

2009-2010 Course Catalog

The University Of Montana

Resource Conservation

Bachelor of Science in Resource Conservation

In addition to special degree requirements listed previously, students selecting the Bachelor of Science in Resource Conservation should contact their advisors to approve curriculum. The challenging and rapidly evolving field of environmental conservation requires broad training and the ability to integrate and communicate across disciplines.

Resource Conservation is an interdepartmental undergraduate major that prepares students for the diverse opportunities that now exist in environmental conservation, natural resource management and efforts to build more sustainable livelihoods and communities. Students can choose a more structured area of study to prepare for graduate work in the natural sciences, such as ecology, hydrology, or soils, or emphasize emerging sub-disciplines such as fire ecology and adaptive strategies for climate change. Students can also integrate across disciplines and focus on natural resource policy, wilderness studies, community forestry, or international conservation. Example of possible program in the conservation option:

Conservation Option

3 Communication Courses:

- 1 oral (COMM 111 or DRAM 111)
- WRIT 222 (FOR 220) Tech Writing (or transfer equivalent)
- Upper-division writing (also required for GER)

3 Quantitative Courses:

- 1 Statistics course from the following: M 121 (MATH 111), M 122 (MATH 112), M 151 (MATH 121), M 162 (MATH 150), or M 115 (MATH 117)
- 1 statistics course from the following: STAT 216 (MATH 241), SOCI 202 (SOC 202), FOR 201
- 1 course of either GIS or math (Math of above not already taken or FOR 250)

FOR 200- Camp

CHMY 121 (CHEM 151)

1 general biology course from the following: BIOL 108, 110, 120, 121, or transfer equivalent

1 soils course (FOR 210)

1 ecology course from the following: FOR 330, BIOL 340, RSCN 462, or transfer equivalent

1 policy course from the following: FOR 422, RSCN 370, WBIO 410, or transfer equivalent

Students have to take at least 36 traditional letter-graded credits within the College - and courses with the FOR, RECM, RSCN, or WBIO prefix will work.

Terrestrial Sciences Option

The terrestrial sciences option is designed to provide students with a solid scientific foundation in the biological and physical science aspects of terrestrial conservation. The curriculum consists of a required core of science classes and an individualized curriculum of upper-division science courses chosen by the student in consultation with a faculty advisor. The curriculum must include at least 12 credits in forestry or wildlife biology at the upper-division level in addition to those specified below. This is an ideal option for those students who want to specialize their undergraduate education in areas such as forest ecology, hydrology, forest soils, biometrics, fire, or remote sensing.

Courses

U = for undergraduate credit only, UG = for undergraduate or graduate credit, G = for graduate credit. R after the credit indicates the course may be repeated for credit to the maximum indicated after the R. Credits beyond this maximum do not count toward a degree.

Resource Conservation (RSCN)

U 170N International Environmental Change 3 cr. Offered spring. An introduction to natural and anthropogenic environmental change from ancient to contemporary times. Exploration of the historical role and importance of ecological disturbance on the development and maintenance of terrestrial ecosystems around the world. Introduction to fields of study available in the College of Forestry and Conservation.

U 121S Nature of Montana 3 cr. Offered fall. An exploration of the major natural resource management issues facing the people of Montana and the social processes to manage environmental conflicts. Provides an introduction to the function of ecological systems and the impacts of human uses on the environment and looks at strategies for addressing global climate change, ex-urban population growth, and protecting environmental quality.

U 210N Introductory Soils 3 cr. Offered autumn and spring. Same as FOR 210N. Prereq., CHEM 151N. An introduction to the chemical, physical, biological and morphological properties of soils.

U 271N Issues in Wilderness Ecology 3 cr. Offered spring. A study of forestry and wildlife issues which affect the maintenance of wilderness integrity. Topics include: global climate changes; management of wildfires, cattle grazing and noxious weeds; game management; threatened and endangered species, including grizzly bears, wolves, bird and fish species.

U 273 Wilderness and Civilization Field Studies Variable 1-3 cr. (R-6) (R-6) Offered autumn and spring. Field studies in ecology and conservation. Includes natural history, field journaling, ecological monitoring, protected area management, and community conservation. One-day trips as well as extended backcountry trips. Part of the Wilderness and Civilization program.

U 274 Yellowstone Studies 1 cr. Offered spring. Ecological and sociopolitical perspectives on the greater Yellowstone ecosystem. Topics include winter ecology, biodiversity conservation, national park planning and management, winter recreation, fire, and wildlife. Field course in the Yellowstone area.

U 321 Field Studies of Energy Systems in Montana 2-3 cr. Offered Summer. Via an extended bicycle tour of Montana, students examine a variety of energy developments and their environmental, social, and economic implications.

UG 330 Forest Ecology 3 cr. Offered autumn and spring. Same as FOR 330. Prereq., BIOL 120N or BIOL 108N, 109N; prereq. or coreq., FOR 210N. Examination of physical and biological factors affecting forest structure, composition, and function, including biodiversity, disturbance, and nutrient cycling. Field labs throughout Northern Rockies including developing skills in field observation, data interpretation and problem solving.

U 345 Watershed Dynamics 3 cr. Coreq. EVST 391, EVST 392, RSCN 346, EVST 291. Offered each autumn by Northwest Connections. Via hands on application in rural Montana, students investigate watershed function; introductory stream hydrology and morphology; and fish, amphibian and aquatic furbearer habitat characteristics.

The course also explores impacts of road building, timber harvest, and watershed fragmentation on watershed and stream function, fish habitat, and fish populations.

U 346 Forests and Communities 3 cr. Coreq., EVST 391, EVST 392, RSCN 345, EVST 291. Offered each autumn by Northwest Connections. Via backcountry travel and hands on field application in rural Montana, students will be immersed in the ecology of forested ecosystems in Northwest Montana, including plant succession, fire ecology, soil science and wildlife ecology.

UG 360 Range Management 3 cr. Offered autumn and spring. Same as FOR 360. Prereq., junior standing or consent of instr. An introduction to rangelands and their management, grazing influences, class of animal, grazing capacity, control of livestock distribution, improvements, competition and interrelationships with wildlife. Laboratory exercises to gain on-site experience on topics and concepts presented in lectures.

U 361 Range Forage Plants 3 cr. Offered autumn. Same as FOR 361. Prereq., FOR 360 and BIOL 165N. Description, identification, forage value and ecology of forage plants of the western United States; important weed species, management of grazing lands, and the relationship of ecophysiology and morphology to grazing response.

U 362 Range Livestock Production 3 cr. Offered spring odd numbered years. Same as FOR 362. Prereq., FOR 360 or consent of instr. An introduction to livestock production in natural systems and the role of livestock production in the world food situation; emphasizes selection, production and management principles of beef cattle systems.

UG 370S Wildland Conservation Policy and Governance 3 cr. Offered autumn and spring. Examination of the historical, philosophical, and legislative background for development and management of our national system of wilderness areas, wild and scenic rivers, trails, and national parks; their place in our social structure.

UG 371 Wilderness Issues Lecture Series 1 cr. (R-3) Offered spring. Same as EVST 371 and FOR 371. Explores current issues in wilderness preservation, management and research.

U 373 Wilderness and Civilization 3 cr. (R-6) Offered autumn and spring. Social and cultural perspectives on the wilderness idea and wildland practices. Course topics include history of wilderness and the wilderness movement, various philosophical

viewpoints on wilderness, protected area management issues, and how wilderness fits into larger landscapes and societies.

UG 380S Environmental Conservation 3 cr. Offered autumn. Prereq., junior standing. The interrelationships of resource conservation problems and programs; management and conservation in the context of an expanding economy

U 385 Watershed Hydrology 3 cr. Offered autumn and spring. Same as FOR 385. An introduction to physical and biological controls over water movement and storage in the environment, and how those controls are affected by land management practices.

U 398 Internship Variable cr. Offered every term. Prereq., consent of department. Extended classroom experience that provides practical application of classroom learning during placements off campus. Prior approval must be obtained from the faculty supervisor and the Internship Services office. A maximum of 6 credits of Internship (198, 298, 398, 498) may count toward graduation.

UG 403 Contemporary Tribal Resource Issues 3 cr. Same as NAS 403. Acquaints students with contemporary tribal resource management and environmental policies.

UG 422 Natural Resources Policy and Administration 3 cr. Offered autumn and spring. Same as FOR 422. Policy formation in the United States and a survey of the major resource policies interpreted in their historical and political contexts.

U 423 Montana Wilderness Policy and Politics 2 cr. Examination of congressional legislative processes and congressional efforts concerning wilderness and roadless public lands management, particularly in Montana. Consideration of economic, social and political factors affecting how congress and the executive branch determine the fate of roadless lands.

UG 424 Community Forestry and Conservation 3 cr. Offered spring. Same as SOC 424 and FOR 424. A review of agroforestry, community forestry, and opportunities and constraints to the use of trees in rural development and protected areas management.

UG 449 Climate Change Ethics and Policy 3 cr. Offered Spring. Same as EVST 449 and CSS 449. This course focuses on the ethical dimensions of climate change policy. It will cover the following major topics: (1) climate change, personal and collective responsibilities, (2) ethics, climate change and scientific uncertainty, (3) distributive justice and international climate change negotiations, (4) intergenerational justice and climate change policy.

UG 455 Riparian Ecology and Management 3 cr. Offered spring. Same as FOR 455. Coreq. or prereq., FOR 385 and one introductory ecology course or consent of instr.. Importance of riparian/wetland areas and the complexities associated with their management for short and long term benefits.

UG 460 Range Inventory and Analysis 3 cr. Offered autumn. Same as FOR 460. Prereq., FOR 360 and one course in statistics. Methods of measuring range and shrub-land vegetation at individual and community level for determining plant composition, changes following treatments, and carrying capacity of range livestock and native ungulates.

UG 462 Range Ecology 3 cr. Offered spring. Same as FOR 462. Prereq., FOR/RSCN 360 and one course in plant ecology. Applied ecology of rangeland uses by various biota, synecological response to grazing, fire, herbicides, fertilizers and mechanical treatments, structural and functional responses of grassland systems to disturbance.

UG 463 Range Improvement 3 cr. Offered autumn. Same as FOR 463. Prereq., FOR/RSCN 360. Methods of improving rangelands, including grazing systems, control of weeds, controlled burning, seeding, fertilization and mechanical soil treatments.

UG 475 Sociology of Environment and Development 3 cr. Offered annually. Same as FOR 475. Examines key social forces that influence how individuals, groups and nation-states understand and live within their bio-physical environments, especially policies and processes relating to development, corporate capitalism, globalization, culture, class and other forms of power and social relations. Pays close attention to ways both indigenous and introduced resource use and management practices (including conservation) variably impact people of different races, classes, genders, cultures and livelihood practices.

UG 485 Watershed Management 3 cr. Offered autumn. Same as FOR 485. Prereq., FOR/RSCN 385 or consent of instr. Effects of land management practices on water and sediment yields from wildland watersheds. Introduction to statistical methods in hydrology. Introduction to water yield and sediment modeling techniques.

G 565 Advanced Problems in Restoration Ecology 3 cr. Offered autumn. Same as FOR 565. Prereq., graduate standing and consent of instructor. This is a student-driven course that explores current topics in the theory and practice of restoration. Students will develop and implement a collaborative research project related to a current problem in restoration ecology or ecological restoration.

G 570 Political Ecology 3 cr. Same as FOR 570. Graduate seminar on key theories, issues and literature in the subfield of Political Ecology, an interdisciplinary environmental social science approach which integrates how political, economic, cultural and ecological processes interact and shape society nature relations. Case examples are drawn from both the North and South.

G 571 International Resource Management 1-3 cr. Yearlong course. Students register for one credit autumn semester and one credit spring semester. Final grade assigned at end of the year. Prereq., graduate standing and consent of instr. Critical review of selected international natural resource development, conservation and management approaches and experiences.