

# NATURAL RESOURCES-NR (NR)

## Courses

### NR 120A Environmental Conservation (GT-SC2) Credits: 3 (3-0-0)

**Course Description:** Overview of natural resources environmental concerns including population, pesticides, energy, and pollution.

**Prerequisite:** None.

**Registration Information:** Credit not allowed for both NR 120A and NR 120B. Sections may be offered: Online.

**Terms Offered:** Fall, Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**Additional Information:** Biological & Physical Sciences 3A, Natural & Physical Sciences w/o lab (GT-SC2).

### NR 130 Global Environmental Systems (GT-SC2) Credits: 3 (3-0-0)

**Course Description:** Studies of the Earth's lithosphere, hydrosphere, atmosphere, and biosphere systems and their interrelations with human dimensions.

**Prerequisite:** None.

**Terms Offered:** Fall, Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**Additional Information:** Biological & Physical Sciences 3A, Natural & Physical Sciences w/o lab (GT-SC2).

### NR 140 Diversity and Inclusion in Natural Resources (GT-SS2) Credits: 3 (3-0-0)

**Course Description:** Exposes students to the interaction between diversity, equity, and inclusion events, issues or obstacles and a variety of natural resources disciplines. Builds an awareness of different perspectives, traditions, cultural practices with respect to how natural resources issues and policies are created and implemented. Analyzes natural resource issues from multiple perspectives and engages in productive dialogue across difference.

**Prerequisite:** None.

**Registration Information:** Sections may be offered: Mixed Face-to-Face or Online.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**Additional Information:** 1C, Geography (GT-SS2).

### NR 150 Oceanography (GT-SC2) Credits: 3 (3-0-0)

**Course Description:** Introduction to the geology, physics, chemistry, and biology of the world ocean; oceanic relationships with various human dimensions.

**Prerequisite:** None.

**Registration Information:** Sections may be offered: Online.

**Terms Offered:** Fall, Spring, Summer.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**Additional Information:** Biological & Physical Sciences 3A, Natural & Physical Sciences w/o lab (GT-SC2).

### NR 192 First Year Seminar in Environmental Studies Credits: 2 (0-0-2)

**Course Description:** Introduction to the disciplines involved in natural resources through exposure to current issues.

**Prerequisite:** None.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

### NR 193 FRS First Semester Seminar Credit: 1 (0-0-1)

**Course Description:** Students are given an introductory overview of their field of study, while being introduced to departmental policies and processes, university resources with assistance from guest speakers, and possible career paths in their field with current professionals.

**Prerequisite:** None.

**Registration Information:** Must be enrolled in one of the following majors: Forestry, Natural Resources Management, Rangeland Ecology, Forest and Rangeland Stewardship, or Restoration Ecology. This is a partial semester course.

**Terms Offered:** Fall, Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

### NR 220 Natural Resource Ecology and Measurements Credits: 5 (0-0-10)

**Course Description:** Ecology of Rocky Mountains ecosystems. Basic measurements and integrated management of natural resources.

**Prerequisite:** (BZ 110 and BZ 111 or BZ 120 or LIFE 103) and (MATH 118 or MATH 120 or MATH 127 or MATH 141 to 161 - at least 3 credits or MATH 229 to 499 - at least 3 credits).

**Registration Information:** Required residence at CSU Mountain Campus. Credit not allowed for both NR 220 and NR 221.

**Term Offered:** Summer.

**Grade Mode:** Instructor Option.

**Special Course Fee:** Yes.

### NR 221 Integrated NR Ecology and Management Credits: 5 (3-4-0)

**Course Description:** Focus on the natural resource ecology and management of the Rocky Mountains. Integrates knowledge across natural resource disciplines (e.g., Forestry, Fish and Wildlife, Human Dimensions, Watershed, Range).

**Prerequisite:** (BZ 110 and BZ 111 or BZ 120 or LIFE 103) and (MATH 118 or MATH 120 or MATH 127 or MATH 141 to 161 - at least 3 credits or MATH 229 to 499 - at least 3 credits).

**Registration Information:** Must register for lecture and laboratory. Offered as an online course only. Credit not allowed for both NR 220 and NR 221.

**Term Offered:** Summer.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

### NR 300 Biological Diversity Credits: 3 (3-0-0)

**Course Description:** Biological diversity examined in context of species; extinction. Principles, techniques of conservation biology utilized to understand and resolve issues.

**Prerequisite:** NR 120A or NR 120B or BZ 100 to 499 - at least 1 course or LIFE 100 to 499 - at least 1 course.

**Registration Information:** Credit allowed for only one of the following: FW 455, FW 555, or NR 300.

**Term Offered:** Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** Yes.

**NR 310 Ecosystem Services and Human Well-Being Credits: 3 (3-0-0)**

**Course Description:** Life-supporting and life-fulfilling benefits that nature provides to humans; theory, case studies, and policy.

**Prerequisite:** AREC 202 or ECON 202 or LAND 220 or LIFE 220 or ESS 211.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 312 Applied Insect Ecology Credits: 3 (3-0-0)**

**Course Description:** Introduction to the basic organismal biology and ecology of insects in terrestrial ecosystems, with emphasis on examples from natural and managed systems. Focus on building key theory across the scope of topics in insect ecology including an understanding of behavioral ecology, species interactions, population ecology, insect community dynamics, and patterns underlying insect diversity and distributions across landscapes.

**Prerequisite:** None.

**Restriction:** Must not be a: Freshman.

**Registration Information:** Completion of AUCC Categories 1B and 3A.

**Term Offered:** Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 319 Introduction to Geospatial Science Credits: 4 (2-4-0)**

**Course Description:** Fundamental concepts of geospatial data, including structure, coordinate systems, sources, and principles of map design. Applications and methods for spatial analysis using vector and raster data, and remote sensing techniques.

**Prerequisite:** None.

**Restriction:** .

**Registration Information:** Sections may be offered: Online. Must register for lecture and laboratory.

**Terms Offered:** Fall, Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 320 Natural Resources History and Policy Credits: 3 (3-0-0)**

**Course Description:** History, values and institutions, and policy process guiding natural resources management and conservation.

**Prerequisite:** None.

**Registration Information:** Junior standing. Sections may be offered: Online.

**Terms Offered:** Fall, Spring, Summer.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 321 Natural Resource Rights and Reconciliation Credits: 3 (3-0-0)**

**Course Description:** Provides critical overview of natural resource stewardship policies and practices, centering on Indigenous rights, relationships, and responsibilities. Through analysis of regional to international natural resource case studies, gain cultural sensitivity and capacity for respectfully and effectively engaging diverse ways of knowing and perspectives, including different ethical and governance frameworks, in contemporary natural resource conservation, stewardship, and management.

**Prerequisite:** None.

**Restriction:** Must not be a: Freshman.

**Registration Information:** Sophomore standing.

**Term Offered:** Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 322 Intro. to Geographic Information Systems Credits: 4 (2-4-0)**

**Course Description:** Fundamental concepts of spatial data handling and computer-assisted map analysis.

**Prerequisite:** None.

**Registration Information:** Must register for lecture and laboratory. Credit not allowed for both GR 420 and NR 322.

**Terms Offered:** Fall, Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 323 Remote Sensing and Image Interpretation Credits: 3 (2-2-0)**

**Also Offered As:** GR 323.

**Course Description:** Remote sensing systems and applications; characteristics of photographic, scanner and radar images; imagery interpretation.

**Prerequisite:** None.

**Registration Information:** Must register for lecture and laboratory. Credit allowed for only one of the following: GR 323, GR 503, NR 323, NR 503.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 367 Concepts in Vertebrate Nutrition Credits: 3 (3-0-0)**

**Course Description:** Concepts in suborganismal and organismal vertebrate nutrition; introduction to nutritional ecology.

**Prerequisite:** CHEM 245.

**Term Offered:** Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 370 Coastal Environmental Ecology Credits: 3 (3-0-0)**

**Course Description:** Sensitive and complex coastal area environments and the effects of accelerated change on and offshore caused by human activities.

**Prerequisite:** CHEM 107 or CHEM 113.

**Terms Offered:** Fall, Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 373 Study Abroad--Kenya: Social-Ecological Field Methods Credits: 5 (0-0-5)**

**Course Description:** Social and ecological field methods commonly used in natural resource management, with an emphasis on methods that are effective and ethical for cross-cultural research.

**Prerequisite:** (BZ 110 and BZ 111 or BZ 120 or LIFE 103) and (MATH 118 or MATH 120 or MATH 127 or MATH 141 to 161 - at least 3 credits or MATH 229 to 479 - at least 3 credits).

**Restriction:** Must be a: Undergraduate.

**Registration Information:** Required field trips. This is a short-term study abroad course.

**Term Offered:** Summer.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 375 Environment and Natural Resources Leadership Credit: 1 (1-0-0)**

**Course Description:** Environment and natural resources leadership history, skills, and styles. Creation of leadership path and organization prescriptions.

**Prerequisite:** None.

**Term Offered:** Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 380 Spatial Analysis of Social Data Credits: 3 (2-2-0)**

**Course Description:** Spatial analysis and analysis of socio-economic data; common themes related to land use and landscape change, parks & protected areas, and global tourism.

**Prerequisite:** None.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 383 U.S. Travel-Integrated Resource Management Credits: 2 (0-2-1)**

**Also Offered As:** AGRI 383.

**Course Description:** Evaluation of integrated ranch management decision alternatives in conjunction with professional resource managers.

**Prerequisite:** None.

**Registration Information:** Must register for laboratory and recitation. Credit not allowed for both NR 383 and AGRI 383. Required field trips.

**Term Offered:** Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 400 Public Communication in Natural Resources Credits: 3 (1-0-2)**

**Course Description:** Examine how public communication shapes opinion and understanding of natural resource issues. Combines study of key communication concepts with experiential projects, including critique of a public hearing and creation of media products. Through readings, case studies, and assignments, analyze approaches for effective public communication. Design brochures, websites, videos, etc., eventually collaborating in teams with real-life 'clients'.

**Prerequisite:** CO 300 or CO 301B or CO 301C or JTC 300 or LB 300.

**Registration Information:** Junior standing. Must register for lecture and recitation. Sections may be offered: Online or Mixed Face-to-Face.

**Terms Offered:** Fall, Spring, Summer.

**Grade Mode:** Traditional.

**Special Course Fee:** Yes.

**NR 420 Integrated Ecosystem Management Credits: 4 (3-3-0)**

**Course Description:** Natural resource management exercises; quantitative integration techniques, group dynamics.

**Prerequisite:** (F 209 or LAND 220 or LIFE 220 or LIFE 320) and (NR 220) and (NR 319 or NR 322) and (NR 320).

**Restriction:** Must be a: Senior, Senior - 5yr Bachelor, Senior - Post Bachelor, Senior - Second Bachelor.

**Registration Information:** Senior standing. Must register for lecture and laboratory.

**Terms Offered:** Fall, Spring.

**Grade Modes:** S/U within Student Option, Trad within Student Option.

**Special Course Fee:** No.

**NR 422 GIS Applications in Natural Resource Management Credits: 4 (2-4-0)**

**Course Description:** Development and implementation of GIS projects and problems in spatial data analysis.

**Prerequisite:** NR 322 or NR 319.

**Registration Information:** Must register for lecture and laboratory.

**Term Offered:** Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 423 Applications of Global Positioning Systems Credit: 1 (1-0-0)**

**Course Description:** Introduction to concepts and use of global positioning systems with applications to natural resources.

**Prerequisite:** NR 319 or NR 322 or NR 505.

**Terms Offered:** Fall, Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 425 Natural Resource Policy and Sustainability Credits: 3 (3-0-0)**

**Course Description:** Principles, concepts, and operating examples of sustainable resource management with a concentration on forest policies and practices.

**Prerequisite:** NR 320.

**Term Offered:** Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 426 Programming for GIS I Credits: 2 (2-0-0)**

**Course Description:** Fundamentals and applications of programming techniques for geospatial data management and analysis. Introduction to basic computer programming concepts used in a GIS environment. Develop the programming skills needed to create scripts for automating GIS data management and analysis. Emphasize best practices for writing code, error handling, and demonstrates how to share and publish scripts.

**Prerequisite:** GR 420 or NR 319 or NR 322.

**Registration Information:** This is a partial semester course.

**Terms Offered:** Fall, Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 427 Programming for GIS II Credits: 2 (2-0-0)**

**Course Description:** Applications and advanced topics in programming techniques for geospatial data management and analysis.

**Prerequisite:** NR 426, may be taken concurrently.

**Registration Information:** This is a partial semester course.

**Term Offered:** Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 444 Fire Economics and Policy Credits: 3 (3-0-0)**

**Course Description:** Development of wildlife and fuel management economics integrated with critical federal policies.

**Prerequisite:** ECON 202 or AREC 202.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 450 Geospatial Project Design and Analysis Credits: 4 (1-6-0)**

**Course Description:** Develop a geospatial project from beginning to end, including design, data acquisition and preparation, analysis, and visualization. Various techniques for performing each of these tasks, including both commercial and open source geospatial tools are introduced. Critical thinking, workflow development, and best practices for data management are emphasized.

**Prerequisite:** GR 420 or NR 319 or NR 322.

**Registration Information:** Junior standing. Must register for lecture and laboratory.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 453 Geospatial Field Methods in Natural Resources Credits: 2 (0-4-0)**

**Course Description:** Techniques for mobile data collection and developing geospatial sampling schemes in natural resource applications. The data collection process, from schema design and creation of sampling schemes, to field work and data processing are covered. Multiple techniques and field technologies are implemented and compared, including GPS, GIS, and mobile devices.

**Prerequisite:** GR 420 or NR 319 or NR 322.

**Restriction:** Must not be a: Freshman.

**Registration Information:** Sophomore standing. This is a partial semester course. Requires multiple field trips, local day trips in Fort Collins and a 3-night stay at the CSU Mountain Campus.

**Term Offered:** Summer (even years).

**Grade Mode:** Traditional.

**Special Course Fee:** Yes.

**NR 477 Restoration Case Studies Field Tour Credit: 1 (0-3-0)**

**Course Description:** Analysis and evaluation of ecological restoration projects in the field.

**Prerequisite:** (F 209 or LAND 220 or LIFE 220 or LIFE 320 or NR 220) and (F 311 or NR 326 or RS 300).

**Registration Information:** Written consent of instructor. This is a partial semester course. Required field trips. Field trip occurs one week prior to first day of fall semester.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** Yes.

**NR 479 Restoration Case Studies Credits: 2 (0-0-2)**

**Course Description:** Analysis and evaluation of ecological restoration projects.

**Prerequisite:** (F 209 or LAND 220 or LIFE 220 or LIFE 320) and (F 311 or NR 326 or RS 300).

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 482A Study Abroad--Chile: Energy Transition Credits: 3 (0-0-3)**

**Course Description:** Understanding energy transition in a middle income country. Consideration of historical and current energy transitions.

**Prerequisite:** None.

**Registration Information:** Sophomore standing.

**Term Offered:** Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 484 Supervised College Teaching Credits: Var[1-5] (0-0-0)**

**Course Description:**

**Prerequisite:** None.

**Registration Information:** Written consent of instructor. A maximum of 10 combined credits for all 384 and 484 courses are counted towards graduation requirements.

**Terms Offered:** Fall, Spring, Summer.

**Grade Modes:** S/U within Student Option, Trad within Student Option.

**Special Course Fee:** No.

**NR 492 Seminar on Environmental Conservation Credits: Var[1-18] (0-0-0)**

**Course Description:**

**Prerequisite:** None.

**Terms Offered:** Fall, Spring, Summer.

**Grade Mode:** Instructor Option.

**Special Course Fee:** No.

**NR 493 Seminar--GIS and Remote Sensing Applications Credit: 1 (0-0-1)**

**Course Description:** Techniques and use of remote sensing and GIS technologies for forest, rangeland, wildlife, water, geology, recreation, and other resource management applications.

**Prerequisite:** NR 319 or NR 322 or NR 323 or GR 323.

**Term Offered:** Spring.

**Grade Mode:** Instructor Option.

**Special Course Fee:** No.

**NR 495 Independent Study Credits: Var[1-18] (0-0-0)**

**Course Description:**

**Prerequisite:** None.

**Terms Offered:** Fall, Spring, Summer.

**Grade Mode:** Instructor Option.

**Special Course Fee:** No.

**NR 501 Leadership and Public Communications Credits: 3 (0-0-3)**

**Course Description:** Two-way communication skills used to involve publics, write for various media, and understand role of leadership within natural resources profession.

**Prerequisite:** (NR 100 to 481 - at least 1 course) and (CO 100 to 481 - at least 1 course or JTC 100 to 481 - at least 1 course or SPCM 100 to 481 - at least 1 course).

**Registration Information:** Offered as an online course only.

**Terms Offered:** Fall, Spring, Summer.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 502 Introduction to Natural Resources Research Credits: 2 (2-0-0)**

**Course Description:** Introduction to research and graduate study from an interdisciplinary perspective. Learn to critically read, analyze and synthesize research, frame problems, and ask research questions within and across biological, physical and social science disciplines. Articulate an individual philosophy of science, develop science writing and communication skills, and learn responsible research conduct.

**Prerequisite:** None.

**Restriction:** Must be a: Graduate.

**Registration Information:** Bachelor's degree required. Sections may be offered: Mixed Face-to-Face. Credit not allowed for both NR 502 and NR 581B1.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 503 Remote Sensing and Image Analysis Credits: 4 (3-3-0)**

**Also Offered As:** GR 503.

**Course Description:** Interpretation and analysis of photographic, multispectral scanner, and radar data; sensor systems; applications to resource management.

**Prerequisite:** None.

**Registration Information:** Must register for lecture and laboratory. Credit allowed for only one of the following: GR 323, GR 503, NR 323, or NR 503.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 505 Concepts in GIS Credits: 4 (2-4-0)**

**Course Description:** Concepts of geographic information systems and spatial data analysis.

**Prerequisite:** ESS 523A or STAT 301.

**Registration Information:** Must register for lecture and laboratory. Sections may be offered: Online.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 510 Ecosystem Services--Theory and Practice Credits: 3 (3-0-0)**

**Course Description:** Theory and application of ecosystem services drawing upon ecological, economic, and institutional analysis.

**Prerequisite:** None.

**Restriction:** Must be a: Graduate.

**Registration Information:** Graduate standing.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 511 Advanced NR Rights and Reconciliation Credits: 3 (3-0-0)**

**Course Description:** Provides a critical overview of natural resource stewardship policies and practices, centering Indigenous rights, relationships, and responsibilities. Includes in-depth case study analyses of different ethical and governance frameworks in contemporary natural resource conservation, stewardship, and management.

**Prerequisite:** None.

**Restriction:** Must be a: Graduate.

**Registration Information:** Graduate standing. Required field trips.

**Term Offered:** Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 512 Spatial Statistical Modeling-Natural Resources Credits: 3 (3-0-0)**

**Course Description:** Statistical techniques used to model natural and environmental resources; GIS, remote sensing, and spatial statistics.

**Prerequisite:** STAT 301 and NR 322 and NR 323.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 515 Natural Resources Policy and Biodiversity Credits: 3 (0-0-3)**

**Course Description:** Review evolution of natural resource policy, administration, and law emphasizing interdisciplinary concept of managing for biodiversity.

**Prerequisite:** POLS 100 to 481 - at least 1 course and NR 100 to 281 - at least 1 course.

**Registration Information:** Offered as an online course only.

**Terms Offered:** Fall, Spring, Summer.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 516 Climate Justice and Policy Credits: 2 (2-0-0)**

**Also Offered As:** ESS 516.

**Course Description:** Overview on i) the unequal distribution of the benefits of natural resource use and the burdens of environmental degradation across spatiotemporal scales, and ii) the role of policy tools and approaches in creating, exacerbating, or addressing those inequalities. Examine environmental and climate justice (EJ/CJ) concepts, recognize environmental and climate inequalities, and learn how to integrate EJ/CJ considerations in policy analysis and review.

**Prerequisite:** None.

**Restriction:** Must be a: Graduate.

**Registration Information:** Bachelor's degree required. Credit not allowed for both ESS 516 and NR 516. Sections may be offered: Online.

**Term Offered:** Fall (odd years).

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 517 Climate Change Communication and Engagement Credits: 2 (2-0-0)**

**Also Offered As:** NRRT 517.

**Course Description:** Explore ways in which effective community engagement can shape responses to climate change. Gain the skills and knowledge required to work alongside communities to respond to climate change more effectively and equitably.

**Prerequisite:** None.

**Restriction:** Must be a: Graduate.

**Registration Information:** Bachelor's degree required. Offered as an online course only. Credit not allowed for both NR 517 and NRRT 517.

**Term Offered:** Spring (even years).

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 518 Climate Impacts and Risk Assessments Credits: 3 (3-0-0)**

**Course Description:** Develop skills and decision frameworks to understand and apply climate vulnerability assessments, adaptation planning, and risk management processes across social, ecological, and economic systems. Explore how key governmental and non-governmental entities utilize these tools, assess relative strengths and weaknesses of multiple approaches, and conduct assessment and planning activities.

**Prerequisite:** None.

**Restriction:** Must be a: Graduate.

**Registration Information:** Bachelor's degree required. Sections may be offered: Online.

**Term Offered:** Fall (even years).

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 534 Management for Conservation Projects Credits: 3 (3-0-0)**

**Course Description:** Addresses common frameworks and funding sources to support conservation initiatives and covers the fundamentals of project management, grant writing, and fundraising.

**Prerequisite:** None.

**Restriction:** Must be a: Graduate.

**Registration Information:** Graduate standing. Admission to the Master of Conservation Leadership and the Master of Science Environmental Leadership programs.

**Term Offered:** Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 535 Action for Sustainable Behavior Credits: 3 (3-0-0)**

**Course Description:** Study sustainability practices while working with a community partner to support sustainability in that organization. This is a service-learning course.

**Prerequisite:** None.

**Restriction:** Must be a: Graduate.

**Registration Information:** Graduate standing. Offered as an online course only.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 536 Ranch Management and Stewardship Field Course Credits: 4 (2-4-0)**

**Course Description:** Apply systems ecology concepts to management of western ranch lands through experiential learning, interactions with ranch managers, and science experts. Exposure to a variety of possible working environments through visits to a diversity of ranches that highlight the different contexts of ranching.

**Prerequisite:** ANEQ 101 or AREC 202 or ESS 120 or F 311 or RS 300 or SOCR 100.

**Restriction:** Must not be a: Freshman, Sophomore, Junior.

**Registration Information:** Senior standing. Written consent of instructor. This is a partial semester course. Required field trips. Credit not allowed for both F 480A1 and NR 536.

**Term Offered:** Summer.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 537 Ranch Management and Stewardship Seminar Credit: 1 (0-0-1)**

**Course Description:** Introduction to a variety of traditional and novel ranch management approaches through diverse practitioner and expert presentations and class discussions.

**Prerequisite:** ANEQ 101 or AREC 202 or ESS 120 or F 311 or RS 300 or SOCR 100.

**Restriction:** Must not be a: Freshman, Sophomore, Junior.

**Registration Information:** Senior standing. Written consent of instructor.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 538 Skills in Ranch Management Credits: 2 (1-2-0)**

**Course Description:** Learn and practice a variety of skills needed to manage western ranches through experiential learning.

**Prerequisite:** NR 536.

**Restriction:** Must not be a: Freshman, Sophomore, Junior.

**Registration Information:** Admission to the MNRS program. Must register for lecture and laboratory. Written consent of instructor. Required field trips. Sections may be offered: Online.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 539 Western Ranch Assessment and Planning Credits: 3 (1-4-0)**

**Course Description:** Working with a partner ranch, conduct an assessment of ranch resources, work with partners to identify management goals, and create a management and monitoring plan.

**Prerequisite:** NR 536 and NR 537 and NR 538.

**Restriction:** Must not be a: Freshman, Sophomore, Junior.

**Registration Information:** Admission to the MNRS program. Written consent of instructor. Must register for lecture and laboratory. Required field trips.

**Terms Offered:** Fall, Spring, Summer.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 541 Conservation Governance Credits: 3 (3-0-0)**

**Course Description:** Overview of conservation governance issues at the local, national, and international levels.

**Prerequisite:** None.

**Restriction:** Must be a: Graduate.

**Registration Information:** Graduate standing. Required field trips.

**Term Offered:** Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 543B Catalyzing Change: Collaborative Conservation Credits: Var[2-3] (0-0-0)**

**Course Description:** Collaborative communication theories, methods and tools to effectively create change in the field of conservation.

**Prerequisite:** None.

**Registration Information:** Admission to the Conservation Leadership program.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 544D Methods in Conservation: Spatial Applications Credit: 1 (1-0-0)**

**Course Description:** Overview of spatial applications in conservation, including spatial tools for collecting data and communicating science.

**Prerequisite:** None.

**Restriction:** Must be a: Graduate.

**Registration Information:** Admission to the Conservation Leadership program. Required field trips.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 544E Methods in Conservation: Social Science Credits: 3 (3-0-0)**

**Course Description:** Overview to a wide variety of methods used in conservation social science. Through case studies, projects and discussion, develop the skills and knowledge to comprehend how social data in conservation is measured and analyzed.

**Prerequisite:** None.

**Restriction:** Must be a: Graduate.

**Registration Information:** Admission to the Conservation Leadership program. Required field trips.

**Term Offered:** Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 545B Multilevel Views: Society and Conservation- Global Credits: 3 (3-0-0)**

**Course Description:** Myriad and often opposing views of societal and environmental problems across cultures and across scales.

**Prerequisite:** None.

**Registration Information:** Admission to the Conservation Leadership program.

**Term Offered:** Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 549A Conservation and Systems Leadership Credits: Var[1-3] (0-0-0)**

**Course Description:** Conservation leadership development by exposure to leadership models, theories, case studies, assessments and trainings.

**Prerequisite:** None.

**Registration Information:** Admission to the Conservation Leadership program.

**Terms Offered:** Spring, Summer.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 549B Conservation and Systems Leadership: Field Credits: Var[1-3] (0-0-0)**

**Course Description:** Effective environmental leadership across cultures through exposure to leadership models, theories, case studies, assessments and trainings.

**Prerequisite:** None.

**Registration Information:** Admission to the Conservation Leadership program.

**Term Offered:** Summer.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 550 Sustainable Military Lands Management Credits: 3 (3-0-0)**

**Course Description:** Overview of military lands in the U.S.–historical, geographical, environmental–and evolution of military lands as part of the federal lands system.

**Prerequisite:** None.

**Registration Information:** Completed undergraduate degree. Offered as an online course only.

**Terms Offered:** Fall, Spring, Summer.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 551 Cultural Resource Management on Military Lands Credits: 3 (3-0-0)**

**Course Description:** Intro to cultural resource laws and policies for broad range of heritage resources, prehistoric and historic, with emphasis on tools and techniques.

**Prerequisite:** NR 550.

**Registration Information:** Graduate standing. Offered as an online only course.

**Terms Offered:** Fall, Spring, Summer.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 552 Ecology of Military Lands Credits: 3 (3-0-0)**

**Course Description:** Landscape ecology of military lands with emphasis on ecological processes and principles as related to militarily-induced disturbances.

**Prerequisite:** NR 550.

**Registration Information:** Graduate standing. Offered as an online only course.

**Terms Offered:** Fall, Spring, Summer.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 553 DoD Sustainable Building and Infrastructure Credits: 3 (3-0-0)**

**Course Description:** Major components of sustainability and sustainable design on U.S. military installations.

**Prerequisite:** NR 550.

**Restriction:** Must be a: Graduate.

**Registration Information:** Bachelor's degree. Offered as an online course only.

**Term Offered:** Summer.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 555 Preparation of Grant Proposals Credits: 2 (2-0-0)**

**Course Description:** Idea development, preparation, writing, and presentation of research proposals in natural resources.

**Prerequisite:** (STAT 301) and (LAND 220 or LIFE 320 or NR 220 or LIFE 220).

**Term Offered:** Spring.

**Grade Modes:** S/U within Student Option, Trad within Student Option.

**Special Course Fee:** No.

**NR 562 Ecosystem Services in a Changing World Credits: 3 (3-0-0)**

**Course Description:** Understanding of ecosystem services and global change.

**Prerequisite:** None.

**Registration Information:** Admission to the Conservation Leadership program.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 564 Systems Thinking and Biodiversity Credits: 3 (3-0-0)**

**Course Description:** Social-ecological systems and the implication of social-ecological systems thinking for biological diversity conservation efforts.

**Prerequisite:** None.

**Registration Information:** Admission to the Conservation Leadership master's degree program.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 565 Principles of Natural Resources Ecology Credits: 3 (3-0-0)**

**Course Description:** Overview of ecological fundamentals examined from the perspective of forest, rangeland, wildlife and fisheries science and management.

**Prerequisite:** None.

**Registration Information:** Admission to the Master of Natural Resources Stewardship or written consent of instructor. Offered as an online course only.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 566 Natural Resource Inventory and Data Analysis Credits: 3 (3-0-0)**

**Course Description:** Sampling designs, implementation and analysis for inventory and monitoring of forests, rangelands, wetlands and streams.

**Prerequisite:** STAT 301 or STAT 311 or STAT 312.

**Registration Information:** Admission to the Master of Natural Resources Stewardship or written consent of instructor. Offered as an online course only.

**Terms Offered:** Fall, Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 567 Analysis of Environmental Impact Credits: 3 (3-0-0)**

**Course Description:** Preparation and evaluation of environmental impact statements under NEPA.

**Prerequisite:** None.

**Registration Information:** Admission to the Masters of Natural Resources Stewardship degree program. Written consent of instructor can substitute for degree program requirement. Credit not allowed for both NR 567 and NR 622. Sections may be offered: Online.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 569 Conservation Communication Fundamentals Credits: 2 (2-0-0)**

**Course Description:** Communications and public relations theory as they relate to conservation issues and professionals. Successful conservation communication programs are outlined and discussed. Roles for communicators in conservation organizations are examined, including the relevance of outreach and education for conservation management. Audience analysis and diversity are emphasized for achieving goals in conservation communications planning.

**Prerequisite:** None.

**Restriction:** Must be a: Graduate.

**Registration Information:** Graduate standing. This is a partial semester course. Offered as an online course only.

**Term Offered:** Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 570 Conservation Managers – Media Communications Credits: 2 (2-0-0)**

**Course Description:** Conservation communication roles, activities, and practices of the media are examined and analyzed. Critical relationships between the media and conservation practitioners and organizations are also examined. New directions and strategies in conservation communications are analyzed, including ways that conservation professionals can develop and take advantage of opportunities for collaboration with mass media outlets.

**Prerequisite:** None.

**Restriction:** Must be a: Graduate.

**Registration Information:** Graduate standing. This is a partial semester course. Offered as an online course only.

**Term Offered:** Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 571 New Media Communications for Conservation Credits: 2 (2-0-0)**

**Course Description:** Fundamentals of new media, including digital and social media, and popular applications are introduced and evaluated with regard to their relevance for conservation communications. New and emerging digital media channels are discussed and evaluated relating to their use and relevance for conservation organizations and management outcomes. Conservation organizations and practitioners' use of social media for public information, education, and advocacy are also analyzed.

**Prerequisite:** None.

**Restriction:** Must be a: Graduate.

**Registration Information:** Graduate standing. This is a partial semester course. Offered as an online course only.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 572 Strategic Communications for Conservation Credits: 2 (2-0-0)**

**Course Description:** Examines relevant conservation communications principles, research, and best practices for the development of strategic communications plans for conservation management programs and organizations.

**Prerequisite:** NR 569, may be taken concurrently.

**Restriction:** Must be a: Graduate.

**Registration Information:** Graduate standing. This is a partial semester course. Offered as an online course only.

**Term Offered:** Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 573 Conservation Crisis Communications Credits: 2 (2-0-0)**

**Course Description:** Examining and developing appropriate conservation communication strategies for conservation/environmental crisis response and recovery. Media, personal and other communications during near- and long-term planning scenarios are examined. Conservation management organizations' and practitioners' use of different messages and media platforms are also analyzed.

**Prerequisite:** None.

**Restriction:** Must be a: Graduate.

**Registration Information:** Graduate standing. This is a partial semester course. Offered as an online course only.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 574 Advanced Communications for Conservation Credits: 2 (2-0-0)**

**Course Description:** Advanced communications responsibilities and strategies within conservation planning. Project-based conservation planning processes and mandated public planning processes are both examined.

**Prerequisite:** NR 569, may be taken concurrently.

**Restriction:** Must be a: Graduate.

**Registration Information:** Graduate standing. This is a partial semester course. Offered as an online course only.

**Term Offered:** Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 576 Theory and Practice of NEPA Compliance Credits: 3 (3-0-0)**

**Course Description:** The National Environmental Policy Act (NEPA) declares national environmental policy and goals and provides a procedural framework for implementing these goals within federal agencies. Examine the principles of NEPA compliance at the installation level.

**Prerequisite:** NR 567.

**Restriction:** Must be a: Graduate.

**Registration Information:** Offered as an online course only.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 577 Wetland Ecology and Restoration Credits: 3 (3-0-0)**

**Course Description:** Wetland hydrology, ecology and soils; assessing conditions and identifying common disturbances; restoration techniques, planning and implementation.

**Prerequisite:** None.

**Registration Information:** Sections may be offered: Online.

**Term Offered:** Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 578 Ecology of Disturbed Lands Credits: 3 (3-0-0)**

**Course Description:** Analysis of basic and applied ecological principles involved in the restoration of drastically disturbed lands.

**Prerequisite:** (LAND 220 or LIFE 220 or LIFE 320 or NR 565) and (SOCR 240).

**Registration Information:** Sections may be offered: Online. Credit not allowed for both NR 578 and RS 578.

**Term Offered:** Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 586 Conservation Leadership Capstone Credits: Var[1-6] (0-0-0)**

**Course Description:** Apply knowledge and skills to a project under the supervision of a conservation organization. These applied experiences facilitate learning, and help advance the goals of the conservation organization.

**Prerequisite:** NR 549A and NR 549B.

**Restriction:** Must be a: Graduate.

**Registration Information:** Admission to the Master of Conservation Leadership program.

**Terms Offered:** Fall, Spring, Summer.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 592 Seminar in Natural Resources Credits: Var[1-3] (0-0-0)**

**Course Description:** Recent papers from the literature are used to foster discussion among participants.

**Prerequisite:** None.

**Restriction:** Must be a: Graduate.

**Registration Information:** Graduate standing.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 625 Community-Based Natural Resource Management Credits: 3 (0-0-3)**

**Course Description:** History, theory, practice, and evaluation of community-based natural resource management.

**Prerequisite:** None.

**Restriction:** Must be a: Graduate, Professional.

**Registration Information:** One upper division course in natural resource ecology, management, or social science.

**Term Offered:** Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 678 Advanced Ecological Restoration Credits: 4 (3-0-1)**

**Course Description:** Analysis of environmental factors influencing restoration of disturbed lands and practices for successful restoration of disturbed ecosystems.

**Prerequisite:** (BZ 450 or F 311 or LAND 220 or LIFE 220) and (SOCR 240).

**Restriction:** Must be a: Graduate, Professional.

**Registration Information:** Must register for lecture and recitation.

Admission to the Master of Natural Resource Stewardship program can substitute for coursework. Credit not allowed for both NR 678 and RS 478. Sections may be offered: Online.

**Terms Offered:** Fall, Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**NR 684 Supervised College Teaching Credits: Var[1-5] (0-0-0)**

**Course Description:**

**Prerequisite:** None.

**Restriction:** Must be a: Graduate, Professional.

**Registration Information:** Written consent of instructor.

**Terms Offered:** Fall, Spring, Summer.

**Grade Modes:** S/U within Student Option, Trad within Student Option.

**Special Course Fee:** No.

**NR 687 Natural Resources Internship Credits: Var[1-8] (0-0-0)**

**Course Description:** Field experience and exercises in international natural resources management.

**Prerequisite:** None.

**Restriction:** Must be a: Graduate, Professional.

**Registration Information:** Written consent of instructor.

**Terms Offered:** Fall, Spring, Summer.

**Grade Mode:** Instructor Option.

**Special Course Fee:** No.

**NR 693 Natural Resources Stewardship Seminar Credits: 2 (0-0-2)**

**Course Description:** Invited speakers will present different perspectives on natural resources.

**Prerequisite:** None.

**Restriction:** Must be a: Graduate, Professional.

**Registration Information:** Admission to the Master of Natural Resources Stewardship or written consent of instructor. Sections may be offered: Online.

**Term Offered:** Fall.

**Grade Mode:** S/U Sat/Unsat Only.

**Special Course Fee:** No.

**NR 793 Seminar on Remote Sensing and GIS Credit: 1 (0-0-1)**

**Course Description:** Techniques, use of remote sensing, GIS technologies for forest, range, wildlife, water, geology, recreation, and other resource management applications.

**Prerequisite:** NR 322 or NR 323 or NR 503 or NR 505.

**Restriction:** Must be a: Graduate, Professional.

**Term Offered:** Spring.

**Grade Mode:** Instructor Option.

**Special Course Fee:** No.