NATURAL RESOURCES AND SOCIETY (NRS)

NRS 125 Introduction to Conservation and Natural Resources
3 credits
*Gen Ed: Social Science*
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
Credit arranged

NRS 203 (s) Workshop
Credit arranged

NRS 204 (s) Special Topics
Credit arranged

NRS 235 Society and Natural Resources
3 credits
*Gen Ed: Social Science*
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 250 Environmental Problem Solving
3 credits
Integrated problem solving through simulations of environmental protection challenges and issues. Utilizing team-building approaches students identify environmental problems, analyze data, and develop strategies for solutions.

NRS 299 (s) Directed Study
Credit arranged

NRS 304 Conservation Social Sciences Field Studies
3 credits
Field site evaluation of conservation social science cases. One hundred and twenty hours of instruction during a 12-day field excursion during summer session; pre- and post-visit written and oral assignments; special fee assessed. (Summer only)

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)
*Prereq: 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 375 Introduction to Spatial Analysis for Natural Resource Management
3 credits
Cross-listed with ENVS 375.
Methods and techniques for obtaining quantitative and qualitative geospatial information from aerial and satellite images, maps, and the Global Positioning System for input into geographic information systems. Analysis of geospatial data for mapping, monitoring and planning associated with all aspects of natural resource management. Two lectures and one 2-hour lab per week.
*Prereq: College Algebra*

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)
*Prereq: 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.
*Prereq: Permission*

NRS 398 (s) Internship
Credit arranged

NRS 400 (s) Seminar
Credit arranged

NRS 401 (s) Practicum in Tutoring
1-3 credits, max 3
Tutorial services performed by advanced students under faculty supervision. Graded P/F.
*Prereq: Permission*

NRS 403 (s) Workshop
Credit arranged
NRS 404 (S) Special Topics
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.
Prereq: NR 321, FOR 221, REM 221, WLF 220, BIOL 314, or Permission.

NRS 450 Global Environmental Change
3 credits
Major global environmental changes addressed using an interdisciplinary approach. Topics may include processes and principles of ecosystems, biogeochemical cycles, impacts and mitigation of climatic change, atmospheric chemistry, feedbacks between climate and various earth system processes, and trends in global biodiversity.
Prereq: MATH 143 or STAT 251.

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
3-4 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. Cooperative: open to WSU degree-seeking students.

NRS 473 ECB Senior Presentation
1 credit
Gen Ed: Senior Experience
Cross-listed with FISH 473, FOR 473, FSP 473, REM 473, and WLF 473
Reporting and presenting the senior project (thesis or internship); taken after or concurrently with NRS 485 or NRS 497. Serves as the senior capstone course for Ecology and Conservation Biology (ECB).
Prereq: 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.
Prereq: Junior or Senior standing or Permission.

NRS 476 Environmental Project Management and Decision Making
4 credits
Gen Ed: Senior Experience
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.

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.
Prereq: STAT 251 and WLF 370; or STAT 427 and NRS 472 or FOR 472

NRS 481 Conservation Leadership
3 credits
Generates essential understanding, insight, and skills into leadership of political and organizational systems designed to conserve natural resources. Field trip may be required. (Spring only)
Prereq: NRS 235, NRS 125

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.

NRS 483 Senior Project Presentation
1 credit
Cross-listed with FISH 483, FOR 483, and WLF 483
Reporting and presenting the senior project (thesis or internship); taken after or concurrently with NRS 485 or NRS 497. Serves as the senior capstone course for Ecology and Conservation Biology (ECB).
Prereq: Junior standing.

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.
Prereq: 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 486 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; historical and legal mandates, government agency responsibilities, applied methods and techniques, case studies, and practical experience. Three lectures and three hours of lab per week; field trip may be required. (Spring only)

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 493 International Land Preservation and Conservation Systems  
3 credits  
Gen Ed: International  
An examination of international approaches to land preservation and conservation; comparative analysis of philosophies, methods of implementation (Parks, Biosphere Reserves, RAMSAR sites, etc.), and associated issues and concerns with these social interventions; ramifications of conservation practices for biophysical and social systems. Field trip may be required. (Spring only)

NRS 496 Monitoring Impacts in Protected Areas and Wilderness  
3 credits  
Theoretical and applied concepts of identifying, measuring, and monitoring changes in wilderness and protected area ecosystems caused by human influences, including recreation use, management practices, and both on-site and off-site development. Field trips may be required. (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.  
Prereq: Senior standing and minimum 3.2 GPA or Permission.

NRS 498 (s) Internship  
Credit arranged

NRS 499 (s) Directed Study  
Credit arranged  
For the individual student; conferences, library, field, or lab work.  
Prereq: Senior standing, 2.5 GPA, and Permission.

NRS 500 Master's Research and Thesis  
Credit arranged

NRS 501 (s) Seminar: Contemporary Issues in Society and Natural Resources  
Credit arranged  
Major philosophy, management, and research problems of wildlands; presentation of individual studies on assigned topics.  
Prereq: Permission.

NRS 502 (s) Directed Study  
Credit arranged

NRS 503 (s) Workshop  
Credit arranged  
Selected topics in the conservation and management of natural resources.  
Prereq: Permission.

NRS 504 (s) Special Topics  
Credit arranged

NRS 505 (s) Professional Development  
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.  
Prereq: Basic statistics

NRS 510 Applications of Communication Theory in Natural Resource Management  
3 credits  
Examination of communication theories and their applications in sustainable natural resource management; emphasis on social psychological approaches to understanding persuasive communication and applications in environmental interpretation and education, marketing, and sustainable development. (Alt/years)

NRS 522 Current Lit in Remote Sensing  
1 credit, max arranged  
Cross-listed with FOR 552  
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 552 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 MOS 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 theories. 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 MOS to provide context for discussions and practice. McCall Field Campus. (Spring only)

NRS 558 Monitoring Impacts in Protected Areas and Wilderness  
3 credits  
Theoretical and applied concepts of identifying, measuring, and monitoring changes in wilderness and protected area ecosystems caused by human influences, including recreation use, management practices, and both on-site and off-site development. Field trips may be required. (Spring only)
NRS 558 Science Communication
3 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 559 Writing Research and Project Proposals
1 credit
Structured instruction for developing a thesis/dissertation or project proposal. Role and importance of research goals and objectives, research questions, and project purpose statements. Justifying a study or project, based on literature and theory. Effective writing techniques to describe research designs, methodological and data collection issues for different types of research and projects. How to articulate data analysis and information processing processes used in qualitative and quantitative research and projects. Meets two hours per week for the first 8 weeks of the spring semester.

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 561 Ecological Inquiry for Environmental Educators
2 credits
Address basic ecological concepts and natural resource management issues in the local ecosystem. Emphasis will be placed on developing critical thinking skills and exploring the effects of resource management policy and actions. Course direction will involve moving from a "known facts" way of thinking into the realm of questioning and evaluating the effects of human management of the system. McCall Field Campus. (Spring only)

NRS 562 Field Science Teaching
2 credits
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
1-2 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 572 Human Dimensions of Restoration Ecology
3 credits
An in-depth investigation of multi dimensional human considerations, including economic, social, and cultural values and the role they play in maintaining, restoring, or sustaining ecosystems. Explores the major premise that projects designed for the restoration and sustainable management of ecosystems and associated resources must be ecologically sound, economically viable, and socially desirable to be successful. Online. (Spring only)
NRS 573 Planning & Decision Making for Watershed Management
3 credits
Focus on ecological and human factors in process-oriented approaches to watershed analysis and planning for effective decision-making; emphasis on practical applications of current tools and approaches, e.g., GIS, MAU Theory, collaborative management. (Fall 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.

Prereq: 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.

Prereq: FOR 526 and REM 440 or Permission.

NRS 582 Natural Resource Policy
3 credits
Carries no credit after 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 585 Economics and Policy of Ecosystem Services
3 credits
Introduction to economic concepts and methods related to ecosystem services. Specific topics include the history of the ecosystem service framework, methods for valuing ecosystem services and market-based approaches for ecosystem service conservation. (Fall only)

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 591 Theories of Environmental Behavior
3 credits
Social science perspectives on attitudes and human behavior in relation to environmental concerns; pertinent psychological sociological and anthropological frameworks are explored. (Fall only)

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 593 PR and Communications in Natural Resource Management
3 credits
Key concepts, principles and practices of good public relations, clear communications, and proactive social marketing in the context of natural resource management; practical applications and skills development for increased effectiveness of resource management professionals through case studies and related exercises focused on communication skills, IT tools, media relations, social marketing, and public involvement.

NRS 597 (s) Practicum
Credit arranged
Graded P/F.

Prereq: Permission.

NRS 598 (s) Internship
Credit arranged
Prereq: Permission.

NRS 599 (s) Non-thesis Master's Research
Credit arranged
Research not directly related to a thesis or dissertation.

Prereq: Permission.

NRS 600 Doctoral Research and Dissertation
Credit arranged
Prereq: Admission to the doctoral program in Natural Resources and Department Permission