

## **New Degree Program Request**

### **I. Proposal to Establish a New Degree Program: A Master's Degree in Natural Resources Management and Geography**

DATE:

PROPOSAL PREPARED BY:

John D. Fox, Associate Professor of Forest Sciences

Stephen D. Sparrow, Professor of Agronomy and Associate Dean

The School of Natural Resources and Agricultural Sciences (SNRAS) currently offers a Master of Science degree (MS) in Natural Resources Management (NRM) with 2 options: thesis and non-thesis. Faculty and students in SNRAS have been concerned over the years, that (1) the non-thesis option represents less work and rigor than the thesis option yet results in the same degree title, and (2) that the non-thesis option, while appropriate for the students' educational objectives, is inappropriately labeled as a Master of Science degree since the scientific method may not be directly involved.

We are hereby proposing to retain our MS/thesis degree for those graduate students whose educational objectives encompass discovering new knowledge and techniques by employing the scientific method as commonly understood. We are also proposing to drop the MS/non-thesis degree option and replace it with a new professional degree entitled Master of Natural Resource Management & Geography (MNRMG). This degree would be similar to our current non-thesis master degree but with a label consistent with the educational objectives. We anticipate that this action will eliminate any perceptions of inequity or implications of lesser quality. We are simply proposing to have two different degrees, each appropriate for two equally worthwhile and relevant set of educational objectives. This should also lead to clarity for potential students and remove any hesitation on the part of faculty to accept candidates with professional rather than scientific objectives.

SIGNATURE PAGE

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Chair, Forest Sciences Department DATE \_\_\_\_\_

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Chair, Geography Department DATE \_\_\_\_\_

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Chair, Plant, Animal, and Soil Sciences Department DATE \_\_\_\_\_

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Chair, Resources Management Department DATE \_\_\_\_\_

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Chair, School of Natural Resources and Agricultural Sciences Curriculum Council DATE \_\_\_\_\_

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Dean, School of Natural Resources and Agricultural Sciences DATE \_\_\_\_\_

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Dean of the Graduate School DATE \_\_\_\_\_

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President, UAF Faculty Senate DATE \_\_\_\_\_

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Chancellor, University of Alaska Fairbanks

DATE \_\_\_\_\_

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President, University of Alaska

DATE \_\_\_\_\_

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Chair, Board of Regents, University of Alaska

DATE \_\_\_\_\_

## II. Identification of the Program

### A. Description of the program

#### 1. Program title

Master of Natural Resource Management and Geography

#### 2. Credential level of the program: NA

#### 3. Admission requirements and prerequisites

Admission requirements conform to those of the UAF Graduate School.

The prerequisite for acceptance is a bachelor's degree from an accredited institution. If the bachelor's degree is not in natural resources management, geography, or a closely related field, then applicants must have at least at least two years of relevant professional experience.

#### 4. Course descriptions of required and recommended elective courses:

All required and recommended courses are already approved UAF courses, are listed in the UAF catalog, and are regularly offered.

#### 5. Requirements for the degree.

- a. Complete the general university requirements
- b. Complete the master's degree requirements
- c. Complete or have prior general familiarity with the major resource fields through prior course or experience. Deficiencies will be identified by the student's committee. Course requirements in any one field will depend on the needs of the candidate and the capabilities of the university.
- d. Complete or have prior course work within the program in computer science, statistical methods and basic economics. The student's committee will decide how any identified deficiencies in these areas will be met.
- e. Complete the following requirements
  - i. Courses (All of the required courses are currently distance delivered).

NRM 601--Research Methods in Natural Resources--2 credits  
or an approved research methods course\*

NRM 692--Graduate Seminar--3 credits  
 NRM 698—Non-thesis research/project--6 credits  
 Statistics course at the 400-level or above\*\*--3 credits  
 Additional approved courses--24 credits (these courses will be approved by the student's committee and SNRAS dean). Up to 9 of these credits may be 400 level courses. Students who have deficiencies in natural resources, geography, natural sciences, economics, or related fields, as determined by the student's committee, will be required to take courses to fulfill these deficiencies. These credits will not count towards the 35 credits required for the degree.

Example courses suitable for the program are listed in Appendix C

ii. Complete and successfully defend opus

f. Minimum credits required: 35

## **B. Program Goals**

The goals of the MNRMG degree are to provide coursework and training for (1) students who are currently working in or wish to work in the NRM/Geography (NRM/G) fields in a professional capacity, but who lack specific training or an appropriate undergraduate degree; (2) students seeking additional skills or advanced training in NRM/G in order to enhance their professional effectiveness and/or advance in their professional careers; and (3) students who wish to pursue the NRM/Peace Corp Masters program and focus on applying existing NRM/G technologies and knowledge in the context of the developing world and in conjunction with their Peace Corps assignment.

Because of the diversity and broad scope of the Natural Resources Management and Geography fields, the objectives of this degree will be tailored to each individual student in a manner similar to our current MS degree. The graduate committee will be the main body that assesses the student's background, individual deficiencies, and specific coursework needs. There will, however, be a minimal number of common courses that all will take, plus a requirement for an individual academic project addressing some existing NRM/G problem or issue. While not requiring scientific experimentation or sampling or the gathering of primary data, the work is expected to involve critical reflection, empirical inquiry, and intellectual honesty. A written product (opus) and an oral presentation demonstrating sound scholarship will be required. Final acceptance of the opus will be by the student's committee and the Associate Dean of SNRAS. It will not require review by the graduate school.

2. Relation to the "Purposes of the University".

UAF Strategic Plan 2010: The objectives of the proposed degree are commensurate with and follow from the general mission statement of UAF as stated in the UAF Strategic Plan 2010. To paraphrase, the mission is to advance and disseminate knowledge through teaching, research, and public service with an emphasis on Alaska, the circumpolar North, and their diverse peoples. Such a professional masters degree certainly aims to promote “academic excellence, student success and lifelong learning.”

Our proposal is also motivated by a desire to reconcile our degree titles with the student’s educational objectives. This seems particularly compatible with the specific goal of Strategic Plan 2010 to: “Refine measurable learning standards and competencies for all degree and certificate programs.” Our proposed program will also encourage scholarly work to be done to “address the needs of the Arctic and its indigenous people” within the context of wise and sustainable management of natural resources. It will allow us to “expand and improve both applied and collaborative research ventures” that takes existing scientific knowledge and techniques and applies them in a problem solving context. This vehicle, since it is distinct from the formal application of the scientific method, will broaden the field of study to include “indigenous knowledge” as related to natural resources management. This program may also help “increase Alaska Native enrollment in graduate programs” since it should attract students to work on meaningful problems where cultural and sociological components are important dimensions of managing resources in a meaningful way. Overall, this professional masters degree should contribute to the broad goals to “generate innovative and useful applications of research that benefit the state of Alaska” and to “grow strategic partnerships with public and private stakeholders, and increase collaboration with public and private employers in workforce preparation and development programs that are responsive to Alaska’s specific needs.”

SNRAS Strategic Plan: A few of the specific objectives listed to accomplish the broader goals spelled out in the School of Natural Resources and Agricultural Sciences (SNRAS) latest strategic plan (2004) which are supported by this degree program are the following:

- Establish a professional master’s degree program.
- Attract Alaskan Native students
- Maintain an environment that intellectually stimulates and rewards students of all points of view.
- Increase the use of teleconferences to enhance our distance-delivery capabilities.
- Recruit more qualified graduate students
- Foster or develop new funding sources for research problems important to Alaska communities, resources professionals, and unique Alaska problems and issues.
- Establish a new senior geography faculty position with an associated research program that compliments existing areas of research and builds new recognition for geography at UAF.
- Increase capabilities and projects in resource planning, recreation, and nonmarket valuation of resources.
- Expand faculty expertise in social sciences and develop integrated, natural science-social science research.

- Offer instruction for practicing resource management professionals in: geographic information systems, soil science, and ecosystem management.
  - Offer instruction for resource users and the public in crop and livestock management, horticulture, and forest management.
3. Occupational competencies to be achieved.

Students completing a MNRMG degree will bring a wide range and diverse set of skills to the job market and/or to their current employers. Earning a professional master's degree will not only focus the student's marketability for new employment but will open meaningful career advancement pathways for the existing employee and enhance their contribution to the employer's mission. Examples range from advanced technical skills in areas such as geographic information systems (GIS) and resource inventory, to more effective planning and community involvement strategies. We might be looking at the creation of useful guidebooks and manuals for tackling specific resource problems or effectively designing new, or navigating existing, legal and policy frameworks. Since each student's program will be tailored to their needs and objectives, there are almost limitless ways in which occupational competencies could be achieved.

### **III. Personnel Directly Involved with Program**

#### **A. List of faculty involved in the program including brief statement of duties and qualifications:**

All tenured and tenure track faculty in the School of Natural Resources and Agricultural Sciences will be involved in the program through teaching courses, serving as major advisors, and serving on graduate committees. A list of faculty and their areas of expertise are listed in Appendix A.

#### **B. Administrative and coordinating personnel:**

The program will be coordinated primarily by the associate dean (Stephen D. Sparrow), with assistance from each of the department heads or program directors (Drs. Joshua Greenberg, Milan Shipka, John Yarie, and Mike Sfraga).

#### **C. Classified support personnel** will include two department administrative assistants and the assistant to the dean.

### **IV. Enrollment Information**

#### **A. Projected enrollment/present enrollment**

We project 10 students per year for the first three years

**B. How determined/who surveyed/how surveyed**

A web-based survey, which was open to anyone but was targeted primarily towards people currently working in natural resource related fields in Alaska, was conducted. We received 62 responses, of which 51 stated they were highly likely or likely to seek this degree if it were offered. The survey indicated a diverse mix of interests within the field of natural resources management and geography. About one-half of the respondents indicated they would like to take most of their course through distance delivery rather than on-campus. Results of the survey are provided in Appendix B.

**C. Minimum enrollment to maintain the program for years 1, 2, 3, 4, and 5:**

5 students per year.

**D. Maximum enrollment which the program can accommodate**

The maximum enrollment the program can accommodate is 15 students. The main limiting factor will be available faculty workloads to allocated for advising students and serving on student graduate committees.

**V. Need for Program****A. Required for other programs. In what way? How has this requirement been met to date?**

This degree program is integral to meeting our students' needs and is complementary and therefore necessary for the current M.S. degree in Natural Resources Management. It will also be an important component of the recently approved Peace Corp Masters International Program at UAF.

**B. Employment market needs**

This program is designed primarily for people already employed in natural resource fields, but who want to improve or advance in their job status, and as such it is not expected to produce large cohorts of graduates needing employment. Informal interviews with supervisors at AK DNR, U.S. Department of Interior and other natural resource agencies indicated this degree program would have a positive impact on their agencies by producing employees with more advanced skills. Our survey to prospective students indicates a need (see IV. B.). Trends are towards increasing education requirements in natural resources related jobs means due to increased competition for those jobs, even for entry level positions, and many are now being hired at the Master's level. Thus, this degree will also be beneficial for people wishing to get into natural resource management professions.

**VI. Other**

The current NRM M.S. program has averaged about 25 students over the past several years. However, most of these students have been in the thesis option, primarily because faculty have discouraged students in the non-thesis option. This program will provide a niche for students desiring a master's degree in natural resource or geographic fields, but who do not wish or need a Master of Science and who not wish or need to write a traditional thesis for advancing their education.

## **VII. Resource Impact**

### **A. Budget**

This degree program will use existing SNRAS faculty and existing NRM and GEOG courses, and will therefore not require additional budget commitment. It will increase class size for some NRM and GEOG classes and will require additional graduate advising by faculty. It will, therefore, require shifts in allocation of faculty workloads. Effects on support staff workloads will be minimal. It will not require additional faculty.

### **B. Facilities/space needs**

Since the program will use existing UAF courses and these students will not need UAF offices or desks, the program will not require additional UAF space. Since many of the courses offered to students in the program will be via distance delivery, it will put additional demand on existing distance delivery facilities within SNRAS and will require careful scheduling for use of those facilities.

### **C. Credit hour production**

### **D. Faculty**

The program will increase class size for some NRM and GEOG classes and will require additional graduate advising by faculty. Thus, it will require shifts in allocation of faculty workloads.

### **E. Library/Media materials**

Current Library holdings are sufficient for the program. The program will not significantly increase demands on Library resources.

## **VIII. Relation of Program to other Programs within the System**

**A. Effects on enrollments elsewhere in the system**

The only impact on other programs is likely to be a slight increase in enrollments in courses in other programs which students may use as electives for meeting their degree requirements.

**B. Does it duplicate/approximate programs anywhere in the system**

The proposed degree program does not duplicate and is not expected to compete with other degree programs at any MAU with the UA system.

**C. How does the program relate to research or service activities?**

This degree program enable employees in natural resources related jobs to be more proficient in solving real problems and in evaluating and using research relating to the management of natural resources. It will also encourage scholarly work to be done to address the needs Alaska within the context of wise and sustainable management of natural resources. It will allow us to expand and improve applied research endeavors that takes existing scientific knowledge and techniques and applies them in a problem solving context. Overall, this professional masters degree will generate innovative and useful applications of research that benefit the state of Alaska. It will also enhance strategic partnerships with public and private stakeholders, and increase collaboration with public and private employers in workforce preparation and development programs that are responsive to Alaska's specific needs.

**IX. Implementation/Termination****A. Date of implementation**

Fall 2008

**B. Plans for recruiting students**

Primary contact will be through employers of potential students. Websites have become a primary recruitment tools for graduate students; we will develop webpage describing the MNRMG program which will be part of the SNRAS website. Also, a program brochure will be developed which will distributed to potential students. Many alumni of the NRM and Geography programs currently work in natural resources and geography related fields and are or have contact with potential students. Thus, we will use contacts with alumni as one avenue for recruiting students.

**C. Termination date**

We intend this to be a permanent degree and therefore no termination date is planned.

**D. Plans for phasing out program if it proves unsuccessful**

The program will be terminated if enrollment falls so low that the program is judged to be no longer viable or if loss of faculty makes it impossible to offer the degree. The latter would occur only if such factors caused termination of the NRM M.S. degree program. Once a decision is made to terminate the program, new students will not be accepted; efforts will be made to give those already in the program a reasonable opportunity to complete the degree.

**E. Assessment of the program**

The program will be assessed annually as part of the current NRM assessment plan (attached in appendix D).

## **Appendix A. Tenured and Tenure Track Faculty in the School of Natural Resources and Agricultural Sciences**

### **Forest Sciences Department**

John Yarie, Ph.D. (department head), Professor of Silviculture  
Areas of expertise: Forest management, forest ecology

John D. Fox, Jr., Ph.D., Associate Professor of Forest Sciences  
Areas of Expertise: Hydrology, watershed management, landscape level management.

Glenn P. Juday, Ph.D., Professor of Plant Ecology  
Areas of expertise: Plant ecology, conservation biology, climate change

Jinjing Liang, Assistant Professor of Forestry,  
Area of expertise: Forest growth and yield, wildfire economics, forest management, biodiversity

T. Scott Rupp, Ph.D., Associate Professor of Forestry  
Areas of expertise: Forest ecology, forest mensuration, fire ecology

David Valentine, Ph.D., Associate Professor of Forest Science  
Areas of expertise: Forest soils, ecosystem nutrient cycling

David Verbyla, Ph.D., Professor of Geographic Information Systems  
Areas of expertise: Remote sensing, geographic information systems

### **Geography Department**

Mike Sfraga, Ph.D., (director of UA Geography Program), Assistant Professor of Geography  
Areas of expertise: Polar geography, geography of Alaska, field science history, history of northern science

Kenneth Barrick, Ph.D. Associate Professor of Geography  
Areas of expertise: Physical geography, environmental studies, wilderness management

Cary de Wit, Ph.D. Associate Professor of Geography  
Areas of expertise: cultural geography, North American regional cultures, rural cultures, perceptual geography, and sense of place

### **Plant, Animal, and Soil Sciences Department**

Milan Shipka, Ph.D. (department head), Professor of Animal Science  
Areas of expertise: Animal reproduction and management

Norman R. Harris, Ph.D., Assistant Professor of Range Management  
Areas of expertise: Near earth remote sensing, range resources

Patricia Holloway, Ph.D. Professor of Horticulture  
Areas of expertise: Botanical gardens, native plant cultivation, greenhouse management

Meriam Karlsson, Ph.D., Professor of Horticulture  
Areas of expertise: High latitude vegetable and berry cultivation, floriculture, greenhouse and controlled environment horticulture

Jenifer McBeath, Ph.D. Professor of Plant Pathology and Biotechnology  
Areas of expertise: Plant diseases

Chien-Lu Ping, Ph.D., Professor of Soil Science  
Areas of expertise: Arctic soils, soil genesis and classification, soil organic matter

P. Jeffery Smeenk, Ph.D., Assistant Professor of Horticulture  
Areas of expertise: Horticulture extension,

Stephen D. Sparrow, Ph.D., Professor of Agronomy  
Areas of expertise: Soil management, nutrient cycling in soils, forage crops

Mingchu Zhang, Ph.D., Assistant Professor of Agronomy  
Areas of expertise: High latitude cropping systems, soil management, nutrient cycling

### **Resources Management Department**

Joshua Greenberg, Ph.D. (department head), Associate Professor of Resource Economics  
Areas of expertise: Resource economics

Peter Fix, Ph.D., Assistant Professor of Resource Management  
Areas of expertise: Outdoor recreation management, human dimensions of natural resource management

Gary Kofinas, Ph.D., Associate Professor of  
Areas of expertise: Human dimensions of northern resource management, sustainability of communities, community resource management systems, local knowledge in ecological monitoring and integrated assessment.

Julie Lurman, J.D., Assistant Professor of  
Areas of expertise: Natural resources law and policy

Susan Todd, Ph.D., Associate Professor of Regional and Land Use Planning  
Areas of expertise: Land use planning, conflict resolution, international natural resource management

## Appendix B. Results for Professional Master's Degree Interest Survey

Question # 1. I would be interested in a professional degree program in natural resources management through UAF.

Highly likely	Likely	Neutral	Unlikely	Highly unlikely
25	26	4	7	0

Question # 2. I would be interested in taking most of my courses at a UA campus.

Highly likely	Likely	Neutral	Unlikely	Highly unlikely
25	20	8	6	3

Question # 3. I would be interested in a program that required a mix of distance-delivered and in-person coursework.

Highly likely	Likely	Neutral	Unlikely	Highly unlikely
17	22	9	10	4

Question # 4. I would be ONLY interested in a program that did not require in-person coursework at UAF.

Highly likely	Likely	Neutral	Unlikely	Highly unlikely
8	9	21	12	12

Question # 5. I believe my current employer would be willing to contribute financially to my work on an advanced degree.

Highly likely	Likely	Neutral	Unlikely	Highly unlikely
7	15	16	15	9

Question # 6. I believe a professional master's degree in natural resources management would help me reach the following objectives:

Increase/update technical skills	36
Contribute to solving a particular natural resources problem or issue	26
Advance my current career/organization	32
Obtain new employment	16
Explore a personal interest in NRM	20

Question # 7. I would prefer to:

Work full time while pursuing my degree	40
Work part-time while pursuing my degree	15
Pursue my degree full-time on campus	10

Question # 8. I believe my current employer would likely

Require me to work full-time while pursuing my degree	29
Allow me to work part-time while pursuing my degree	12
Allow me to take courses while on duty	5
Allow me to take a leave-of-absence so that I could pursue my degree full-time	7

Question # 9. Indicate areas of advanced training you would find of interest

Adaptive management	14
Agriculture	7
Animal Husbandry	3
Business aspects of resources Management	23
Conflict resolution	22
Conservation biology	20
Crop management	3
Ecosystem management	27
Ecosystem restoration	31
Eco-tourism	15
Fire management	12
Forest ecology/management	17
Geographic Information Systems	33
Geography	14
Greenhouse management	5
Horticulture	4
Outdoor recreation management	20
Pest management	4
Resource planning	25
Resource policy and law	34
Public administration/public relations	31
Resource economics	22
Resource inventory techniques	11
Risk management	19
Silviculture	4
Simulation modeling	10
Soil management	17
Sustainable resource Management	32
Watershed management	31
Wilderness management	22

Question # 10. Where do you currently reside?

Urban Alaska	Rural Alaska	Outside Alaska
43	1	12

Question # 11. Are you currently employed in a natural resources management field?

Yes	No
31	25

Question # 12. What is your highest level of formal education?

High school diploma	0
Some college work	6
B.S.	27
B.A.	15
Master's	13
Ph.D.	2
Other	0

**Appendix C. A Partial List of Elective Courses which are Suitable for Meeting the Requirements of the Master of .....**

GEOG 627, Geography of Cold Lands, offered every spring semester  
 GEOG/NRM 663, Wilderness Concepts, offered every fall semester  
 GEOG/NRM 638, GIS Programming, offered in alternate spring semesters (odd years)  
 NRM 630, Resource Management Planning, offered every spring semester  
 NRM 631, Resource Planning Practicum, offered as demand warrants  
 NRM 632, Literature of Science and the Environment, offered as demand warrants  
 NRM 637, Natural Resource Policy, offered as demand warrants  
 NRM 640, Simulation and Modeling in Resource Management, offered alternate spring semesters (odd years)  
 NRM 641, Natural Resource Applications of Remote Sensing, offered in alternate spring semesters (even years)  
 NRM 647, Regional Sustainability, offered every fall semester  
 NRM 648, Integrative Modeling of Natural and Social Systems, offered every fall semester  
 NRM 649, Adaptive Management, offered every spring semester  
 NRM 651, Advance Silviculture, offered alternate spring semesters (odd years)  
 NRM 665, Advance Outdoor Recreation, offered alternate fall semesters (odd years)  
 NRM 670, Biometeorology, offered alternate fall semesters (odd years)  
 NRM 672, Nutrient Cycling, offered alternate spring semesters (odd years)  
 NRM 675, Theoretical Forest Ecosystem Science, offered alternate spring semester (even years)  
 NRM 678, Ecosystem Management, offered alternate spring semesters (even years)  
 NRM 681, Natural Area Protection and Management, offered alternate spring semesters (even years)  
 NRM 685, Soil Microbiology and Biochemistry, offered as demand warrants  
 NRM 688, Land Management of Ecosystems, offered every spring  
 NRM 689, Alaska Soil Geography Field Trip, offered in summer, as demand warrants  
 BIOL 614, Foraging Ecology, offered alternate fall semesters (even years)  
 BIOL 615, Systematic and Comparative Biology, offered alternate spring semesters (odd years)  
 BIOL 618, Biogeography, offered alternate spring semesters (even years)  
 BIOL 622, Readings in Conservation Biology, offered alternate spring semesters (odd years)  
 BIOL 650, Fish Ecology, offered in alternate fall semesters  
 BIOL 659, Wildlife Nutrition, Offered every fall semester  
 BIOL 669, Landscape Ecology and Wildlife Habitat, offered every spring semester  
 BIOL 672, Ecosystem Processes, offered in alternate fall semesters (odd years)  
 CHEM 655, Environmental Biochemistry and Toxicology, offered in alternate fall semester (even years)  
 ECON 621, Fundamentals of Economics, offered every fall semester  
 ECON 635, Renewable Resource Economics, offered every fall semester

ECON 636, Non-renewable Resource Economics, offered every spring semester  
ECON 639, Energy Economics, offered in alternate spring semesters (odd years)  
ENVE 442, Contaminant Hydrology, offered in alternate spring semesters (odd years)  
ENVE Air Pollution Management, offered as demand warrants  
ENVE 644, Environmental Management and Law, offered in alternate spring semesters  
(even years)  
ENVE 648, Solid Waste Management, offered in alternate spring semesters (even years)  
ENVE 649, Hazardous and Toxic Waster Management, offered in alternate fall semesters  
(odd years)  
ENVE 651, Environmental Risk Management, offered in alternate spring semesters  
FISH 602, Advance Fisheries Management, offered in alternate spring semesters  
FISH 612, Fish Conservation Biology, offered in alternate fall semester  
FSN 611, International Food Marketing Systems, offered in Kodiak, as demand warrants  
FSN 614, Food Marketing Management, offered in Kodiak, every spring semester  
GEOS 616, Permafrost, offered in alternate spring semesters (even years)  
GEOS 629, Geologic Hazards and Natural Disasters, offered in alternate spring semesters  
(even years)  
GEOS 633, Environmental Geochemistry, offered in alternate spring semesters  
NORS 613, Wilderness and Environmental Psychology, offered in alternate fall  
semesters (even years)  
NORS 647, U.S. Environmental Politics, offered in alternate spring semesters  
NORS 648, Environmental Politics of the Circumpolar North, offered in alternate spring  
semesters (odd years)

**Appendix D. NRM Outcomes Assessment Plan**

**Academic Outcomes Assessment Plan**

**M.S. IN NATURAL RESOURCES MANAGEMENT AND MASTER OF NATURAL RESOURCE MANAGEMENT AND GEOGRAPHY (MNRMG)**

<b>EXPANDED STATEMENT OF INSTITUTIONAL PURPOSE</b>	<b>INTENDED OUTCOMES/OBJECTIVES</b>	<b>ASSESSMENT CRITERIA AND PROCEDURES</b>	<b>IMPLEMENTATION</b>
<p><b>Mission Statement:</b>                      UAF and the School Natural Resources and Agricultural Sciences is committed to providing quality graduate education through small classes, close student-faculty relationships and research and scholarly endeavor. Continuous self-examination, flexibility and openness to innovation enhance the quality of graduate education available to students.</p> <p>The hallmark of the graduate program in Natural Resources Management is its recognition of individual differences and interests of students, and responding to these individual needs.</p>	<p>1) Graduates will have the skills to participate responsibly in the decision making process about the use of natural resources.</p> <p>2) Graduates are able to synthesize knowledge for applications in resource issues to reach management decisions.</p>	<p>1) Establish an advanced level of knowledge about natural resources and their management.</p> <p>2a) Provide a measure of the student’s ability to analyze information and determine relevance to specific issues.</p> <p>2b) Assess the ability of the student to define, analyze and finalize a project, reach conclusions, and make decisions and recommendations.</p>	<p>1) Require a comprehensive examination to be administered in the second year of enrollment in a graduate program. Questions will address basic knowledge in mathematics, science, and economics related to natural resources and their management and appropriate course work chosen by the student and their committee.</p> <p>2) The graduate M.S. thesis, MNRMG opus, or Ph.D. dissertation is evaluated for analytical skills and ability to make decisions and draw conclusions.</p>

<p><b>Goal Statement:</b> Natural resources management MS, MNRMG, and Interdisciplinary Ph.D. graduates will be professionals. They will make responsible natural resources management decisions, implement successful long-term management for protection and maintenance of ecosystems while meeting the needs and values of humans.</p>	<p>3) Graduates are proficient in communicating their knowledge in oral and written format to scientists, agencies and private sector personnel at state, national, and international levels.</p> <p>4) Graduates are prepared to enter or advance in careers in natural resources management.</p>	<p>3) Assess the ability of the student to communicate information to clientele both in written format and orally.</p> <p>4) Assess the necessity for adjustments in the graduate curriculum.</p>	<p>3a) The MS thesis, MNRNG opus, or Ph.D. dissertation is evaluated for clarity in written communication.</p> <p>3b) The oral presentation of the MS thesis, MNRMG opus, or Ph.D. dissertation is evaluated for communication skills.</p> <p>4a) Administer an employer survey</p> <p>4b) Administer an alumni survey.</p> <p>4c) Provide the opportunity for an exit interview.</p>
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