

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; high latitude agriculture; 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 high latitude agriculture 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; High Latitude Agriculture; Resources

- Complete the general university requirements. (See page 131. As part of the core curriculum requirements, complete a MATH—Calculus course.)
- Complete the B.S. degree requirements. (See page 136. As part of the B.S. degree requirements, complete STAT F200X*.)
- 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 F304WO—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
- Complete one of the following concentrations:
 - Forestry**
 - 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 F365—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 F440—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 F487W,O—Fisheries Management (3)	3
 - Complete three of the following to total at least 8 credits:
 - 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 F487W,O—Fisheries Management (3)	3

- ii. Complete at least one of the following measurements courses:
 - CE F112—Elementary Surveying.....3
 - GEOS F422—Geoscience Applications of Remote Sensing ..3
 - NRM F435—GIS Analysis.....4
 - STAT F401—Regression and Analysis of Variance4
 - STAT F402—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 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.

High Latitude Agriculture

- 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 Science3
 - NRM F290—Resource Management Issues at High Latitudes2
 - 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.
- 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 Earth4
 - NRM F204—Public Lands Law and Policy3
 - NRM F251—Silvics and Dendrology.....4
 - NRM F290—Resource Management Issues at High Latitudes2
 - 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 Inventory3
 - NRM F365—Principles of Outdoor Recreation Management...3

- NRM F370—Introduction to Watershed Management3
- NRM F430—Resource Management Planning3
- WLF F201—Wildlife Management Principles (3)
 or FISH F487W,O—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 Sustainability3
 - ECON F437W—Regional Economic Development3
 - FISH F261—Introduction to Fish Utilization3
 - FISH F487W,O—Fisheries Management.....3
 - FIRE F256—Wildland Fire Planning and Multiple Use Management3
 - GEOG F427—Polar Geography3
 - MIN F101—Minerals, Man and the Environment3
 - MIN F407W—Mine Reclamation and Environmental Management 3
 - NRM F277—Introduction to Conservation Biology3
 - NRM F300—Internship in Natural Resources Management and Geography.....3
 - NRM F312—Introduction to Range Management3
 - NRM/WLF F431—Wildlife Law and Policy3
 - NRM F450—Forest Management.....3
 - NRM F440—Silviculture3
 - NRM F465—Outdoor Recreation Planning3
 - NRM F480—Soil Management for Quality and Conservation.....3
 - RD F255—Rural Alaska Land Issues3
 - 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 Management4
- 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 required130

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.



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

Baccalaureate Core 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 F111X(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) _____
 and 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) _____

CORE CREDITS REQUIRED 38 - 39

Minimum credits required for degree 120