su) ®

EnvS 2340 (BSS). Natural Resources and Society. Examines human values, uses, and management of natural settings at the individual, community, and societal levels. Topics include: psychological responses to nature, history of U.S. park and natural resource management, environmental sociology and politics, and nature in non-Western cultures. (3 cr) (F,Sp)

EnvS 3300. Fundamentals of Recreation Resources Management. Principles of wildland recreation management including: characteristics of recreation use and users, introduction to planning concepts, management of wildland recreation facilities and infrastructure, and integration with other natural resource uses. (3 cr) (F)

EnvS 3330. Environment and Society. Emphasizes how human actions modify the physical environment and how physical systems affect human systems and the changes occurring in the meaning, use, and importance of resources at a global and regional scale. (3 cr) (Sp)

EnvS 3600 (DSC). Living With Wildlife. Reviews history and development of wildlife management programs in the United States. Explores diversity of attitudes toward wildlife, which affect development and evolution of wildlife management programs. Development and analysis of case histories of contemporary and controversial wildlife management decisions. (3 cr) (Sp)

EnvS 4000 (DSS). Human Dimensions of Natural Resource Management. Focuses on balancing science and social values in ecosystem management and decision-making. Topics include environmental justice, communication and behavior change strategies, landscape perception and attitudes, resource-dependent communities, public involvement, and conflict management. (3 cr) (F)

EnvS 4110 (d6110).¹ Fisheries and Wildlife Policy and Administration. Examination of policy issues and administrative approaches in fish and wildlife management, with particular emphasis on nonbiological issues facing wildlife managers and administrators. (3 cr) (F)

EnvS 4130. Recreation Policy and Economics. Fundamentals of public land recreation administration, including funding, laws and regulations, partnerships, and government agency culture. Application of nonmarket and regional economics to wildland recreation. Relationship of outdoor recreation to tourism. (3 cr) (F)

EnvS 4250. Advanced Internship/Co-op. Directed and evaluated cooperative education or work experience for undergraduates in public and private organizations. (1-9 cr) (F,Sp,Su) ®

EnvS 4400. Forest Management and Economics. Integrates economic and decision-making tools in management of forest resources for multiple uses over extended time periods. Prerequisites: NR 4000, FRWS 4270. (4 cr) (Sp)

EnvS 4500 (CI). Wildland Recreation Behavior. Social, psychological, and geographic influences on human behaviors in wildland recreation settings. Emphasis on critical problems affecting public land recreation management. (3 cr) (Sp)

EnvS 4600. Natural Resource Interpretation. Planning processes and techniques for providing interpretive programs developed for wildland recreation areas and visitor centers. Evaluation and planning of visitor information efforts. (3 cr) (F)

EnvS 4750. Wildland Recreation Planning and Management. Planning and management tools for wildland recreation management. Biophysical impacts of recreation. Biophysical and social aspects of and integration of recreation with other natural resource uses. Prerequisites: EnvS 4130, 4500, and senior standing. (3 cr) (Sp)

EnvS 4920. Special Projects in Recreation Management. Participation in special projects to assist public recreation agencies or nonprofit organizations, while gaining hands-on experience in recreation management, planning, and monitoring. Many experiences entail intensive, short-duration efforts away from campus. (1-3 cr) ®

EnvS 4950. Special Topics. Individual study and research upon selected environmental and societal problems. (1-3 cr) (F,Sp,Su) ®

EnvS 4960. Directed Readings. Individual reading research on selected environmental and societal readings. (1-3 cr) (F,Sp,Su) ®

EnvS 4970. Undergraduate Research. Individual or team research. Prerequisite: Advisor approval. (1-3 cr) (F,Sp,Su) ®

EnvS 4980. Undergraduate Seminar. Intended to bring upperclassmen up-to-date on environmental and societal topics. (1 cr) (Sp)

EnvS 5100 (d6100). Methods of Environmental and Ecological Mapping. Mapping in the field from aerial photography and satellite data to mapping environmental regions and establishing a GIS data base. (3 cr)

EnvS 5110. Environmental Education. Covers teaching about the environment, and using the environment and the natural world to teach other subjects, with a strong emphasis on participation and on practicing teaching techniques. (3 cr) (Sp)

EnvS 5300. Natural Resources Law and Policy. Legal and administrative regulation of forests and associated resources (water, air, fish, wildlife, and scenery). Emphasis on agency organizational culture, federal legislation, court cases, administrative procedures, and federal natural resources agencies' interactions with tribal, state, and local governments. (2 cr) (F)

EnvS 5320. Water Law and Policy in the United States. Introduction to policies, laws, institutions, and practices guiding western water allocation, emphasizing how to efficiently and equitably allocate increasingly scarce supplies. Explores reserved water rights, water markets, stream adjudication, public trust doctrine, basinwide management, and riparian management. (3 cr) (F)

EnvS 5450. Rangeland Economics and Management. Senior capstone course preparing students to conduct economic evaluations and prepare inventories and management plans for private ranching operations and large tracts of public rangeland. Prerequisite: Permission of instructor. (5 cr) (F)

EnvS 5540 (d6540). Land Use and Resource Assessment. Provides understanding of land use, land capability, techniques and methods of resource assessment, and their role in development planning. (3 cr) (F)

EnvS 5550 (d6550). Environment, Resources, and Development Policy. Environment, natural resources, and development policy in Third World, emphasizing sustainable development, farming systems, agro-pastoralism, desertification, and land use. (3 cr) (F)

EnvS 5700 (d6700). History of Geographic Thought. Acquaints students with aims, methods, and accomplishments of geography as a professional field and a discipline in the past, present, and future. (3 cr) (F)

EnvS 6000. Human Dimensions in Natural Resources Graduate Seminar. Focuses on balancing science and social values in ecosystem management and decision-making. Topics include environmental justice, communication and behavior change strategies, landscape perception and attitudes, sociology of resource-dependent communities, and conflict management. Students attend lectures concurrent with EnvS 4000, but attend one additional discussion section per week. (3 cr) (F)

EnvS 6100 (d5100). Methods of Environmental and Ecological Mapping. Mapping in the field from aerial photography and satellite data to mapping environmental regions and establishing a GIS data base. (3 cr)

EnvS 6110 (d4110). Fisheries and Wildlife Policy and Administration. Examination of policy issues and administrative approaches in fish and wildlife management, with particular emphasis on nonbiological issues facing wildlife managers and administrators. (3 cr) (F)

EnvS 6130. Policy Aspects of Wildland Recreation. Political, legal, and economic bases for wildland recreation management. Relationship between outdoor recreation and tourism. Lectures concurrent with EnvS 4130. Also includes weekly discussion session focusing on relevant scientific research and policy analyses. (3 cr) (Sp)

EnvS 6240. Graduate Internship/Co-op. Graduate-level educational experience in internship/cooperative education position approved by department. (1-9 cr) (F,Sp,Su) ®

***EnvS 6350 (d7350). Wildlife Damage Management Policy.** Review and analysis of state and national policies associated with wildlife damage management issues. While often extremely controversial, these issues have significant impacts on food and fiber production, public health and safety, and wildlife conservation. Includes investigation of policies and techniques, and outlining of decision-making processes. Emphasizes issue identification and human dimension factors. (3 cr) (Sp)

***EnvS 6400. Ecological Aspects of Wildland Recreation.** Assessment of current knowledge and knowledge gaps concerning impacts of wildland recreation on wildlife, plants, soil and water resources, and processes. Strategies for coexistence of recreation visitors and nonhuman ecosystem elements. (3 cr) (Sp)

***EnvS 6420. Advanced Forest Management.** Advanced study of forest-level planning on public and private lands using mathematical programming techniques. (2 cr) (Sp)

EnvS 6500. Behavioral Aspects of Wildland Recreation. Social and psychological analysis of visitor behavior in outdoor recreation settings. Sources of recreation management problems and practical and theoretical basis for management practices. Lectures concurrent with EnvS 4500. Separate discussion sessions focus on research concerning recreation behavior. (3 cr) (F)

****EnvS 6530. Natural Resources Administration.** Organizational structures and processes common in natural resources administration on federal and state levels, and how they impact career development and land management. (2 cr) (F)

EnvS 6540 (d5540). Land Use and Resource Assessment. Provides understanding of land use, land capability, techniques and methods of resource assessment, and their role in development planning. (3 cr) (F)

EnvS 6550 (d5550). Environment, Resources, and Development Policy. Environment, natural resources, and development policy in Third World, emphasizing sustainable development, farming systems, agro-pastoralism, desertification, and land use. (3 cr) (F)

EnvS 6600. Advanced Natural Resource Interpretation. Planning processes, techniques, and evaluation procedures for using information and education to influence human behavior and increase benefits to visitors in natural settings. Leadership of teams involved in producing interpretive plans and materials. (3 cr) (F)

EnvS 6700 (d5700). History of Geographic Thought. Acquaints students with aims, methods, and accomplishments of geography as a professional field and a discipline in the past, present, and future. (3 cr) (F)

EnvS 6750. Advanced Recreation Planning and Management. Proactive and problem-solving tools for addressing challenges facing managers of public lands where outdoor recreation takes place. Students serve as team leaders for capstone exercises. Prerequisites: EnvS 6130, 6500; or equivalent. (3 cr) (Sp)

EnvS 6800 (d7800). Environment and Society Departmental Seminar. (1 cr) (F,Sp) ®

****EnvS 6810. Natural Resources Research Design.** Covers generation of practical research hypotheses and their testing in the natural resource research context. Written reports, such as journal articles, in the natural resources fields are deconstructed according to research methodologies. Prerequisite: Any statistics course which includes hypothesis testing and confidence intervals. Prerequisite: Stat 2000 or higher. (3 cr) (Sp)

EnvS 6820. Natural Resources Research Integrity. Given as a seminar, and including invited speakers, course covers responsible professional behavior in natural resources research and management, with topics ranging from regulations for laboratory animal welfare to performance of honest research and management in the natural resources professions, where studies are seldom replicated and planning horizons can be decades away, and checks for ultimate validity not performed. As a term project, each student devises and defines his or her code of natural resources professional integrity. Recommended prerequisite: EnvS 6810. (2 cr) (F)

EnvS 6870. Ecology Seminar. The Ecology Center schedules regular seminars throughout the school year with ecological scientists from other institutions participating. Ecology majors are required to attend a minimum of 10 such lectures. Students should register for fall semester, but attend through spring semester. Also taught as AWER 6870, Biol 6870, and FRWS 6870. (1 cr) (F) ®

EnvS 6900. Graduate Special Topics. Offers credit for special assignments, reading, and seminars beyond regularly scheduled courses. (1-6 cr) (F,Sp,Su) ®

EnvS 6910. Directed Study. (1-6 cr) (F,Sp,Su) ®

EnvS 6960. Graduate General Ecology. General concepts, history, and issues in all major areas of the science of ecology including: environmental biophysics; and physiological, behavioral, evolutionary, community, ecosystem, and applied ecology in both terrestrial and aquatic environments. Also taught as AWER 6960, Biol 6960, and FRWS 6960. (5 cr) (F)

EnvS 6970. Thesis Research. (1-12 cr) (F,Sp,Su) ©

EnvS 6990. Continuing Graduate Advisement. (1-9 cr) (F,Sp,Su) ©

***EnvS 7350 (d6350). Wildlife Damage Management Policy.** Review and analysis of state and national policies associated with wildlife damage management issues. While often extremely controversial, these issues have significant impacts on food and fiber production, public health and safety, and wildlife conservation. Includes investigation of policies and techniques, and outlining of decision-making processes. Emphasizes issue identification and human dimension factors. (3 cr) (Sp)

EnvS 7800 (d6800). Environment and Society Departmental Seminar. (1 cr) (F,Sp) ©

EnvS 7900. Graduate Special Topics. Offers credit for special assignments, reading, and seminars beyond regularly scheduled courses. (1-6 cr) (F,Sp,Su) ©

EnvS 7910. Directed Study. Offers credit for special assignments, reading, and seminars beyond regularly scheduled courses. (1-6 cr) (F,Sp,Su) ©

EnvS 7970. Dissertation Research. (1-12 cr) (F,Sp,Su) ©

EnvS 7990. Continuing Graduate Advisement. (1-9 cr) (F,Sp,Su) ©

Geography Courses (Geog)

Geog 1030 (BSS). World Regional Geography. Survey of world cultural regions, with an analysis of political, economic, and resource patterns in their physical setting. (3 cr) (F,Sp) ©

Geog 1130 (BPS). Physical Geography. Geographic analysis of physical processes and spatial distribution of natural elements (i.e., the atmosphere, hydrosphere, lithosphere, and biosphere). (3 cr) (F,Sp,Su) ©

Geog 1140. Physical Geography Lab. Laboratory exercises in natural physical geography. Provides initial field and laboratory experiences in the earth system. Required for all geography majors. Prerequisite: Geog 1130 (may be taken concurrently). (1 cr) (F,Sp)

Geog 2030 (BSS). Human Geography. Spatial study within selected socio-cultural settings, including cultural landscapes, rural-urban linkages, languages, religions, politics, and economic activities. (3 cr) (F)

Geog 2130. Population Geography. Spatial analysis of demographic data emphasizing global distribution, population growth, measures of density, migration, settlement, and economic development. (3 cr) (Sp)

Geog 2230. Economic Geography. Introduction to analysis of world patterns of economic activities (production, consumption, and exchange), with emphasis on factors of industrial location and natural resource exploitation. (3 cr) (F)

Geog 3430. Political Geography. Study of relationship between Earth, people, and the state. Global political phenomena studied from a geographic perspective. Ex-

plores impact of natural resources territorial seas and the nature of the state. Also taught as PolS 3430. (3 cr) (Sp)

Geog 3610. Geography of Rural/Urban Planning. Analysis of the organization and interrelationships of urban-city and rural space. Emphasizes spatial planning of rural-urban environments to improve quality of life, internal structure of cities, and applied principles and practices of community planning. Field trips and applied class projects integrated into lectures and demonstrations. (3 cr) (F)

Geog 3850. Map and Air Photo Interpretation. Addresses theoretical and practical nature of maps, fundamental photogrammetry, issues of scale, and geographic referencing systems. Ends with an introduction to remote sensing. After successfully completing this course, students will be able to understand basic mapping processes, make precise distance/direction/area map and photogrammetric measurements, interpret natural and man-made features from maps and photographs, and understand fundamental interpretations of remote sensing imagery. (3 cr) (F)

Geog 4200 (CI). Regional Geography. Analysis of physical and cultural geography for a variety of regions. Can be repeated for each different region as offered (e.g., Pacific Rim, Africa, Middle East, Europe, Asia, Latin America, and North America). (3 cr) (F,Sp,Su) © ©

Geog 4300. Geography Education Classroom Practicum. Allows geography education students to participate in actual geography classroom teaching with experienced geography teachers. Students observe, work with individuals and groups of students, team-teach lesson(s) with the teacher, and self-teach individual lesson(s). (1-3 cr) (F,Sp,Su) ©

Geog 4800 (d6800). Teaching Geography. Designed specifically for geography education/social studies education students preparing to teach grades K-12. Exploration of national and state standards and core curriculum, as well as state-of-the-art geography education technology and teaching resources. Students develop teaching lessons, and gain classroom teaching experience with local geography teachers. (3 cr) (Sp)

Geog 4850. Cartographic Design. Techniques used in design and construction of maps, charts, and map projections. (3 cr) (Sp)

Geog 5650 (DSS) (d6650). Developing Societies. Reviews how sociology, cultural geography, and economic anthropology analyze processes of globalization in postcolonial societies. Examines changing livelihoods, patterns of spatial incorporation and societal evolution, and emergent policy problems associated with rapid socioeconomic change. Also taught as Anth 5650/6650 and Soc 5650/6650. (3 cr) (F)

Geog 5810 (d6810). Geography Education Inservice Workshop. Assists classroom teachers in broadening their perspective of Geography Education through increased knowledge, improving their geographic techniques, methods, and teaching resources for their classrooms. (3 cr) (F,Sp,Su)

Geog 5900 (d6900). Geography Field Practicum. Designed for geography students involved in field research and/or internships. Provides opportunity for students to gain practical applied experience in their specialized academic emphasis in geography. (1-4 cr) (F,Sp,Su) ©

Geog 5970. Classroom Technology in Geography Education. Design, development, and application of contemporary technologies and multimedia classroom teaching resources for preservice and inservice geography education teachers. (3 cr) (F,Su)

Geog 6200. Advanced Regional Geography. Critical analysis of world's regions, focusing on analysis and synthesis of a region's economic, political, population, and cultural themes in the context of physical environment and global processes. Repeatable for different regions. (3 cr) (F,Sp,Su) ®

Geog 6650 (d5650). Developing Societies. Reviews how sociology, cultural geography, and economic anthropology analyze processes of globalization in postcolonial societies. Examines changing livelihoods, patterns of spatial incorporation and societal evolution, and emergent policy problems associated with rapid socioeconomic change. Also taught as Anth 6650/5650 and Soc 6650/5650. (3 cr) (F)

Geog 6800 (d4800). Teaching Geography. Designed specifically for geography education/social studies education students preparing to teach grades K-12. Exploration of national and state standards and core curriculum, as well as state-of-the-art geography education technology and teaching resources. Students develop teaching lessons, and gain classroom teaching experience with local geography teachers. (3 cr) (Sp)

Geog 6810 (d5810). Geography Education Inservice Workshop. Assists classroom teachers in broadening their perspective of Geography Education through increased knowledge, improving their geographic techniques, methods, and teaching resources for their classrooms. (3 cr) (F,Sp,Su)

Geog 6900 (d5900). Geography Field Practicum. Designed for geography students involved in field research and/or internships. Provides opportunity for students to gain practical applied experience in their specialized academic emphasis in geography. (1-4 cr) (F,Sp,Su) ®

¹Parenthetical numbers preceded by *d* indicate a *dual* listing.

® Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

© This course is also offered by correspondence through Continuing Education Independent and Distance Education.

*Taught 2002-2003.

**Taught 2003-2004.