

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 124. As part of the core curriculum requirements, complete a MATH—Calculus course.)
2. Complete the B.S. degree requirements. (See page 129. As part of the B.S. degree requirements, complete STAT F200X*.)
3. Complete the following (major) requirements:

BIOL F115X—Fundamentals of Biology I**	4
BIOL F116X—Fundamentals of Biology II**	4
BIOL F271—Principles of Ecology	4
CHEM F105X—General Chemistry***	4
CHEM F106X—General Chemistry***	4
ECON F235—Introduction to Natural Resource Economics	3
NRM F101—Natural Resources Conservation and Policy	3
NRM F106—Orientation to Natural Resource Management	1
NRM F304O—Perspectives in Natural Resources Management	3
NRM F380W—Soils and the Environment	3
NRM F405W—Senior Thesis in Natural Resources Management I	2
NRM F406W—Senior Thesis in Natural Resources Management II	2
4. Complete one of the following concentrations:

Forestry

 - a. Complete the following:

BIOL F239—Introduction to Plant Biology (4)	
or NRM F211—Introduction to Applied Plant Science (3)	3 – 4
ECON F335O—Intermediate Natural Resource Economics	3
GEOS F101X—The Dynamic Earth	4
NRM F204—Public Lands Law and Policy	3
NRM F251—Silvics and Dendrology	4
NRM F290—Resource Management Issues at High Latitudes	2
NRM F338—Introduction to Geographic Information Systems	3
NRM F340—Natural Resources Measurement and Inventory	3
NRM F365W—Principles of Outdoor Recreation Management	3
NRM F370—Introduction to Watershed Management	3
NRM F430—Resource Management Planning	3
NRM F450—Forest Management	3
NRM F451W—Silviculture	3
NRM F452—Forest Health and Protection	3
NRM F453—Harvesting and Utilization of Forest Products	3
WLF F201—Wildlife Management Principles (3)	
or FISH F401W,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 F331—Systematic Botany	4
FIRE—Any course on wildland fire control/management	3
GEOS F408—Photogeology	2
NRM F277—Introduction to Conservation Biology	3
NRM F300—Internship in Natural Resources Management*****	1 – 6
NRM F303X—Environmental Ethics and Actions*****	3
NRM F312—Introduction to Range Management	3
WLF F201—Wildlife Management Principles (3)	
or FISH F401W,O/2—Fisheries Management (3)	3

2. Complete at least one of the following measurements courses:

CE F112—Elementary Surveying	3
GEOS F422—Geoscience Applications of Remote Sensing...	3
NRM F341—GIS Analysis	4
STAT F401—Regression and Analysis of Variance	4
STAT F402—Scientific Sampling	3
<i>* Student must earn a C grade or better in each course.</i>	
<i>** Satisfies core natural science requirement.</i>	
<i>*** Satisfies B.S. degree natural science requirement.</i>	
<i>**** Courses other than those listed must be approved by student's advisor.</i>	
<i>***** Must be forestry related.</i>	
<i>***** If used to fulfill the baccalaureate core requirement for ethics/values and choices in the perspectives on the human condition, NRM F303X 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 F303X.</i>	

Plant, Animal and Soil Sciences

a. Complete the following:

BIOL F331—Systematic Botany (4)	
or BIOL F310—Animal Physiology (4)	
or BIOL F317—Comparative Anatomy of Vertebrates (4)	4
NRM F211—Introduction to Applied Plant Science	3
NRM F290—Resource Management Issues at High Latitudes ..	2
NRM F312—Range Management	3
NRM F320—Animal Science	3
NRM F480—Soil Management for Quality Conservation (3)	
or NRM F485—Soil Biology* (3)	3
or NRM F466—Environmental Soil Chemistry (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 natural resources management electives:

NRM F102—Practicum in Natural Resources Management (1 – 2)	
and any other NRM course at the F200-level or above that has not been used to meet other requirements.	
NRM F204—Public Lands Law and Policy	3
NRM F215—Plant Propagation	3
NRM F251—Silvics and Dendrology	4
NRM F312—Introduction to Range Management	3
NRM F313—Introduction to Plant Pathology	4
NRM F338—Introduction to Geographic Information Systems	3
NRM F340—Natural Resources Measurement and Inventory ..	3
NRM F341—GIS Analysis	4
NRM F370—Introduction to Watershed Management	3
NRM F404—Environmental Impact Statement Law	3
NRM F412—Field Crop Production	3
NRM F480—Soil Management for Quality and Conservation* (3)	
or NRM F485—Soil Biology* (3)	3
or NRM F466—Environmental Soil Chemistry* (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 F335O—Intermediate Natural Resource Economics	3
GEOS F101X—The Dynamic Earth	4
NRM F204—Public Lands Law and Policy	3
NRM F251—Silvics and Dendrology	4
NRM F290—Resource Management Issues at High Latitudes ..	2
NRM F312—Introduction to Range Management (3)	
or NRM F480—Soil Management for Quality and Conservation (3)	3
NRM F338—Introduction to Geographic Information Systems	3
NRM F340—Natural Resources Measurement and Inventory ..	3
NRM F365W—Principles of Outdoor Recreation Management	3
NRM F370—Introduction to Watershed Management	3
NRM F430—Resource Management Planning	3
WLF F201—Wildlife Management Principles (3)	
or FISH F401W/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 F428—Ecological Anthropology and Regional Sustainability	3
ECON F437W—Regional Economic Development	3
FISH F261-F—Introduction to Seafood Science and Nutrition	3
FISH F401W/O/2—Fisheries Management	3
FIRE F256—Wildland Fire Planning and Multiple Use Management	3
GEOG F427—Cold Lands	3
MIN F101—Minerals, Man and the Environment	3
MIN F400—Practical Engineering Report	1
MIN F407W—Mine Reclamation and Environmental Management	3
NRM F277—Introduction to Conservation Biology	3
NRM F300—Internship in Natural Resources Management	3
NRM F312—Introduction to Range Management	3
NRM F404—Environmental Impact Statement Law	3
NRM/WLF F431—Wildlife Law and Policy	3
NRM F450—Forest Management	3
NRM F451—Silviculture	3
NRM F465—Outdoor Recreation Planning	3
NRM F480—Soil Management for Quality and Conservation ..	3
RD F255—Rural Alaska Land Issues	3
RD F265—Perspectives on Subsistence in Alaska	3
RD F350O—Indigenous Knowledge and Community Research	3
WLF F201—Wildlife Management Principles	3
WLF F419O/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

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 F101—Natural Resources Conservation and Policy3
NRM electives*15
 2. Minimum credits required18
- * At least 6 credits must be upper-division. The minor program must be approved by an NRM advisor.

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 F111X (3) _____
ENGL F190H may be substituted.

Complete one of the following:

ENGL F211X OR ENGL F213X (3) _____

Complete one of the following:

COMM F131X OR COMM F141X (3) _____

PERSPECTIVES ON THE HUMAN CONDITION (18)

Complete all of the following four courses:

ANTH F100X/SOC F100X (3) _____
ECON F100X OR PS F100X (3) _____
HIST F100X (3) _____
ENGL/FL F200X (3) _____

Complete one of the following three courses:

ART/MUS/THR F200X, HUM F201X OR ANS F202X (3) _____

Complete one of the following six courses:

BA F323X, COMM F300X, JUST F300X, NRM F303X,
PS F300X OR PHIL F322X (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 F103X, MATH F107X, MATH F161X OR
STAT F200X (3 – 4) _____
* No credit may be earned for more than one of MATH F107X or F161X.

OR complete one of the following:

MATH F200X, MATH F201X, MATH F202X,
MATH F262X OR MATH F272X (4) _____

*Or any math course having one of these as a prerequisite.

NATURAL SCIENCES (8)

Complete any two (4-credit) courses:

ATM F101X (4) _____
BIOL F100X (4) _____
BIOL F103X (4) _____
BIOL F104X (4) _____
BIOL F111X (4) _____
BIOL F112X (4) _____
BIOL F115X (4) _____
BIOL F116X (4) _____
CHEM F100X (4) _____
CHEM F103X (4) _____
CHEM F104X (4) _____
CHEM F105X (4) _____
CHEM F106X (4) _____
GEOG F205X (4) _____
GEOS F100X (4) _____
GEOS F101X (4) _____
GEOS F112X (4) _____
GEOS F120X (4) _____
GEOS F125X (4) _____
MSL F111X (4) _____
PHYS F102X (4) _____
PHYS F103X (4) _____
PHYS F104X (4) _____
PHYS F115X (4) _____
PHYS F116X (4) _____
PHYS F175X (4) _____
PHYS F211X (4) _____
PHYS F212X (4) _____
PHYS F213X (4) _____

LIBRARY AND INFORMATION RESEARCH (0 – 1)

Successful completion of library skills competency test OR
LS F100X or F101X 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