Natural Resources Management

School of Natural Resources and Agricultural Sciences
(907) 474-7083
www.uaf.edu/snras/

B.S. Degree

Minimum Requirements for Degree: 130 credits

Natural resources management is making and implementing decisions to develop, maintain or protect ecosystems to meet human needs and values. The core natural resources management curriculum provides students with a broad education in the various natural resources and their related applied fields. Programs can be tailored to enhance a student's depth or breadth in a given field of interest. The program is designed for students desiring careers in resources management or in other fields requiring knowledge of resources management and students planning advanced study, as well as those wishing to be better informed citizens.

The B.S. degree has three concentrations: forestry; plant, animal, and soil sciences; and resources. The forestry concentration offers students the opportunity to focus on the multi-resource management of forests and associated ecosystems for the sustained production of goods and services and to prepare for forestry related employment.

The natural resources management/forestry program is the only accredited four-year forestry program in Alaska.

The goals of UAF's forestry program are to produce graduates who are highly competitive in obtaining professional employment, who have the knowledge to perform well on the job and who are valued for work in Alaska and the circumpolar North; maintain close student interaction with faculty and provide opportunity for students to obtain practical professional experience as part of their education; and to prepare students for lifelong learning and responsible participation in decision-making about the use of natural resources.

The university provides students with a foundation in the biological, social and physical sciences and a blend of classroom, laboratory and field work to develop skills for a career in forestry. The forestry program leads to a professional degree in forestry. The program is accredited by the Society of American Foresters (SAF).

The plant, animal and soil sciences concentration offers opportunities for scientific study and education in areas such as field and greenhouse plant production, domestication and propagation of native plants, revegetation, domestic and native animal production, and agricultural and ecological aspects of soil science. The resources concentration emphasizes responsible stewardship in the management of multiple resources that occur in natural systems. Field and laboratory activities and applications of knowledge gained are stressed throughout the program. Internships and work-study arrangements are often available for qualified students.

State and federal agencies such as the Alaska Department of Natural Resources, Agricultural Research Service, U.S. Forest Service, Bureau of Land Management, Natural Resource Conservation Service and U.S. Fish and Wildlife Service contribute significantly to the instructional program by providing guest lecturers and internship and field work opportunities for students.

Major—B.S. Degree

Concentrations: Forestry; Plant, Animal and Soil Sciences; Resources

1. Complete the general university requirements. (See page 112. As part of the core curriculum requirements, complete a MATH—Calculus course.)
2. Complete the B.S. degree requirements. (See page 117. As part of the B.S. degree requirements, complete STAT 200*.)
3. Complete the following (major) requirements:*

BIOL 105X—Fundamentals of Biology I** 4
BIOL 106X—Fundamentals of Biology II** 4
BIOL 271—Principles of Ecology 4
CHEM 105X—General Chemistry*** 4
CHEM 106X—General Chemistry*** 4
ECON 235—Introduction to Natural Resource Economics 3
NRM 101—Natural Resources Conservation and Policy 3
NRM 106—Orientation to Natural Resource Management 1
NRM 304O—Perspectives in Natural Resources Management 3
NRM 380W—Soils and the Environment 3
NRM 405W—Senior Thesis in Natural Resources Management I .. 2
NRM 406W—Senior Thesis in Natural Resources Management II . 2

4. Complete one of the following concentrations:*

Forestry

a. Complete the following:

BIOL 239—Introduction to Plant Biology (4)
or NRM 211—Introduction to Applied Plant Science (3) 3–4
ECON 335O—Intermediate Natural Resource Economics 3
GEOS 101X—The Dynamic Earth 4
NRM 204—Public Lands Law and Policy 3
NRM 251—Silvics and Dendrology 4
NRM 290—Resource Management Issues at High Latitudes 2
NRM 338—Introduction to Geographic Information Systems 3
NRM 340—Natural Resources Measurement and Inventory 3
NRM 365W—Principles of Outdoor Recreation Management 3
NRM 370—Introduction to Watershed Management 3
NRM 375—Forest Ecology 3
NRM 430—Resource Management Planning 3
NRM 450—Forest Management 3
NRM 451W—Silviculture 3
NRM 452—Forest Health and Protection 3
NRM 453—Harvesting and Utilization of Forest Products 3
WLF 201—Wildlife Management Principles (3)
or FISH 401W,O/2—Fisheries Management (3) 3

b. Complete three of the following to total at least 8 credits:****

1. Complete at least one of the following non-measurements courses:

BIOL 331—Systematic Botany 4
FIRE—Any course on wildland fire control/management 3
GEOS 408—Photogeology 2
NRM 277—Introduction to Conservation Biology 3
NRM 300—Internship in Natural Resources Management***** 1–6
NRM 303X—Environmental Ethics and Actions****** 3
NRM 312—Introduction to Range Management 3
WLF 201—Wildlife Management Principles (3)
or FISH 401W,O/2—Fisheries Management (3) 3

2. Complete at least one of the following measurements courses:
CE 112—Elementary Surveying....3
GEOS 422—Geoscience Applications of Remote Sensing....3
NRM 341—GIS Analysis....4
STAT 401—Regression and Analysis of Variance....4
STAT 402—Scientific Sampling....3

** Student must earn a C grade or better in each course.*

*** Satisfies core natural science requirement.*

**** Satisfies B.S. degree natural science requirement.*

***** Courses other than those listed must be approved by student's advisor.*

****** Must be forestry related.*

******* If used to fulfill the baccalaureate core requirement for ethics/values and choices in the perspectives on the human condition, NRM 303X may not also count toward a natural resources management major. However, in this case, only two courses that total at least 5 credits are required from this list, exclusive of NRM 303X.*

Plant, Animal and Soil Sciences

a. Complete the following:
BIOL 331—Systematic Botany (4)
or BIOL 310—Animal Physiology (4)
or BIOL 317—Comparative Anatomy of Vertebrates (4)....4
NRM 211—Introduction to Applied Plant Science....3
NRM 290—Resource Management Issues at High Latitudes....2
NRM 320—Animal Science....3
NRM 480—Soil Management for Quality Conservation (3)
or NRM 485—Soil Biology (3)....3

b. Complete at least 8 credits in biology, botany, physics, chemistry, geosciences and/or mathematics, in addition to the above basic courses. Courses must be approved for science majors.

c. Complete at least 9 credits in the following natural resources management electives:
NRM 102—Practicum in Natural Resources Management (1–2)
and/or NRM 300—Internship in Natural Resources Management (1–3)....1–3
NRM 204—Public Lands Law and Policy....3
NRM 215—Plant Propagation....3
NRM 251—Silvics and Dendrology....4
NRM 312—Introduction to Range Management....3
NRM 313—Introduction to Plant Pathology....4
NRM 338—Introduction to Geographic Information Systems....3
NRM 340—Natural Resources Measurement and Inventory....3
NRM 341—GIS Analysis....4
NRM 370—Introduction to Watershed Management....3
NRM 404—Environmental Impact Statement Law....3
NRM 412—Field Crop Production....3
NRM 480—Soil Management for Quality and Conservation* (3)
or NRM 485—Soil Biology* (3)....3

d. Complete at least 12 credits beyond those taken to fulfill categories above in a support field which is a group of courses selected for its clear pertinence to a cohesive program. Support fields may include but are not limited to: animal science, chemistry, communications, education, engineering, forestry, geography, marketing, natural resources management, nutrition, plant science, rural development or soils. The courses must be approved by the student's academic advisor prior to attaining senior standing.

** The same course cannot be used to satisfy requirements in both sections a and c.*

Resources

a. Complete the following:
ECON 335O—Intermediate Natural Resource Economics....3
GEOS 101X—The Dynamic Earth....4
NRM 204—Public Lands Law and Policy....3
NRM 251—Silvics and Dendrology....4
NRM 290—Resource Management Issues at High Latitudes....2
NRM 312—Introduction to Range Management (3)
or NRM 480—Soil Management for Quality and Conservation (3)....3
NRM 338—Introduction to Geographic Information Systems....3
NRM 340—Natural Resources Measurement and Inventory....3
NRM 365W—Principles of Outdoor Recreation Management....3
NRM 370—Introduction to Watershed Management....3
NRM 430—Resource Management Planning....3
WLF 201—Wildlife Management Principles (3)
or FISH 401W,O/2—Fisheries Management (3)....3

b. Complete at least 9 credits from the humans and the environmental electives category. Courses involve human effects on the environment and its products through management. Substitutions may be made only with the permission of the student's academic advisor and the department head.
ANTH 428W—Ecological Anthropology and Regional Sustainability....3
ECON 437W—Regional Economic Development....3
FISH 261-F—Introduction to Seafood Science and Nutrition....3
FISH 401W,O/2—Fisheries Management....3
FIRE 256—Wildland Fire Planning and Multiple Use Management....3
GEOG 427—Cold Lands....3
MIN 101—Minerals, Man and the Environment....3
MIN 400—Practical Engineering Report....1
MIN 407W—Mine Reclamation and Environmental Management....3
NRM 277—Introduction to Conservation Biology....3
NRM 300—Internship in Natural Resources Management....3
NRM 312—Introduction to Range Management....3
NRM 404—Environmental Impact Statement Law....3
NRM/WLF 431—Wildlife Law and Policy....3
NRM 450—Forest Management....3
NRM 451—Silviculture....3
NRM 465—Outdoor Recreation Planning....3
NRM 480—Soil Management for Quality and Conservation....3
RD 255—Rural Alaska Land Issues....3
RD 265—Perspectives on Subsistence in Alaska....3
RD 350O—Indigenous Knowledge and Community Research....3
WLF 201—Wildlife Management Principles....3
WLF 419O/2—Waterfowl and Wetlands Ecology and Management....4

c. Select at least 9 credits in an approved support field. Selections may include courses listed within the humans and the environmental elective category, and need not be limited to those with NRM designators. Courses are selected for their clear pertinence to a cohesive program and must be approved by the student's academic advisor prior to attaining senior standing. Examples include but are not limited to: communications, data management, economics, marketing, recreation or resources policy. Support fields may also include subject areas in forest and plant, animal, and soil sciences.

5. Minimum credits required....130

Note: Courses required for the major may also be used to satisfy the general university and B.S. degree requirements as appropriate.

Minor

1. Complete the following:
   NRM 101—Natural Resources Conservation and Policy 3
   NRM electives* 15
2. Minimum credits required 18

** At least 6 credits must be upper-division. The minor program must be approved by an NRM advisor.*

Note: Page numbers refer to the UAF 2006-2007 academic catalog, which can be viewed online at www.uaf.edu/catalog/.

Baccalaureate Core Requirements

All degrees (e.g. B.A., B.S., etc.) require additional courses. Refer to specific degree and program requirements.

COMMUNICATION (9)

Complete the following:
ENGL 111X ..... (3) _____
ENGL 190H may be substituted.

Complete one of the following:
ENGL 211X **OR** ENGL 213X ..... (3) _____

Complete one of the following:
COMM 131X **OR** COMM 141X ..... (3) _____

PERSPECTIVES ON THE HUMAN CONDITION (18)

Complete all of the following four courses:
ANTH 100X/SOC 100X ..... (3) _____
ECON 100X **OR** PS 100X ..... (3) _____
HIST 100X ..... (3) _____
ENGL/FL 200X ..... (3) _____

Complete one of the following three courses:
ART/MUS/THR 200X, HUM 201X **OR** ANS 202X ..... (3) _____

Complete one of the following six courses:
BA 323X, COMM 300X, JUST 300X, NRM 303X,
PS 300X **OR** PHIL 322X ..... (3) _____

OR complete 12 credits from the above courses **PLUS**

- two semester-length courses in a single Alaska Native language or other non-English language **OR**
- three semester-length courses (9 credits) in American Sign Language taken at the university level.

MATHEMATICS (3)

Complete one of the following:
MATH 107X, MATH 161X **OR** MATH 103X ..... (3-4) _____
** No credit may be earned for more than one of MATH 107X or 161X.*

OR complete one of the following:*
MATH 200X, MATH 201X, MATH 202X,
MATH 262X **OR** MATH 272X ..... (4) _____
**Or any math course having one of these as a prerequisite*

NATURAL SCIENCES (8)

Complete any two (4-credit) courses:
ATM 101X ..... (4) _____
BIOL 100X ..... (4) _____
BIOL 103X ..... (4) _____
BIOL 104X ..... (4) _____
BIOL 105X ..... (4) _____
BIOL 106X ..... (4) _____
BIOL 111X ..... (4) _____
BIOL 112X ..... (4) _____
CHEM 100X ..... (4) _____
CHEM 103X ..... (4) _____
CHEM 104X ..... (4) _____
CHEM 105X ..... (4) _____
CHEM 106X ..... (4) _____
GEOG 205X ..... (4) _____
GEOS 100X ..... (4) _____
GEOS 101X ..... (4) _____
GEOS 112X ..... (4) _____
GEOS 120X ..... (4) _____
GEOS 125X ..... (4) _____
MSL 111X ..... (4) _____
PHYS 102X ..... (4) _____
PHYS 103X ..... (4) _____
PHYS 104X ..... (4) _____
PHYS 115X ..... (4) _____
PHYS 116X ..... (4) _____
PHYS 175X ..... (4) _____
PHYS 211X ..... (4) _____
PHYS 212X ..... (4) _____
PHYS 213X ..... (4) _____

LIBRARY AND INFORMATION RESEARCH (0–1)
Successful completion of library skills competency test **OR**
LS 100X or 101X prior to junior standing ..... (0–1) _____

UPPER-DIVISION WRITING AND ORAL COMMUNICATION (0)

Complete the following:
Two writing intensive courses designated (W) ..... (0) _____
One oral communication intensive course designated (O) ..... (0) _____
OR two oral communication intensive courses designated (O/2), at the upper-division level (see degree and/or major requirements) ..... (0) _____

TOTAL CREDITS REQUIRED 38–39

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