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)

SUBMITTED BY:

<table>
<thead>
<tr>
<th>Department</th>
<th>Geography</th>
<th>College/School</th>
<th>SNRAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepared by</td>
<td>Cary de Wit</td>
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<td>X7494</td>
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<td>Faculty Contact</td>
<td>Cary de Wit</td>
</tr>
</tbody>
</table>

See http://www.uaf.edu/ufagov/faculty/cd for a complete description of the rules governing curriculum & course changes.

PROGRAM IDENTIFICATION:

<table>
<thead>
<tr>
<th>DEGREE PROGRAM</th>
<th>Geography</th>
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</thead>
<tbody>
<tr>
<td>Degree Level: (i.e., Certificate, A.A., A.A.S., B.A., B.S., M.A., M.S., Ph.D.)</td>
<td>B.S.</td>
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</tbody>
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A. CHANGE IN DEGREE REQUIREMENTS: (Brief statement of program/degree changes and objectives)

Minor course name and number changes. No addition or removal of requirements.

B. CURRENT REQUIREMENTS AS IT APPEARS IN THE CATALOG:

**Major — B.S. Degree**

1. Complete the general university requirements.

2. Complete the B.S. degree requirements.

3. Complete the following required foundation courses:*
   - GEOG F101—Local Places, Global Regions: An Introduction to Geography—3 credits
   - GEOG F211X—Earth Systems: Elements of Physical Geography—4 credits
   - GEOG F312—People, Places, and Environment: Principles of Human Geography—3 credits
   - GEOG F338—An Introduction to GIS—3 credits
   - GEOG F490W,0—Geography Seminar—3 credits

4. Complete one of the following options:*  

   **Geography Option I — Environmental Studies**

   a. Complete the following:
      - GEOG F339—Maps and Landscape Analysis—3 credits
      - GEOG F401—Weather and Climate—3 credits
      - GEOG F402—Resources and Environment—3 credits
      - GEOG F408—Quantitative Research Techniques—3 credits

   b. Complete 6 credits from the following environmental studies electives:
      - GEOG/NRM F463—Wilderness Concepts—3 credits
      - NRM F303X—Environmental Ethics and Actions**—3 credits
      - NRM F407—Environmental Law—3 credits

   c. Complete 9 credits from the following environmental system electives:
      - ANTH F428W—Ecological Anthropology and Regional Sustainability***—3 credits
credits
BIOL F271—Principles of Ecology***—4 credits
BIOL/NRM F277—Introduction to Conservation Biology***—3 credits
GEOS F304—Geomorphology—3 credits
NRM F375—Forest Ecology***—3 credits
NRM F380W—Soils and the Environment***—3 credits
NRM/FISH F400W—Fisheries Science***—3 credits

d. Complete 3 credits from the following environmental management electives:
   FISH F401W,0/2—Fisheries Management***—3 credits
   NRM F365—Principles of Outdoor Recreation Management—3 credits
   NRM F430—Resource Management Planning—3 credits
   NRM/WLF F431—Wildlife Law and Policy***—3 credits
   NRM F450—Forest Management***—3 credits
   NRM F480—Soil Management for Quality and Conservation***—3 credits

e. Complete one of the following techniques courses:
   GEOG F301—Geographic Field Studies—3 credits
   GEOG F309—Cartography—4 credits
   GEOG F435—GIS Analysis—4 credits
   GEOS F458—Geoscience Applications of GPS & GIS***—3 credits

Geography Option II — Landscape Analysis and Climate Change Studies:

a. Complete B.S. degree options, STAT F200X or 300, and prerequisite courses
   BIOL F115X, BIOL F116X, and CHEM F105.

b. Complete the following Processes requirements (geomorphology, climate, ecology, systems):
   GEOG F401—Weather and Climate—3 credits
   GEOG F411—Pattern and Process in Subarctic and Arctic—3 credits
   GEOG F412—Geography of Climate and Environmental Change—3 credits
   BIOL F271—Principles of Ecology***—4 credits
   GEOS F304—Geomorphology***—3 credits
   BIOL F467—Ecosystems of Alaska***—3 credits
   or BIOL F469 O—Landscape Ecology and Wildlife Habitat (3)***
   or NRM F370—Watershed Management (3)***
   or NRM F380 W—Soils and the Environment(3)***
   or a processes-oriented content course approved by Geography faculty advisor.

c. Complete the following Patterns requirements (Field Methods, GIS/Remote Sensing Tools):
   GEOG F309—Cartography—4 credits
   GEOG F339—Maps and Landscape Analysis—3 credits
   GEOG F435—GIS Analysis—4 credits
   GEOS F458—Geoscience Applications***—3 credits
   Complete at least one of the following Patterns electives:
   GE F471—Remote Sensing for Engineering***—3 credits
   or GEOS F422—Geoscience Applications of Remote Sensing***—3 credits
   or GEOS F434—Remote Sensing of the Cryosphere***—3 credits
   or NRM F641—Remote Sensing Applications in Natural Resources***—4 credits

d. Complete the following Senior Practicum requirements (program synthesis):
   GEOG F488—Geographic Assessment and Prediction of Natural Hazards—3 credits
   GEOG F489W—Senior Practicum: Field Studies in Landscape Analysis & Climate Change—4 credits

Geography Option III — Geographic Information Science and Technology
(GIS&T)

a. Complete B.S. degree options, including prerequisite course, PHYS F103.

b. Complete the following GIS&T breadth:
   - CS F103—Introduction to Computer Programming***—3 credits
   - STAT F200X—Elementary Probability and Statistics***—3 credits
   - GEOG F339—Maps and Landscape Analysis—3 credits
   - GEOG F341—GIS Analysis—3 credits
   - NRM/GEOG F300—Internship in Natural Resources Management and Geography—3 credits

c. Complete at least two courses of remote sensing electives:
   - GE F471—Remote Sensing for Engineering***—3 credits
   - GEOS F422—Geoscience Applications of Remote Sensing***—3 credits
   - GEOS F434—Remote Sensing of Cryosphere***—3 credits
   - NRM F641—Remote Sensing Applications in Natural Resources—3 credits

d. Complete at least two courses of GIS electives:
   - GE F376—GIS in Geological and Environmental Engineering***—3 credits
   - GEOG F309—Cartography—4 credits
   - GEOS F458—Geoscience Applications of GPS & GIS***—3 credits
   - NRM F638—GIS Programming—3 credits

e. Complete at least two courses in Landscape electives:
   - BIOL F4690—Landscape Ecology and Wildlife Habitat***—3 credits
   - GEOS F304—Geomorphology***—3 credits
   - GEOS F408—Photogeology***—3 credits
   - GEOS F430—Statistics and Data Analysis in Geology***—3 credits

1. 5. Minimum credits required—120 credits

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**

1. Complete the general university requirements.

2. Complete the B.S. degree requirements.

3. Complete the following required foundation courses:*  
   - GEOG F101—Expedition Earth: Introduction to Geography Local Places, Global Regions: An Introduction to Geography—3 credits
   - GEOG F111X F211X Earth Systems and Environment: Elements of Physical Geography (n)—4 credits
   - GEOG F312—People, Places, and Environment: Principles of Human Geography—3 credits
   - GEOG F338—An Introduction to GIS—3 credits
   - GEOG F490W,O—Geography Seminar—3 credits

4. Complete one of the following options:*  

**Geography Option I — Environmental Studies**

a. Complete the following:
   - GEOG F339—Maps and Landscape Analysis—3 credits
   - GEOG F302 F401—Weather and Climate—3 credits
   - GEOG F402—Resources and Environment—3 credits
   - GEOG F207 F408—Research Methods and Statistics in Geography Quantitative
Research Techniques—3 credits

b. Complete 6 credits from the following environmental studies electives:
   GEOG/NRM F463—Wilderness Concepts—3 credits
   NRM F303X—Environmental Ethics and Actions***—3 credits
   NRM F407—Environmental Law***—3 credits

c. Complete 9 credits from the following environmental system electives:
   ANTH F428W—Ecological Anthropology and Regional Sustainability***—3 credits
   BIOL F271—Principles of Ecology***—4 credits
   BIOL/NRM F277—Introduction to Conservation Biology***—3 credits
   GEOS F304—Geomorphology—3 credits
   NRM F375—Forest Ecology***—3 credits
   NRM F380W—Soils and the Environment***—3 credits
   NRM/FISH F400W—Fisheries Science***—3 credits

d. Complete 3 credits from the following environmental management electives:
   FISH F401W/O/2—Fisheries Management***—3 credits
   NRM F365—Principles of Outdoor Recreation Management—3 credits
   NRM F430—Resource Management Planning—3 credits
   NRM/WLF F431—Wildlife Law and Policy***—3 credits
   NRM F450—Forest Management***—3 credits
   NRM F480—Soil Management for Quality and Conservation***—3 credits

e. Complete one of the following techniques courses:
   GEOG F301—Geographic Field Studies—3 credits
   GEOG F309—Cartography—4 credits
   GEOG F435—GIS Analysis—4 credits
   GEOS F458—Geoscience Applications of GPS & GIS***—3 credits

Geography Option II — Landscape Analysis and Climate Change Studies:

a. Complete B.S. degree options, STAT F200X or 300, and prerequisite courses
   BIOL F115X, BIOL F116X, and CHEM F105.

b. Complete the following Processes requirements (geomorphology, climate, ecology, systems):
   GEOG F302 F401—Weather and Climate—3 credits
   GEOG F418 F411—Biogeography Pattern and Process in Subarctic and Arctic—3 credits
   GEOG F412—Geography of Climate and Environmental Change—3 credits
   BIOL F271—Principles of Ecology***—4 credits
   GEOS F304—Geomorphology***—3 credits
   Complete one of the following Processes electives:
      BIOL F467—Ecosystems of Alaska***—3 credits
      or BIOL F469 O—Landscape Ecology and Wildlife Habitat (3)***
      or NRM F370—Watershed Management (3)***
      or NRM F380 W—Soils and the Environment(3)***
      or a processes-oriented content course approved by Geography faculty advisor.

c. Complete the following Patterns requirements (Field Methods, GIS/Remote Sensing Tools):
   GEOG F309—Cartography—4 credits
   GEOG F339—Maps and Landscape Analysis—3 credits
   GEOG F435—GIS Analysis—4 credits
   GEOS F458—Geoscience Applications***—3 credits
   Complete at least one of the following Patterns electives:
      GE F471—Remote Sensing for Engineering***—3 credits
      or GEOS F422—Geoscience Applications of Remote Sensing***—3 credits
or GEOS F434—Remote Sensing of the Cryosphere—3 credits  
or NRM F641—Remote Sensing Applications in Natural Resources—4 credits

d. Complete the following Senior Practicum requirements (program synthesis):  
GEOG F488—Geographic Assessment and Prediction of Natural Hazards—3 credits  
GEOG F489W—Senior Practicum: Field Studies in Landscape Analysis & Climate Change—4 credits

**Geography Option III — Geographic Information Science and Technology (GIS&T)**

a. Complete B.S. degree options, including prerequisite course, PHYS F103.

b. Complete the following GIS&T breadth:  
CS F103—Introduction to Computer Programming—3 credits  
STAT F200X—Elementary Probability and Statistics—3 credits  
GEOG F339—Maps and Landscape Analysis—3 credits  
GEOG F341—GIS Analysis—3 credits  
NRM/GEOG F300—Internship in Natural Resources Management and Geography—3 credits

c. Complete at least two courses of remote sensing electives:  
GE F471—Remote Sensing for Engineering—3 credits  
GEOS F422—Geoscience Applications of Remote Sensing—3 credits  
GEOS F434—Remote Sensing of Cryosphere—3 credits  
NRM F641—Remote Sensing Applications in Natural Resources—3 credits

d. Complete at least two courses of GIS electives:  
GE F376—GIS in Geological and Environmental Engineering—3 credits  
GEOG F309—Cartography—4 credits  
GEOS F458—Geoscience Applications of GPS & GIS—3 credits  
NRM F638—GIS Programming—3 credits

e. Complete at least two courses in Landscape electives:  
BIOL F4690—Landscape Ecology and Wildlife Habitat—3 credits  
GEOS F304—Geomorphology—3 credits  
GEOS F408—Photogeology—3 credits  
GEOS F430—Statistics and Data Analysis in Geology—3 credits

5. Minimum credits required—120 credits

**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.
JUSTIFICATION FOR ACTION REQUESTED

The purpose of the department and campus-wide curriculum committees is to scrutinize program/degree change applications to make sure that the quality of UAF 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.

These minor course name and number changes have been made only to more accurately reflect course content. No changes have been made to the educational content or requirements of the program.

APPROVALS:

[Signature, Chair, Geography]
[Date 14 April 2010]

[Signature, Chair, College/School Curriculum]
[Program/Department of: SNRAS]
[Date 14 April 2010]

[Signature, Dean, College/School of: SNRAS]
[Date 9-14-10]

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

[Signature, Chair, UAF Faculty Senate Curriculum Review Committee]
[Date]