Submit originals and one copy and electronic copy to Governance/Faculty Senate Office (email electronic copy to fysenat@uaf.edu)

**PROGRAM/DEGREE REQUIREMENT CHANGE (MAJOR/MINOR)**

<table>
<thead>
<tr>
<th>SUBMITTED BY:</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Department</td>
<td>High Latitude Agriculture</td>
</tr>
<tr>
<td>Prepared by</td>
<td>Wanda Tangermann</td>
</tr>
<tr>
<td>Email Contact</td>
<td><a href="mailto:fnwrft@uaf.edu">fnwrft@uaf.edu</a></td>
</tr>
</tbody>
</table>

See [http://www.uaf.edu/uafgov/faculty/cd](http://www.uaf.edu/uafgov/faculty/cd) for a complete description of the rules governing curriculum & course changes.

**PROGRAM IDENTIFICATION:**

<table>
<thead>
<tr>
<th>DEGREE PROGRAM</th>
<th>Natural Resources Management - Plant, Animal, Soil Sciences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree Level:</td>
<td>(i.e., Certificate, A.A., A.A.S., B.A., B.S., M.A., M.S., Ph.D.)</td>
</tr>
<tr>
<td></td>
<td>B.S.</td>
</tr>
</tbody>
</table>

A. **CHANGE IN DEGREE REQUIREMENTS:** (Brief statement of program/degree changes and objectives)

| Change option to match new department name; Simplify the list of requirements for High Latitude Agriculture |

B. **CURRENT REQUIREMENTS AS IT APPEARS IN THE CATALOG:**

**Major — B.S. Degree**

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

1. Complete the general university requirements. (As part of the core curriculum requirements, complete a MATH—Calculus course.)

2. Complete the B.S. degree requirements. (As part of the B.S. degree requirements, complete STAT F200X*.)

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

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 credits
        - ECON F3350—Intermediate Natural Resource Economics—3 credits
        - GEOG F101X—The Dynamic Earth—4 credits
        - NRM F204—Public Lands Law and Policy—3 credits
        - NRM F251—Silvics and Dendrology—4 credits
        - NRM F290—Resource Management Issues at High Latitudes—2 credits
        - NRM F338—Introduction to Geographic Information Systems—3 credits
INRM F340—Natural Resources Measurement and Inventory—3 credits
INRM F365W—Principles of Outdoor Recreation Management—3 credits
INRM F370—Introduction to Watershed Management—3 credits
INRM F430—Resource Management Planning—3 credits
INRM F450—Forest Management—3 credits
INRM F451W—Silviculture—3 credits
INRM F452—Forest Health and Protection—3 credits
INRM F453—Harvesting and Utilization of Forest Products—3 credits
WLF F201—Wildlife Management Principles (3) or FISH F401W10/2—Fisheries Management (3)—3 credits

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 credits
   - FIRE—Any course on wildland fire control/management—3 credits
   - GEOS F408—Photogeology—2 credits
   - NRM F277—Introduction to Conservation Biology—3 credits
   - NRM F300—Internship in Natural Resources Management******—1 – 6 credits
   - NRM F303X—Environmental Ethics and Actions******—3 credits
   - NRM F312—Introduction to Range Management—3 credits
   - WLF F201—Wildlife Management Principles (3) or FISH F401W10/2—Fisheries Management (3)—3 credits

2. Complete at least one of the following measurements courses:
   - CE F112—Elementary Surveying—3 credits
   - GEOS F422—Geoscience Applications of Remote Sensing—3 credits
   - NRM F341—GIS Analysis—4 credits
   - STAT F401—Regression and Analysis of Variance—4 credits
   - STAT F402—Scientific Sampling—3 credits
   * 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

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 credits
   - NRM F211—Introduction to Applied Plant Science—3 credits
   - NRM F290—Resource Management Issues at High Latitudes—2 credits
   - NRM F312—Range Management—3 credits
   - NRM F320—Animal Science—3 credits
   - NRM F480—Soil Management for Quality Conservation (3)
   - or NRM F485—Soil Biology* (3)—3 credits
   - 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 credits
NRM F215—Plant Propagation—3 credits
NRM F251—Silvics and Dendrology—4 credits
NRM F312—Introduction to Range Management—3 credits
NRM F313—Introduction to Plant Pathology—4 credits
NRM F338—Introduction to Geographic Information Systems—3 credits
NRM F340—Natural Resources Measurement and Inventory—3 credits
NRM F341—GIS Analysis—4 credits
NRM F370—Introduction to Watershed Management—3 credits
NRM F404—Environmental Impact Statement Law—3 credits
NRM F412—Field Crop Production—3 credits
NRM F480—Soil Management for Quality and Conservation* (3)
or NRM F485—Soil Biology* (3)
or NRM F466—Environmental Soil Chemistry* (3)—3 credits

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 F3350—Intermediate Natural Resource Economics—3 credits
GEOS F101X—The Dynamic Earth—4 credits
NRM F204—Public Lands Law and Policy—3 credits
NRM F251—Silvics and Dendrology—4 credits
NRM F290—Resource Management Issues at High Latitudes—2 credits
NRM F312—Introduction to Range Management (3)
or NRM F480—Soil Management for Quality and Conservation (3)—3 credits
NRM F338—Introduction to Geographic Information Systems—3 credits
NRM F340—Natural Resources Measurement and Inventory—3 credits
NRM F365W—Principles of Outdoor Recreation Management—3 credits
NRM F370—Introduction to Watershed Management—3 credits
NRM F430—Resource Management Planning—3 credits
WLF F201—Wildlife Management Principles—3 credits
or FISH F401W,O/2—Fisheries Management (3)—3 credits

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 credits
ECON F437W—Regional Economic Development—3 credits
FISH F261—Introduction to Seafood Science and Nutrition—3 credits
FISH F401W,O/2—Fisheries Management—3 credits
FIRE F256—Wildland Fire Planning and Multiple Use Management—3 credits
GEOG F427—Cold Lands—3 credits
MIN F101—Minerals, Man and the Environment—3 credits
MIN F400—Practical Engineering Report—1 credit
MIN F407W—Mine Reclamation and Environmental Management—3 credits
NRM F277—Introduction to Conservation Biology—3 credits
NRM F300—Internship in Natural Resources Management—3 credits
NRM F312—Introduction to Range Management—3 credits
NRM F404—Environmental Impact Statement Law—3 credits
NRM/WLF F431—Wildlife Law and Policy—3 credits
NRM F450—Forest Management—3 credits
NRM F451—Silviculture—3 credits
NRM F465—Outdoor Recreation Planning—3 credits
NRM F480—Soil Management for Quality and Conservation—3 credits
RD F255—Rural Alaska Land Issues—3 credits
RD F265—Perspectives on Subsistence in Alaska—3 credits
RD F3500—Indigenous Knowledge and Community Research—3 credits
WLF F201—Wildlife Management Principles—3 credits
WLF F419O/2—Waterfowl and Wetlands Ecology and Management—4 credits

5. 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 credits

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

C. PROPOSED REQUIREMENTS AS IT WILL APPEAR IN THE CATALOG WITH THESE CHANGES:
(Underline new wording strike-through-old-wording and use complete catalog format.)

Major—B.S. Degree

Concentrations: Forestry; Plant, Animal and Soil Sciences; High Latitude Agriculture; Resources

1. Complete the general university requirements. (As part of the core curriculum requirements, complete a MATH—Calculus course.)

2. Complete the B.S. degree requirements. (As part of the B.S. degree requirements, complete STAT F200X.*)

3. Complete the following (major) requirements:*:
   - BIOL F115X—Fundamentals of Biology I**—4 credits
   - BIOL F116X—Fundamentals of Biology II**—4 credits
   - BIOL F271—Principles of Ecology—4 credits
   - CHEM F105X—General Chemistry***—4 credits
   - CHEM F106X—General Chemistry***—4 credits
   - ECON F235—Introduction to Natural Resource Economics—3 credits
   - NRM F101—Natural Resources Conservation and Policy—3 credits
   - NRM F106—Orientation to Natural Resource Management—1 credit
   - NRM F3040—Perspectives in Natural Resources Management—3 credits
   - NRM F380W—Soils and the Environment—3 credits
   - NRM F405W—Senior Thesis in Natural Resources Management I—2 credits
   - NRM F406W—Senior Thesis in Natural Resources Management II—2 credits

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 credits
ECON F3350—Intermediate Natural Resource Economics—3 credits
GEOS F101X—The Dynamic Earth—4 credits
NRM F204—Public Lands Law and Policy—3 credits
NRM F251—Silvics and Dendrology—4 credits
NRM F290—Resource Management Issues at High Latitudes—2 credits
NRM F338—Introduction to Geographic Information Systems—3 credits
NRM F340—Natural Resources Measurement and Inventory—3 credits
NRM F365W—Principles of Outdoor Recreation Management—3 credits
NRM F370—Introduction to Watershed Management—3 credits
NRM F430—Resource Management Planning—3 credits
NRM F450—Forest Management—3 credits
NRM F451W—Silviculture—3 credits
NRM F452—Forest Health and Protection—3 credits
NRM F453—Harvesting and Utilization of Forest Products—3 credits
WLF F201—Wildlife Management Principles (3)
or FISH F401W, O/2—Fisheries Management (3)—3 credits

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 credits
   FIRE—Any course on wildland fire control/management—3 credits
   GEOS F408—Photogeology—2 credits
   NRM F277—Introduction to Conservation Biology—3 credits
   NRM F300—Internship in Natural Resources Management*****—1 - 6 credits
   NRM F303X—Environmental Ethics and Actions******—3 credits
   NRM F312—Introduction to Range Management—3 credits
   WLF F201—Wildlife Management Principles (3)
or FISH F401W, O/2—Fisheries Management (3)—3 credits

2. Complete at least one of the following measurements courses:
   CE F112—Elementary Surveying—3 credits
   GEOS F422—Geoscience Applications of Remote Sensing—3 credits
   NRM F341—GIS Analysis—4 credits
   STAT F401—Regression and Analysis of Variance—4 credits
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* 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

**Plant, Animal and Soil Sciences 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 credits
   NRM F211—Introduction to Applied Plant Science—3 credits
   NRM F290—Resource Management Issues at High Latitudes—2 credits
   NRM F312—Range Management—3 credits
   NRM F320—Animal Science—3 credits
   NRM F480—Soil Management for Quality Conservation (3)
or NRM F485—Soil Biology* (3)—3 credits
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.

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   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 credits
   NRM F215—Plant Propagation—3 credits
   NRM F251—Silvics and Dendrology—4 credits
   NRM F312—Introduction to Range Management—3 credits
   NRM F313—Introduction to Plant Pathology—4 credits
   NRM F338—Introduction to Geographic Information Systems—3 credits
   NRM F340—Natural Resources Measurement and Inventory—3 credits
   NRM F341—GIS Analysis—4 credits
   NRM F370—Introduction to Watershed Management—3 credits
   NRM F404—Environmental Impact Statement Law—3 credits
   NRM F412—Field Crop Production—3 credits
   NRM F480—Soil Management for Quality and Conservation* (3)
   — or NRM F485—Soil Biology* (3)
   — or NRM F466—Environmental Soil Chemistry* (3)—3 credits

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 F3350—Intermediate Natural Resource Economics—3 credits
   GEOS F101X—The Dynamic Earth—4 credits
   NRM F204—Public Lands Law and Policy—3 credits
   NRM F251—Silvics and Dendrology—4 credits
   NRM F290—Resource Management Issues at High Latitudes—2 credits
   NRM F312—Introduction to Range Management (3)
   — or NRM F480—Soil Management for Quality and Conservation (3)—3 credits
   NRM F338—Introduction to Geographic Information Systems—3 credits
   NRM F340—Natural Resources Measurement and Inventory—3 credits
   NRM F365W—Principles of Outdoor Recreation Management—3 credits
   NRM F370—Introduction to Watershed Management—3 credits
   NRM F430—Resource Management Planning—3 credits
   WLF F201—Wildlife Management Principles (3)
   — or FISH F401W1O/2—Fisheries Management (3)—3 credits

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 credits
   ECON F437W—Regional Economic Development—3 credits
   FISH F261—Introduction to Seafood Science and Nutrition—3 credits
   FISH F401W1O/2—Fisheries Management—3 credits
   FIRE F256—Wildland Fire Planning and Multiple Use Management—3 credits
   GEOG F427—Cold Lands—3 credits
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 credits

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

D. ESTIMATED IMPACT
WHAT IMPACT, IF ANY, WILL THIS HAVE ON BUDGET, FACILITIES/SPACE, FACULTY, ETC.
None

E. IMPACTS ON PROGRAMS/DEPARTMENTS:
What programs/departments will be affected by this proposed action? Include information on the Programs/Departments contacted (e.g., email, memo)
None

F. IF MAJOR CHANGE - ASSESSMENT OF THE PROGRAM:
Description of the student learning outcomes assessment process.
None

The purpose of the department and campus-wide curriculum committees is to serve in the program/degree change applications to make sure that the quality of OUR education is not lowered as a result of the proposed change. Please address this in your response. This section needs to be self-explanatory. If you drop a course, is it because the material is covered elsewhere? Use as much space as needed to fully justify the proposed change and explain what has been done to ensure that the quality of the program is not compromised as a result.

Option changed to match department name change; Not necessary to list individual courses
APPROVALS:

Signature, Chair, Program/Department of: 
High Latitude Agriculture
Date 1-9-09

Signature, Chair, College/School Curriculum Council for: 
School of Natural Resources and Agricultural Sciences
Date 1-14-09

Signature, Dean, College/School of: 
Natural Resources and Agricultural Sciences
Date 1-15-09

ALL SIGNATURES MUST BE OBTAINED PRIOR TO SUBMISSION TO THE GOVERNANCE OFFICE

Signature, Chair, UAF Faculty Senate Curriculum Review Committee
Date