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, re-vegetation, 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

1. Complete the general university requirements. (See page 131. As part of the core curriculum requirements, complete a MATH—Calculus course.)
2. Complete the B.S. degree requirements. (See page 136. As part of the B.S. degree requirements, complete STAT 200X*.)
4. Complete one of the following concentrations:*

Forestry

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 F487WO—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 Variance .......... 4
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 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.

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 F209—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 F365—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 F487WO—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—Introduction to Fish Utilization ......................... 3
FISH F487WO—Fisheries Management ............................... 3
FIRE F236—Wildland Fire Planning and Multiple Use Management ................................................................. 3
GEOG F427—Polar Geography ............................................ 3
MIN F101—Minerals, Man and the Environment ................. 3
MIN F407W—Mine Reclamation and Environmental Management 3
NRM F277—Introduction to Conservation Biology ............... 3
NRM F300—Internship in Natural Resources Management and Geography .................................................. 3
NRM F312—Introduction to Range Management .................... 3
NRM/WLF F431—Wildlife Law and Policy ............................ 3
NRM F430—Forest Management ......................................... 3
NRM F440—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 .................................................. 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 F101—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.
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 writing intensive 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 F117X ........................................................(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