

# NATURAL RESOURCES AND SOCIETY (NRS)

## **NRS 125 Introduction to Conservation and Natural Resources (3 credits)**

General Education: Social and Behavioral Ways of Knowing  
Foundations of natural resource management and agencies with responsibility for land management; philosophical, theoretical, and historical basis for protected areas; principles and frameworks for managing human use of and recreation on public lands.

## **NRS 200 (s) Seminar (1-16 credits)**

Credit arranged

## **NRS 201 Introduction to Natural Resource Enterprise Management (2 credits)**

Provides an introduction to private sector Natural Resource Management and the Natural Resource Enterprise Management Program. Typically Offered: Fall.

## **NRS 203 (s) Workshop (1-16 credits)**

Credit arranged

## **NRS 204 (s) Special Topics (1-16 credits)**

Credit arranged

## **NRS 235 Society and Natural Resources (3 credits)**

General Education: Social and Behavioral Ways of Knowing

Cross-listed with FOR 235

An exploration of how people use, value, manage, impact, and are affected by natural resources; course emphasizes social and economic realities and political and legal processes in a context of current and historical natural resource issues. Two lectures and one 1-hour small discussion group meeting per week.

## **NRS 299 (s) Directed Study (1-16 credits)**

Credit arranged

## **NRS 310 Social Science Methods (4 credits)**

Quantitative, qualitative, and mixed approaches to studying social aspects of conservation and the environment; how to choose and apply selective research methods; design, collection, and statistical analysis of primary and secondary data; program evaluation; reporting results; interpreting research literature; lab exercises in research design, data collection, and analysis; and the communication of research issues and findings to lay and professional audiences. Special fee assessed. Three lectures and 2 hours of lab per week. Recommended Preparation: Basic computer skills. (Fall only)

**Prereqs:** STAT 251

## **NRS 311 Public Involvement in Natural Resource Management (3 credits)**

Theoretical and applied concepts of public involvement in both public and private sectors of natural resource management; case studies and applied techniques or methods for public involvement; National Environmental Policy Act (NEPA) regulations and other public involvement policy or law. Field trip may be required. (Spring only)

## **NRS 364 Politics of the Environment (3 credits)**

Cross-listed with POLS 364

Political factors that influence formation, implementation, and impact of public policies aimed at protecting the environment.

## **NRS 383 Natural Resource and Ecosystem Service Economics (3 credits)**

The role and application of economic theories and methods in natural resource and ecosystem service decision-making. Economic tools are applied to the management of forests, fisheries, rangeland, recreation, wildlife, and other contemporary issues. (Spring only)

**Prereqs:** FOR 235 or NRS 235; and ECON 202 or ECON 272; and MATH 143

## **NRS 386 Managing Complex Environmental Systems (3 credits)**

Cross-listed with ENVS 386

Complex environmental systems are comprised of interconnected social, economic, and environmental components. Explore complex environmental systems frameworks and fundamental principles of sustainability in these systems by examining theory and practice in case studies. Topics may include natural resource scarcity and human conflict, ecosystem service provision, management, and conservation, and land tenure, rights, and justice relating to human access to natural resources.

## **NRS 387 Environmental Communication Skills (3 credits)**

Introduction to communications skills in the context of natural resources, including environmental and cultural interpretation; communication psychology and media applied to noncaptive audiences in natural resource situations. Field trip may be required. Special fee assessed.

**Prereqs:** Permission

## **NRS 398 (s) Internship (1-16 credits)**

Credit arranged

## **NRS 400 (s) Seminar (1-16 credits)**

Credit arranged

## **NRS 403 (s) Workshop (1-16 credits)**

Credit arranged

## **NRS 404 (s) Special Topics (1-16 credits)**

Credit arranged

## **NRS 440 Restoration Ecology (3 credits)**

Cross-listed with REM 440

The ecological restoration of disturbed ecosystems. Fundamental principles from ecology, ecophysiology, and community ecology are used in a systems ecology approach to examine how the structure and function of damaged ecosystems can be restored, with the goal of establishing a stable and self-sustaining ecosystem.

**Prereqs:** NR 321, FOR 221, REM 221, WLF 220, BIOL 314, or Permission.

## **NRS 444 Recreation Ecology (3 credits)**

This course addresses outdoor recreation and natural management using a recreation ecology framework. Physical and social impacts resulting from outdoor recreation in parks and protected areas will be discussed (i. e., soil erosion, water contamination, vegetative trampling, light pollution, crowding, etc.), as well as visitor use management strategies to address those impacts. Typically Offered: Spring.

**Prereqs:** NRS 125 Cooperative: open to WSU degree-seeking students.

## **NRS 462 Natural Resource Policy (3 credits)**

Cross-listed with POLS 462

Political and institutional context for making natural resource policy; emphasis on interaction between private and public sectors and the federal, state, and tribal governments, including an examination of topical issues in natural resource politics.

**NRS 472 Remote Sensing of the Environment (4 credits)**

Cross-listed with FOR 472

Current airborne and satellite systems, data acquisition on ground and from remote locations, instrumentation, imagery interpretation and digital analysis, applications for natural resource science and management. Two 75-minute lectures and one two-hour lab per week. Recommended Preparation: MATH 143. Typically Offered: Fall. Cooperative: open to WSU degree-seeking students.

**NRS 473 ECB Senior Presentation (1 credit)**

General Education: Senior Experience

Cross-listed with FISH 473, FOR 473

, FSP 473, REM 473, WLF 473. Reporting and presenting the senior project (thesis or internship); taken after or concurrently with REM 497.

Serves as the senior capstone course for Ecology and Conservation Biology (ECB).

**Prereqs:** Instructor Permission

**NRS 475 Local and Regional Environmental Planning (3 credits)**

Cross-listed with ENVS 475

This course focuses on environmental planning by governments, nonprofit organizations, and collaborative partnerships at the local and regional level. Students will study a variety of planning approaches, such as community visioning and policy and management tools. Topics will include planning for public health, natural areas, working landscapes, and the built environment. Typically Offered: Varies.

**Prereqs:** Junior or Senior standing or permission.

**NRS 476 Environmental Project Management and Decision Making (4 credits)**

General Education: Senior Experience

Cross-listed with ENVS 476

Integrated, interdisciplinary approaches to project and program management and decision making. Emphasis on environmental planning techniques, scenario development, analysis, and application of geospatial tools such as GIS and remote sensing. Direct experience and basic skills for project and program development and evaluation. Typically Offered: Spring (Even Years).

**Prereqs:** ENVS 420

**NRS 478 LIDAR and Optical Remote Sensing Analysis (3 credits)**

Joint-listed with NRS 578

LIDAR and optical remote sensing data play a key role in natural resource and environmental research and management. Students will use open-source software to efficiently and effectively work with optical and LIDAR remote sensing datasets. Topics include introduction to open-source software for LIDAR and optical remote sensing analysis, acquisition and pre-processing of optical and LIDAR remote sensing data, and remote sensing analysis approaches that allow conversion of remotely sensed data into management/research relevant information. This course focuses on development and application of practical skills through project-based learning. For graduate credit, primary literature review, discussion, and a class project including evaluation and writeup of unique and advanced datasets is also required.

**Prereqs:** STAT 251 and WLF 370; or STAT 427 and NRS 472 or FOR 472

**NRS 482 Outdoor Leadership Expedition (3 credits)**

This expedition based course will explore the practice of leadership, using the wilderness experience as the classroom. Topics include trip planning, small group dynamics, decision-making, communication and expedition behavior. Examining leadership theory, modeling of leadership techniques, written assignments, and backcountry skill development are used to support learning. Typically Offered: Fall.

**NRS 484 Forest Policy and Admin (2 credits)**

Cross-listed with FOR 484

Evaluation of land and forest problems and policies in the U. S. ; analysis of current conditions and policies; historical development of governmental and private agencies concerned with the administration of forest conservation program. Recommended Preparation: FOR 235.

**Prereqs:** Junior standing.

**NRS 485 Ecology and Conservation Biology Senior Project (1-3 credits, max 3)**

Cross-listed with FOR 485 and WLF 485

Scholarly work; learning objectives include development and formal proposal of a specific project and conducting the project or research with the guidance of a faculty mentor.

**NRS 487 Environmental Education (3 credits)**

Concept and techniques of environmental education with emphasis on informal education settings such as residential and day-use environmental education centers, nature centers, visitor centers. Field trip may be required. (Spring only)

**NRS 488 NEPA in Policy and Practice (3 credits)**

Joint-listed with NRS 588

In-depth review of the National Environmental Policy Act (NEPA), its legislative background and history, significant case law, and Council of Environmental Quality (CEQ) Guidelines. Students will review examples of agency Categorical Exclusions, Environmental Assessments, and Environmental Impact Statements. Students will evaluate whether specific documents "meet the intent or spirit" of NEPA, compare state vs. federal NEPA regulations, and review at least one federal agency's NEPA procedures.

**NRS 490 Wilderness and Protected Area Management (3 credits)**

Historical and legal aspects of the wilderness and protected area concepts; conceptual and applied approaches, considering both ecological and sociological elements; recent research. (Spring, alt/years)

**NRS 497 Senior Thesis (2-4 credits, max 4)**

Independently plan and conduct a thesis project; write and defend the thesis under supervision of an advisor.

**Prereqs:** Senior standing and minimum 3.2 GPA or Permission.

**NRS 498 (s) Internship (1-16 credits)**

Credit arranged

**NRS 499 (s) Directed Study (1-16 credits)**

Credit arranged For the individual student; conferences, library, field, or lab work.

**Prereqs:** Senior standing, 2.5 GPA, and Permission.

**NRS 500 Master's Research and Thesis (1-16 credits)**

Credit arranged

**NRS 501 (s) Seminar (1-16 credits)**

Credit arranged. Seminar examining a wide range of topics that cross-cut the diverse areas of expertise of faculty and graduate students in the Department of Natural Resources and Society. Each course focuses on a specific cross-cutting topic with special emphasis on examining how the topic is viewed with multiple perspectives across disciplinary boundaries. Emphasis is also placed on student cohort building, networking, and professional career development.

**NRS 502 (s) Directed Study (1-16 credits)**

Credit arranged

**NRS 503 (s) Workshop (1-16 credits)**

Credit arranged. Selected topics in the conservation and management of natural resources.

**NRS 504 (s) Special Topics (1-16 credits)**

Credit arranged

**NRS 505 (s) Professional Development (1-16 credits)**

Credit arranged. Credit earned in NRS 505 will not be accepted toward graduate degree programs.

**NRS 506 Fundamentals of Research (2 credits)**

Research approaches, designs, and methodologies as applied in biophysical and social science natural resource professions. Cooperative: open to WSU degree-seeking students.

**Prereqs:** Basic statistics

**NRS 507 Moral Reasoning in Natural Resources (3 credits)**

Cross-listed with LAW 507

Exploration of the practical aspects of moral reasoning on current issues in natural resources. The purpose of the course is to discover the essence of reasoning, rationality, and reflection on moral and ethical dilemmas with regard to current issues in natural resources. Typically Offered: Summer.

**NRS 508 Foundations of Natural Resources and Society (1 credit)**

Team-taught course introducing the five foundations of the NRS Graduate Program, namely: Philosophy of Science, Concepts and Theory in Science, Methods and Data, Science Application, and Professional Development. Emphasis is also placed on student cohort building with one or more field trips.

**NRS 509 Writing a Scientific Article (2 credits)**

Students will write and prepare to submit a scientific manuscript over the semester. We will workshop and discuss issues including writing styles, choosing a journal, and peer review. Students should have data ready to write up at the start of the semester. This course is appropriate for social, biophysical, and interdisciplinary scientists.

**NRS 515 Introduction to Ecological Data Analysis in R (1 credit)**

This course teaches programming and data science skills in the R programming language in the context of ecology. No prior programming skills are required. Specific topics will include basic introduction to data analysis in R and data exploration using graphics. Graded Pass/Fail. Typically Offered: Fall.

**NRS 552 Current Lit in Remote Sensing (1 credit, max arranged)**

Review, present, and discuss recent articles related to remote sensing of the environment. Students choose, critically review, and discuss the articles to develop critical-thinking skills, remote sensing research strategies, and confidence in their knowledge of the literature. Graded P/F.

**NRS 555 Human Dimensions of Natural Resources (3 credits)**

Application of theory and methods from behavioral, social, and policy science to conservation and natural resources management. Focus on multiple perspectives for managing fish, wildlife, and ecosystems, understanding how data that concern human behavior are collected and interpreted, and how insights integrate into management, rule-making, and policy. This requires knowledge of how people think and act toward resources and subsequent effects on those resources and management. The seminar format will use primers and case studies in addition to direct exposure to people, agencies, and organizations involved in Idaho's and the Pacific Northwest's fish, wildlife, and ecosystem management. Typically Offered: Varies. Cooperative: open to WSU degree-seeking students.

**NRS 556 Team Leadership for Environmental Educators (1 credit)**

This course provides participants with the theoretical understandings and practical tools needed to develop an effective leadership practice. Students will be asked to build upon their life experience and their experience at MOSS to provide context for discussions and practice. Topics to be covered include group dynamics, strengths-based personal development, conflict resolution, and a survey of popular leadership theory. McCall Field Campus. (Fall only)

**NRS 557 Community Leadership for Environmental Educators (1 credit)**

This course explores the leadership theories and tools needed to create culture, build trust, and maintain efficiencies within small and large organizations. In particular, it will explore how organizations and teams confront change in order to find success. Students will be asked to build upon their life experience and their experience at MOSS to provide context for discussions and practice. McCall Field Campus. (Spring only)

**NRS 560 Place-based Ecology I (4 credits)**

Cover plant and animal community ecology from both a qualitative and quantitative perspective. Topics will include: community interaction of plants and animals; community dynamics, succession, and disturbance; basic data collection and statistical analysis of habitat association data; and the effect of abiotic factors on community structure. (Fall only)

**NRS 562 Field Science Teaching (2 credits)**

Cross-listed with POLS 562

Joint-listed with NRS 462 and POLS 462

Address basic natural history concepts for instructors involved in experiential environmental education with students 12 to 18 years old. Field activities, readings, and instructor modeling of teaching techniques will be included in the format of the course. The course will focus on how to engage each student to learn ecological principles and apply them in a field teaching setting. (Fall only)

**NRS 563 Place Based Env. Education (4 credits)**

Educating students so that they have the skills and knowledge base in order to begin to understand the human and natural environment in which they live is a complicated endeavor. This course is designed to provide a foundation of educational pedagogy, a survey of place-based literature in areas critical to this educational endeavor, and opportunities for personal and professional application. (Fall only)

**NRS 564 Teaching Environmental Education in a Winter Environment (2 credits)**

Address basic principles of ecology during winter. Emphasis will be placed on field experiences including principles of teaching in a winter environment, winter weather, and organism adaptation to winter. (Spring only)

**NRS 565 Science Communication and the Environment (4 credits)**

Examines the flow of scientific information between experts and non-experts, with emphasis on educational settings. Project-based and includes practice in digital storytelling, documentary film, blogs, podcasts, public talks, and field experiences. McCall Field Campus. (Spring Only)

**NRS 566 Place-based Ecology II (4 credits)**

Explore how plants and animals manage the unique survival challenges of winter. Delve into fundamentals of winter ecology including the changing snowpack, life under the ice, plants and animals in the winter environment and plant-animal interactions. The middle of the course addresses environmental change and interactions with winter ecology. At the end of the semester, the springtime environment will be used to study fundamental chemical and physical processes that drive the natural world emerging out of its apparent hibernation. Work outdoors to gain hands-on knowledge and practical experience. Field experiences will be fundamental in developing ecological understanding, with field trips to various locations to gain crucial insight into the natural world during the winter and spring seasons. Outdoor experience and learning will be complemented by lectures, group discussions, readings, and field experiments.

**NRS 567 Environmental Education Teaching Practicum I (2 credits)**

The teaching practicum is an opportunity to improve teaching methods and techniques and expand professional skills under the guidance of mentors at a residential environmental learning center. Teaching in a residential environmental learning center consists of classroom lectures and demonstrations with groups up to 30, as well as field teaching groups of 8 to 10. (Fall only)

**NRS 568 Environmental Education Teaching Practicum II (2 credits)**

The teaching practicum is an opportunity to improve teaching methods and techniques and expand professional skills under the guidance of mentors at a residential environmental learning center. Teaching in a residential environmental learning center consists of classroom lectures and demonstrations with groups up to 30, as well as field teaching groups of 8 to 10. (Spring only)

**NRS 569 Environmental Education Teaching Practicum III (2 credits)**

The teaching practicum is an opportunity to improve teaching methods and techniques and expand professional skills under the guidance of Teton Science School staff. Teaching at the Teton Science School consists of classroom lectures and demonstrations with groups up to 30, as well as field teaching groups of 8 to 10. (Spring Only)

**NRS 574 Environmental Politics and Policy (3 credits)**

Political and institutional context for the formulation, implementation, and evaluation of U. S. environmental policy.

**NRS 575 Leadership for the Environmental Educator (2 credits)**

Addresses basic outdoor leadership theory and practice for instructors involved with experiential environmental education with students 12 to 18 years old. Includes a back country trip, class work, instructor modeling, peer feedback and reflective practice. Focuses on the individual student's understanding of leadership theory and ability to put theory into practice as a member of a community of learners. McCall Field Campus. (Fall only)

**NRS 576 Environmental Project Management and Decision Making (2 credits)**

Integrated, interdisciplinary approaches to environmental project and program management and decision making. Emphasis on environmental planning techniques, scenario development, analysis, and application of geospatial tools such as GIS and remote sensing. Direct experience and basic skills for project and program development and evaluation.

**NRS 578 LIDAR and Optical Remote Sensing Analysis (3 credits)**

Joint-listed with NRS 478

LIDAR and optical remote sensing data play a key role in natural resource and environmental research and management. Students will use open-source software to efficiently and effectively work with optical and LIDAR remote sensing datasets. Topics include introduction to open-source software for LIDAR and optical remote sensing analysis, acquisition and pre-processing of optical and LIDAR remote sensing data, and remote sensing analysis approaches that allow conversion of remotely sensed data into management/research relevant information. This course focuses on development and application of practical skills through project-based learning. For graduate credit, primary literature review, discussion, and a class project including evaluation and writeup of unique and advanced datasets is also required.

**Prereqs:** STAT 251 and WLF 370; or STAT 427 and NRS 472 or FOR 472

**NRS 580 Restoration Ecology Practicum (2 credits)**

Capstone experience in the Restoration Ecology Certificate Program. Students work independently to develop plan for implementing and assessing the success of ecological restoration; plan must synthesize literature, concepts, and challenges; plan shall be written with graphics and electronic submission for possible Internet publication.

**Prereqs:** FIRE 526 and REM 440 or Permission.

**NRS 588 NEPA in Policy and Practice (3 credits)**

Joint-listed with NRS 488

In-depth review of the National Environmental Policy Act (NEPA), its legislative background and history, significant case law, and Council of Environmental Quality (CEQ) Guidelines. Students will review examples of agency Categorical Exclusions, Environmental Assessments, and Environmental Impact Statements. Students will evaluate whether specific documents "meet the intent or spirit" of NEPA, compare state vs. federal NEPA regulations, and review at least one federal agency's NEPA procedures.

**NRS 592 Emerging Media Outreach in Natural Resources (3 credits)**

This course introduces students to basic media skills in photography, audio, video, microblogging, social media, content management, basic coding – and blog on a topic of their choice. Students also will explore and share their field experience through a variety of media, and will engage and examine social media uses for advertising, marketing and public relations outreach in natural resources.

**NRS 598 (s) Internship (1-16 credits)**

Credit arranged

**Prereqs:** Permission.

**NRS 599 (s) Non-thesis Master's Research (1-16 credits)**

Credit arranged. Research not directly related to a thesis or dissertation.

**Prereqs:** Permission.

**NRS 600 Doctoral Research and Dissertation (1-45 credits)**

Credit arranged

**Prereqs:** Admission to the doctoral program in Natural Resources and Department Permission