

Submit originals and one copy and electronic copy to **Governance/Faculty Senate Office**. See <http://www.uaf.edu/uafgov/faculty/cd> for a complete description of the rules governing curriculum & course changes.

**CHANGE COURSE (MAJOR) and DROP COURSE PROPOSAL**

**SUBMITTED BY:**

Department	<b>Forest Sciences Dept</b>	College/School	<b>SNRAS</b>
Prepared by	<b>J. Yarie</b>	Phone	<b>5650</b>
Email Contact	<b>jaryarie@alaska.edu</b>	Faculty Contact	<b>J. Yarie</b>

**1. COURSE IDENTIFICATION:**

Dept	<b>NRM</b>	Course #	<b>340</b>	No. of Credits	<b>3</b>
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<b>COURSE TITLE</b>	<b>Natural Resources Measurement and Inventory</b>
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**2. ACTION DESIRED:**

Change Course	<input checked="" type="checkbox"/>	If Change, indicate below what change.	Drop Course	<input type="checkbox"/>	
<b>NUMBER</b>	<input checked="" type="checkbox"/>	<b>TITLE</b>	<input type="checkbox"/>	<b>DESCRIPTION</b>	<input checked="" type="checkbox"/>
<b>PREQUISITES</b>	<input type="checkbox"/>	<b>FREQUENCY OF OFFERING</b>	<input type="checkbox"/>		
<b>CREDITS (including credit distribution)</b>	<input type="checkbox"/>	<b>COURSE CLASSIFICATION</b>	<input type="checkbox"/>		
<b>CROSS-LISTED</b>	<input type="checkbox"/>	Dept.	<input type="checkbox"/>	(Requires approval of both departments and deans involved. Add lines at end of form for such signatures.)	
<b>STACKED (400/600)</b>	<input type="checkbox"/>	Dept.	<input type="checkbox"/>	Course #	<input checked="" type="checkbox"/>
<b>OTHER (please specify)</b>	<input type="text"/>				

**3. COURSE FORMAT**

NOTE: Course hours may not be compressed into fewer than three days per credit. Any course compressed into fewer than six weeks must be approved by the college or school's curriculum council. Furthermore, any core course compressed to less than six weeks must be approved by the core review committee.

<b>COURSE FORMAT:</b> (check one)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input checked="" type="checkbox"/> 6 weeks to full semester
<b>OTHER FORMAT (specify)</b>	<input type="text"/>					
<b>Mode of delivery (specify lecture, field trips, labs, etc)</b>	<b>2 hours/week lecture and 3 hours/week lab</b>					

**4. COURSE CLASSIFICATIONS:** (undergraduate courses only. Use approved criteria found on Page 10 & 17 of the manual. If justification is needed, attach on separate sheet.)

H = Humanities	<input type="checkbox"/>	N = Natural Science	<input type="checkbox"/>	S = Social Sciences	<input type="checkbox"/>
Will this course be used to fulfill a requirement for the baccalaureate core?	<input type="checkbox"/>	YES	<input checked="" type="checkbox"/>	NO	<input type="checkbox"/>
IF YES, check which core requirements it could be used to fulfill:	<input type="text"/>				
O = Oral Intensive, Format 6	<input type="checkbox"/>	W = Writing Intensive, Format 7	<input type="checkbox"/>	Natural Science, Format 8	<input type="checkbox"/>

**5. COURSE REPEATABILITY:**

Is this course repeatable for credit?	<input type="checkbox"/>	YES	<input checked="" type="checkbox"/>	NO	<input type="checkbox"/>
Justification: Indicate why the course can be repeated (for example, the course follows a different theme each time).	<input type="text"/>				
How many times may the course be repeated for credit?	<input type="text"/>	TIMES			

If the course can be repeated with variable credit, what is the maximum number of credit hours that may be earned for this course?

CREDIT  
S

6. **CURRENT CATALOG DESCRIPTION AS IT APPEARS IN THE CATALOG: including dept., number, title and credits**

NRM F340 – Natural Resources Measurement and Inventory

3 Credits

Offered Fall

Techniques and instrumentations used to measure and inventory natural resources, including land, timber, range, wildlife, water and recreation resources. Prerequisites: Junior standing or permission of instructor. (2+3)

7. **COMPLETE CATALOG DESCRIPTION AS IT WILL APPEAR WITH THESE CHANGES: (Underline new wording ~~strike through old wording~~ and use complete catalog format including dept., number, title, credits and cross-listed and stacked.) PLEASE SUBMIT NEW COURSE SYLLABUS. For stacked courses the syllabus must clearly indicate differences in required work and evaluation for students at different levels.**

NRM ~~F340~~ **F240**– Natural Resources Measurement and Inventory

3 Credits

Offered Fall

Techniques and instrumentations used to measure and inventory natural resources, including land, timber, range, wildlife, water and recreation resources. Prerequisites: ~~Junior standing or permission of instructor~~ **Math 107**. (2+3)

8. **IS THIS COURSE CURRENTLY CROSS-LISTED?**

YES/NO

No

If Yes, DEPT

NUMBER

(Requires written notification of each department and dean involved. Attach a copy of written notification.)

9. **GRADING SYSTEM:**

LETTER

X

PASS/FAIL:

10. **ESTIMATED IMPACT**

WHAT IMPACT, IF ANY, WILL THIS HAVE ON BUDGET, FACILITIES/SPACE, FACULTY, ETC.

**This change will have no impact on budget, facilities/space or faculty time currently required for the course at the 300 level.**

11. **LIBRARY COLLECTIONS**

Have you contacted the library collection development officer (ffklj@uaf.edu, 474-6695) with regard to the adequacy of library/media collections, equipment, and services available for the proposed course? If so, give date of contact and resolution. If not, explain why not.

No

X

Yes

**Current versions of required reading are available.**

12. **IMPACTS ON PROGRAMS/DEPTS:**

What programs/departments will be affected by this proposed action?

Include information on the Programs/Departments contacted (e.g., email, memo)

**This change is part of a major change in the Natural Resources curriculum that will be taking place**

next academic year. It will have no affect on other programs/departments. This course is viewed as an important introductory course for a large number of upper level courses required for the degree.

**13. POSITIVE AND NEGATIVE IMPACTS**

Please specify **positive and negative** impacts on other courses, programs and departments resulting from the proposed action.

**Positive impacts – the change to lower division status will have no impacts on programs or departments. This change will result in students with a greater understanding of methods used to develop basic statistics on natural resource components. This understanding will give the students fundamental background that can be used in upper division classes.**

**Negative impacts – the change will require the development of slightly different presentations to class of the course material so that it can be presented at the sophomore level. The major negative impact will be on the instructor in the preparation of lecture material. So the major impact will be on faculty workload time.**

**JUSTIFICATION FOR ACTION REQUESTED**

The purpose of the department and campus-wide curriculum committees is to scrutinize course change and new course 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 ask for a change in # of credits, explain why; are you increasing the amount of material covered in the class? If you drop a prerequisite, is it because the material is covered elsewhere? If course is changing to stacked (400/600), explain higher level of effort and performance required on part of students earning graduate credit. 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 course is not compromised as a result.

**Course is changed to lower division status to act as a prerequisite for a number of upper division courses. Material to be presented in the course represents a knowledge foundation to allow students to analyze resource inventory reports that will be required reading for a number of subsequent classes.**

SEE ATTACHED SIGNATURES

**APPROVALS:**

	Date	
Signature, Chair, Program/Department of:		

	Date	
Signature, Chair, College/School Curriculum Council for:		

	Date	
Signature, Dean, College/School of:		

	Date	
Signature of Provost (if applicable)		

Offerings above the level of approved programs must be approved in advance by the Provost.

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

	Date	
Signature, Chair, UAF Faculty Senate Curriculum Review Committee		

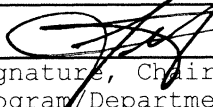
**the course material so that it can be presented at the sophomore level.**

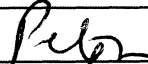
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**APPROVALS:**

 Date **10-4-13**  
Signature, Chair, Program/Department of: **Humans & the Environment**

 Date **10/4/13**  
Signature, Chair, College/School Curriculum Council for: **SNRAJ**

**SEE NEXT PAGE** Date \_\_\_\_\_  
Signature, Dean, College/School of: \_\_\_\_\_

\_\_\_\_\_  
Signature of Provost (if applicable)  
Offerings above the level of approved programs must be approved in advance by the Provost.

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

\_\_\_\_\_  
Signature, Chair, UAF Faculty Senate Curriculum Review Committee

Date \_\_\_\_\_

**ADDITIONAL SIGNATURES: (If required)**


	Date	
Signature, Chair, Program/Department of:		
	Date	
Signature, Chair, College/School Curriculum Council for:		
<i>J. Yari</i>	Date	<i>10/4/13</i>
Signature, Dean, College/School of:	<i>SNRAS</i>	



Office of the Dean & Director  
P.O. Box 757140  
Fairbanks, Alaska  
99775-7140  
Phone: (907) 474-7083  
Fax: (907) 474-6567  
email: uaf-snras-afes@alaska.edu

**School of Natural Resources and Agricultural Sciences**  
**Agricultural and Forestry Experiment Station**

**M E M O R A N D U M**

**TO:** Susan Henrichs, Provost 

**FROM:** Stephen D. Sparrow, ~~Interim~~ Dean and Director  
School of Natural Resources and Agricultural Sciences  
Agricultural and Forestry Experiment Station

**DATE:** September 27, 2013

**RE:** Signature Authority

I will be in Girdwood for the 8<sup>th</sup> Circumpolar Agricultural Conference/University of the Arctic Inaugural Food Summit meetings September 29-October 3, and Palmer October 4. During my absence, Professor John Yarie will have signature authority for all routine paperwork for the School of Natural Resources and Agricultural Sciences and Agricultural and Forestry Experiment Station.

**ATTACH COMPLETE SYLLABUS (as part of this application).**

Note: syllabus must follow the guidelines discussed in the Faculty Senate Guide

<http://www.uaf.edu/uafgov/faculty/cd/syllabus.html>.

The department and campus wide curriculum committees will review the syllabus to ensure that each of the items listed below are included. If items are missing or unclear, the proposed course change will be denied.

**SYLLABUS CHECKLIST FOR ALL UAF COURSES**

During the first week of class, instructors will distribute a course syllabus. Although modifications may be made throughout the semester, this document will contain the following information (as applicable to the discipline):

**1. Course information:**

Title,  number,  credits,  prerequisites,  location,  meeting time (make sure that contact hours are in line with credits).

**2. Instructor (and if applicable, Teaching Assistant) information:**

Name,  office location,  office hours,  telephone,  email address.

**3. Course readings/materials:**

Course textbook title,  author,  edition/publisher.  
 Supplementary readings (indicate whether  required or  recommended) and  
 any supplies required.

**4. Course description:**

Content of the course and how it fits into the broader curriculum;  
 Expected proficiencies required to undertake the course, if applicable.  
 Inclusion of catalog description is *strongly* recommended, and  
 Description in syllabus must be consistent with catalog course description.

**5.  Course Goals (general) and  Student Learning Outcomes (more specific)**

**6. Instructional methods:**

Describe the teaching techniques (eg: lecture, case study, small group discussion, private instruction, studio instruction, values clarification, games, journal writing, use of Blackboard, audio/video conferencing, etc.).

**7. Course calendar:**

A schedule of class topics and assignments must be included. Be specific so that it is clear that the instructor has thought this through and will not be making it up on the fly (e.g. it is not adequate to say "lab". Instead, give each lab a title that describes its content). You may call the outline Tentative or Work in Progress to allow for modifications during the semester.

**8. Course policies:**

Specify course rules, including your policies on attendance, tardiness, class participation, make-up exams, and plagiarism/academic integrity.

**9. Evaluation:**

Specify how students will be evaluated,  what factors will be included,  their relative value, and  
 how they will be tabulated into grades (on a curve, absolute scores, etc.)

**10. Support Services:**

Describe the student support services such as tutoring (local and/or regional) appropriate for the course.

**11. Disabilities Services:**

The Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials.

State that you will work with the Office of Disabilities Services (208 WHIT, 474-5655) to provide reasonable accommodation to students with

disabilities."



## **NRM 240 – Natural Resources Measurement and Inventory**

**Instructor** – Dr. John Yarie

**Lectures** - MWF 10:30 -11:30 (183 Arctic Health Bldg)

**Lab** – Thur 2:00 – 5:00 (359 O’Neill Bldg)

**Office Hrs** – Yarie - 337 O’Neill, 8A – 11A MTWT.

Fix – 323 O’Neill,

**Telephone No.** - 474-5650 (Yarie); 474-6626 (Fix)

**Email** - [jyarie@alaska.edu](mailto:jyarie@alaska.edu)

### **Textbook and additional reading material:**

Avery, Thomas Eugene and Harold E. Burkhart. 2002. Forest Measurements. McGraw-Hill.456 pgs

In addition course material will be provided via Blackboard, with occasional handouts in class and web links.

Books to be placed on reserve in the library are:

Husch, Bertram, Charles I. Miller and Tomas W. Beers 1982. Forest Mensuration. John Wiley & Sons. 402 pgs.

Avery, Thomas Eugene and Harold E. Burkhart. 2002. Forest Measurements. McGraw-Hill.456 pgs.

Additional reading material could include:

Ravindranath, N. H. and Madelene Ostwald. 2008. Carbon Inventory Methods; Handbook for Greenhouse Gas Inventory, Carbon Mitigation and Roundwood Production Projects. Vol 29. Advances in Global Change Research. Springer. 304 pgs.

Hoover, Coeli M. (ed). 2008. Field Measurements for Forest Carbon Monitoring: A landscape-Scale Approach. Springer. 240 pgs.

### **Course Description**

This course is intended to familiarize the student with terminology, tools, techniques, and statistical analysis used in measuring key components of natural resources. The components include land, timber, vegetation, water, wildlife resources, human dimensions, and agriculture/range resources. The course is designed to develop an understanding of how basic field measurements/survey research and data analysis can lead to an understanding of resource management including problem-solving and decision-making.

The lectures will focus on the theory and application of inventory techniques and design used to assess natural resource availability and condition. The student will develop an understanding of the use of these techniques to meet management objectives. The lab component will focus on traditional and state-of-the-art equipment used for inventory. Basic analysis of information collected in the laboratory will give the students an idea of how the field measurements can be used to develop a knowledge base of the natural resource that is being managed and yield information that is needed for resource planning and potential problem solving

## **Course Goals**

This course has been designed to develop an understanding of how resource management problem-solving and decision-making is based on measurements of the environment of interest and the human interaction. Data analysis techniques will be emphasized to gain an understanding of the natural and human characteristics tied to management of a natural resource.

## **Student Learning Outcomes**

Upon completion of this course students should be able to:

- 1) Develop an understanding of inventory techniques.
- 2) Develop an understanding of methods used to derive sound estimates of resource properties.
- 3) Critical thinking about methods used to obtain resource information on specific landscapes and the management suggested as a result of those measurements.
- 4) Critical thinking about methods described in published articles.
- 5) Develop and understanding of how to measure the human perceptions tied to natural resource management.

## **Instructional Methods**

Presentation of material for this course will include lectures, instructor led discussions, student led discussions, and assignments. Students are expected to complete reading assignments prior to each lecture. Assigned homework is expected as scheduled on the course outline.

## **Assignments**

In addition to a mid-term and final exam, students will be responsible for thirteen lab write-ups and six assignments (generally problem sets or short-answer questions) over the course of the semester. Lab write-ups will be due at the next

lab session, unless otherwise noted. Assignments will be handed out in class and also made available on Blackboard. The due date will be clearly marked on all assignments. Assigned reading will be posted to Blackboard.

## **Attendance**

The student is responsible for all material distributed and presented in lectures and laboratory. Lecture attendance is important.

The student code of conduct can be found in the current UAF catalog and at the following website: <http://www.uaf.edu/catalog/current/academics/regs3.html>.

## **Grading**

The grade received in this course will be based upon performance on exams, homework and lab assignments, and attendance. The following weighting scale will be used

<u>Components of grade</u>		<u>Requirements for letter grade</u>	
<i>Midterm Exam</i>	25%	A+ > 96% A 93% to 96% A- 90% to 92%	C+ 77% to 79% C 70% to 76%
<i>Final Exam</i>	25%		
<i>Class Assignments</i>	15%	B+ 87% to 89% B 83% to 86% B- 80% to 82%	D 60% to 69%
<i>Lab Assignments</i>	35%		
<b>Total</b>	100%		F < 60%

Homework and lab assignments handed in after the due dates are subject to reduced credit at a rate of 5 points per day or 20 points per week (whichever is less).

## **Student Support Services**

The University has many student support programs. If you need assistance please contact any of the following service programs or departments. The instructor is available during posted office hours and upon appointment for additional assistance outside session hours.

## **Disabilities Services**

The Forest Sciences Department will work with the Office of Disability Services to provide reasonable accommodation to students with disabilities. Disability Services provide a variety of services to assure equal access for all students. Interpreting services, educational assistants, note taking, and exam accommodations for students are the most frequently provided accommodations. Disability services also provides assistance to the university's rural campuses; Tanana Valley Campus, Bristol Bay, Chukchi, Interior-Aleutians, Kuskokwim, and Northwest.

The staff of Disability Services works with faculty in arranging appropriate services in the classroom. Questions should be directed to the Director of Disability Services at (907)-474-5655.

<http://www.uaf.edu/disability/>

UAF Office of Disability Services  
612 N. Chandalar, PO Box 755590  
University of Alaska Fairbanks  
Fairbanks, Alaska 99775-5590

Phone: (907) 474-5655 | TTY: (907) 474-1827 | Fax: (907) 474-5688

## Course Calendar – Lecture Schedule

Lecture	Lecture Topic (M, W)	Class Assignment Due
1	Introduction; measurement	
2	Accuracy, precision, bias	
3	Basic Statistical Concepts	
4	Regression and Correlation	Fermi problem set
5	Basic land measurements	
6	Individual tree measurement	
7	Tree Volume	
8	Tree Weight	
9	Stand parameters	Calculations/conversions
10	Forest Inventory	
11	Fixed area sampling	
12	Point sampling	Inventory assignment
13	Sampling Examples	
14	Stratified sampling	
15	MIDTERM EXAM	
16	GIS and Remote Sensing	
17	Probability and CLT	
18	Hypothesis testing	Statistics problem set
19	Statistical confidence	
20	Stocking and stand density	
21	Tree Growth and Stand Tables	
22	Growth and Yield Models	Sampling problem set
23	Primary Forest Products	
24	Non-timber vegetation	
25	Wildlife population dynamics	
26	Measuring and calculation diversity	Fish age assignment
27	Wildlife marking techniques	
28	Wildlife measurements	
	FINAL EXAM	

### A Tentative lab schedule is:

Week	Lab Topic (Thursday)	Lab Assignment Due
1	Vegetation sampling: fuel loads	
2	Measuring individual trees	Lab #1 due
3	Fixed area sampling	Lab #2 due
4	Point sampling	Lab #3 due

5	GPS	Lab #4 due
6	Probability and CLT	Lab #5 due
7	Hypothesis testing	Lab #6 due
8	Sampling	Lab #7 due
9	Tree growth	Lab #8 due
10	Wildlife population dynamics	Lab #9 due
11	Mark and recapture	Lab #10 due
12	Survey	Lab #11 due
13	Range measurements	Lab #12 due

## **Course Policies**

1. **Attendance:** As part of the “Learning Community” all students are expected to attend and participate in class.
2. **Absences and Make-ups:** If necessary, excused absences must be arranged ahead of time with the Instructor.
3. **Tardiness:** Students are expected to arrive in class prior to the start of each class. If a student does arrive late, they are expected to do so quietly.
4. **Participation and Preparation:** Students are expected to come to class with assigned reading and other assignments completed as noted in the Syllabus.
5. **Assignments:** All assignments must be received by the Instructor no later than 12 p.m. on the due date as noted in the Schedule unless otherwise prior-arranged. Each assignment must have the following: Your Name; Date; Assignment Title.
6. **Graded Assignments:** It is the instructor’s intention to grade and respond to student assignments within seven days of their receipt. At any time you may call and ask what you received on a specific assignment if you haven’t yet received it back.
7. **Reporting Grades:** All student grades, transcripts and tuition information are available on line at <http://ww.uaonline.alaska.edu> and in the blackboard grades section. If you have difficulty accessing this web site, contact the registrar at your local campus.
8. **Written paper assignments:** All papers are expected to be typed and double spaced, with no misspelled words. Sentences should be grammatically correct and the paper easy to read. The burden is always on the writer to communicate with the reader. UAF has a writing lab and other tutoring services available to students (474-5314). It is also recommended that you have another person review your draft before final submission for a grade. Written assignments may be emailed or turned in during class to the instructor.
9. **Plagiarism:** Plagiarism is using what another person has written, and using it as your own words and thoughts. Plagiarism is never acceptable. According to the University, plagiarism is preventable by students “not representing the work of others as their own. A student will attribute the source of information not original

with himself or herself (direct quotes or paraphrases) in compositions, theses and other reports.” The UAF Honor Code (Student Code of Conduct) defines the academic standards expected at UAF and is adhered to in this class as well.

10. All UA student academics and regulations are adhered to in this course. You may find these in UAF/UAS Catalogs.
11. **Confidentiality**: An important part of this course is the sharing of insights and experiences with other students. To benefit from this discussion, it is essential that we all maintain the confidentiality of children, families, programs and staff. We do not use names. We talk and write about children, families and staff in respectful ways.
12. **Incompletes, Withdrawal and No Basis Grading**: A student may request an Incomplete grade if there are factors beyond his/her control that effect the completion of the course AND the student has a C grade or higher at the end of the semester/course. A Faculty-Initiated Withdrawal is done by the instructor when the student has not met the criteria for passing the class, and is within the University-allowed drop period. A No Basis (NB) grade is provided if the student has not met attendance/assignment criteria, in lieu of a failing grade, provided it is after the University-allowed drop period. All are at the discretion of the Instructor.