

today

38-Ucch.

Submit originals (including syllabus) and one copy and electronic copy to the Faculty Senate Office  
See <http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures/> for a complete description of the rules governing curriculum & course changes.

**CHANGE COURSE (MAJOR) and DROP COURSE PROPOSAL**  
Attach a syllabus, except if dropping a course.

**SUBMITTED BY:**

Department	High Latitude Agriculture	College/School	SNRAS
Prepared by	Patricia S. Holloway	Phone	907-474-6686
Email Contact	psholloway@alaska.edu	Faculty Contact	Patricia S. Holloway

**1. COURSE IDENTIFICATION: As the course now exists.**

Dept  Course #  No. of Credits

COURSE TITLE

**2. ACTION DESIRED: Check the changes to be made to the existing course.**

Change Course  If Change, indicate below what is changing. Drop Course

NUMBER	<input checked="" type="checkbox"/>	TITLE	<input checked="" type="checkbox"/>	DESCRIPTION	<input checked="" type="checkbox"/>
PREREQUISITES*	<input checked="" type="checkbox"/>	FREQUENCY OF OFFERING	<input checked="" type="checkbox"/>		

\*Prerequisites will be required before a student is allowed to enroll in the course.

CREDITS (including credit distribution)  COURSE CLASSIFICATION

ADD A STACKED LEVEL (400/600)  Dept.  Course #

How will the two course levels differ from each other? How will each be taught at the appropriate level?:

Stacked course applications are reviewed by the (Undergraduate) Curricular Review Committee and by the Graduate Academic and Advising Committee. Creating two different syllabi—undergraduate and graduate versions—will help emphasize the different qualities of what are supposed to be two different courses. The committees will determine: 1) whether the two versions are sufficiently different (i.e. is there undergraduate and graduate level content being offered); 2) are undergraduates being overtaxed?; 3) are graduate students being undertaxed? In this context, the committees are looking out for the interests of the students taking the course. Typically, if either committee has qualms, they both do. More info online - see URL at top of this page.

ADD NEW CROSS-LISTING  Dept. & No.  Requires approval of both departments and deans involved. Add lines at end of form for additional signatures.

STOP EXISTING CROSS-LISTING  Dept. & No.  Requires notification of other department(s) and mutual agreement. Attach copy of email or memo.

OTHER (specify)

**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 and the appropriate Faculty Senate curriculum committee. Furthermore, any core course compressed to less than six weeks must be approved by the Core Review Committee.

COURSE FORMAT: (check all that apply)  1  2  3  4  5  6 weeks to full semester

OTHER FORMAT (specify all that apply)  
Mode of delivery (specify lecture, field trips, labs, etc.)

Course will be delivered via campus lectures that will be available distance via smart classroom. They will also be offered asynchronous distance via Blackboard/eluminate live and more.

4. **COURSE CLASSIFICATIONS:** (undergraduate courses only. Use approved criteria found in Chapter 12 of the curriculum manual. If justification is needed, attach separate sheet.)

H = Humanities

S = Social Sciences

Will this course be used to fulfill a requirement for the baccalaureate core?

YES

NO

IF YES\*, check which core requirements it could be used to fulfill:

O = Oral Intensive,

W = Writing Intensive,

X = Baccalaureate Core

\*Format 6 also submitted

\*Format 7 submitted

Core

4.A *Is course content related to northern, arctic or circumpolar studies? If yes, a "snowflake" symbol will be added in the printed Catalog, and flagged in Banner.*

YES  NO

5. **COURSE REPEATABILITY:**

Is this course repeatable for credit?

YES

NO

Justification: Indicate why the course can be repeated (for example, the course follows a different theme each time).

How many times may the course be repeated for credit?

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?

CREDITS

6. **COMPLETE CATALOG DESCRIPTION** including dept., number, title, credits, credit distribution, cross-listings and/or stacking, clearly showing the changes you want made. (Underline new wording ~~strike through old wording~~ and use complete catalog format including dept., number, title, credits and cross-listed and stacked.)

Example of a complete description:

PS F450 Comparative ~~Aberiginal~~ Indigenous Rights and Policies (s)

3 Credits

Offered As Demand Warrants

~~Case-study~~ Comparative approach in ~~assessing~~ analyzing Indigenous

rights and policies in different nation-state systems. ~~Seven~~ Multiple ~~Aberiginal~~ countries and ~~situations~~ specific ~~policy~~ policy developments examined for factors promoting

or limiting self-determination. Prerequisites: Upper division standing or permission

of instructor. (Cross-listed with ANS F450.) (3+0)

**NRM-215 150 Plant Propagation I. Seeds and Seed Germination**

**3-credits-1 credit**

**Offered fall, spring, summer**

Principles and practices of plant propagation useful in horticulture, botany, forestry, agronomy, revegetation and land reclamation projects and plant research. Emphasis on ~~both macro- and micro-propagation (tissue culture)~~ of Alaska native plants by seeds, spores and vegetative propagation such as cuttings seed and fern spore biology, seed dormancy mechanisms, germination techniques, and the seed industry of Alaska native and economically useful plants. **Prerequisites:** NRM-F211 or Intro to Biology or Botany or permission of the instructor (2+3) **Recommended: a high school course in biology. (1+0)**

7. **COMPLETE CATALOG DESCRIPTION AS IT SHOULD APPEAR AFTER ALL CHANGES ARE MADE:**

**NRM 150 Plant Propagation: I. Seeds and Seed Germination**

**1 credit**

**Offered: Fall, spring, summer**

Principles and practices of plant propagation useful in horticulture, botany, forestry, agronomy, revegetation and land reclamation projects and plant research. Emphasis on seed and fern spore biology, seed dormancy mechanisms, germination techniques, and the seed industry of Alaska native and economically useful plants. **Recommended: a high school course in biology. (1+0)**

8. **GRADING SYSTEM:** Specify only one.

LETTER:

PASS/FAIL:

9. **ESTIMATED IMPACT**

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

There should be no impact on budget, facilities/space, faculty. This course is one of three that will replace NRM 215. It is being split into three components mostly for online/distance delivery so that the lab portion is separate from the lectures.

10. **LIBRARY COLLECTIONS**

Have you contacted the library collection development officer (kljensen@alaska.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

Yes

The course has been offered for more than 20 years. Library/media collections and equipment have been well vetted.

11. **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 course is not required by any degree program including NRM but will be used as an elective in NRM and possibly the revised AAS Renewable Resources degree.

12. **POSITIVE AND NEGATIVE IMPACTS**

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


Recent interest by non-degree seeking students, Renewable Resources Associate's degree students (CRCD) and high school students wishing to take college credits would allow the delivery of this course to be statewide. Course delivery would be 1) synchronous campus class and simultaneous distance delivery using the smart classroom and 2) asynchronous distance delivery. There would be no impact on changing it from a 200 level to a 100 level in NRM since it would continue to be a lower division elective. It would simply be more accessible to a broader audience.

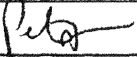
13. **JUSTIFICATION FOR ACTION REQUESTED**

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.

This course will be one of three individual classes in plant propagation that will be roughly equivalent to the original course except offered at an introductory level. We conducted a survey of horticulture businesses in spring 2013: (40 surveys sent statewide, 345 survey respondents). The response was overwhelmingly positive for science-based training in a wide array of horticulture/agronomy/soils topics. Our goal is to offer NRM 150 as an elective for NRM majors and all other interested students but also to reach a statewide audience through a variety of distance/online tools. Plant propagation is a techniques class that forms the basis for many other advanced classes in plant science. We wish to provide these tools (with an emphasis on Alaska-specific plants taught nowhere else in the world) at an introductory level, and in the future, couple it with an advanced class for students who wish to explore plant propagation at a greater depth. Our school is also working with CRCD on a re-vamping of the Renewable Resources Associate's Degree. We will offer this class as an elective in that degree. Our audience will expand, non-degree seeking students statewide, AAS degree students and NRM 4 year degree students.

**APPROVALS: (Additional signature blocks may be added as necessary.)**

	Date	10/2 2013
Signature, Chair, Program/Department of: High Latitude Agriculture		

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

	Date	10/4/13
Signature, Dean, College/School of:		

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

Signature of Provost (if applicable)	Date
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**ALL SIGNATURES MUST BE OBTAINED PRIOR TO SUBMISSION TO THE GOVERNANCE OFFICE.**

Signature, Chair	Date
Faculty Senate Review Committee: ___Curriculum Review ___GAAC	
___Core Review ___SADAC	

**ADDITIONAL SIGNATURES: (As needed for cross-listing and/or stacking; add more blocks as necessary.)**

Signature, Chair, Program/Department of:	Date
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Signature, Chair, College/School Curriculum Council for:	Date
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Signature, Dean, College/School of:	Date
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Note: If removing a cross-listing, attach copy of email or memo to indicate mutual agreement of this action by the affected department(s). If degree programs are affected, a Format 5 program change form must also be submitted.




Office of the Dean & Director  
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**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.

**NRM 150**  
**PLANT PROPAGATION – I. Seeds and Seed Germination**

1 credit (1+0)

Prerequisites: none; recommended basic high school biology

Location: 183 Arctic Health Bldg (AHRB)

Time: TBA (1 hr per week, 14 weeks; 2 hour final)

Instructor: Dr. Patricia S. Holloway

Office: 104AH Arctic Health Building; Georgeson Botanical Garden (Fairbanks Experiment Farm)

Office hours: TBA

Telephone: (907)474-6686

Email: psholloway@alaska.edu

Textbook: Beyl, C. and R. Trigiano. 2008. Plant Propagation Concepts and Laboratory exercises. CRC Press, New York.

**Course Description:**

Principles and practices of plant propagation useful in horticulture, botany, forestry, agronomy, revegetation and land reclamation projects and plant research. Course will cover seed and fern spore biology, seed dormancy mechanisms, germination techniques, and the seed industry. Emphasis will be on Alaska native and economically useful plants.

Prerequisite: none

Recommended: basic course in high school biology. (1+0)

**Goals and Objectives**

The propagation of plants by seeds, cutting, grafting and more is the foundation of plant-based natural resources management. This course is part one of a three-part series exploring the theory and methods of propagating plants. It is designed to provide natural resource managers with basic knowledge in plant regeneration by seeds and fern spores and an exploration of the seed industry. The lectures and assigned activities explore the fundamental basis for reproduction in plants and the methods by which we use natural processes to propagate plants for use in horticulture, agronomy, forestry, revegetation and reclamation.

**Student Learning Outcomes**

It is expected that you will become familiar with the theory and practice of plant propagation by seeds and fern spores sufficient for entry level positions in a commercial greenhouse/nursery; tree seedling nursery; on revegetation sites such as mining, wetlands, highway; and on commercial or residential farms and gardens. You will develop a working knowledge of seed germination terminology and techniques to allow you to

pursue specific interests as well as practice problem-solving skills for researching and making management decisions in resources management.

### **Instructional Methods:**

The basic course will use Blackboard as the main interface for exams, presentation of videos, YouTube and more. Methods will include:

- 1) Online or classroom powerpoint lecture
- 2) Audio/video demonstrations using Powerpoint, Camtasia, Youtube
- 3) Propagation terms- a combination of puzzles, quizzes, matching, short answer
- 4) Situational essays: essays answering questions about how seeds are harvested, processed, used, that require independent research of literature, analysis and problem solving in natural resources management
- 5) Videos or production practices for seeds
- 6) In-class or distance discussions about the biology and/or business of seeds

### **Technology Requirements**

One section of this course will be online and will use several multimedia technologies accessible through Blackboard. Lectures will be recorded using Powerpoint/Camtasia/Youtube and will require audio and video capabilities. There are no requirements to purchase additional software. Students will be expected to have the most current versions of several applications that will be used in this course, including QuickTime, Flash (Mac|Windows), iTunes and Java. Before the first online class meeting, please visit the OIT website to make sure all of your systems are up to date.

### **Evaluation:**

Weekly vocabulary quiz/game, etc. (12)	120 points	A= 90-100%
Situational essays (5)	125	B= 80-89%
Video commentaries (5)	125	C= 70-79%
Mid-term exam	50	D= 60-69%
Final exam	50	F= Below 60%

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Weekly vocabulary quizzes/games: (10 points each, 120 points) A weekly quiz (open book) will be given using a variety of tools such as crossword puzzles, short answer, fill in the blank, etc. that give students opportunities to learn the unique vocabulary of plant propagation. There will be 12 quizzes in a semester and must be completed on Blackboard within one week of the class time.

Situational essays: (25 points each, 125 points) An essay question will be given approximately every two weeks that require a search of the literature and exploration of the seed biology or industry. Essays will be 5 pages (dble space) or less and must include referenced sources of information. They will be made available on Blackboard and will be due one week from assigned date. A required citation style will be provided.

Exams: Two exams will be given, a mid term and a final. Using a mixture of short answer, fill in the blank, and essay, the exams will cover a review of materials for one half of the course. The final is not cumulative, however because of the nature of the course content, material from the first half will be required to answer questions from the second half.

### **Course Policies:**

#### Plagiarism and Academic Honesty

Plagiarism is using what another person has developed as your own words or thoughts. Plagiarism is never acceptable. UAF requires students to conduct themselves honestly and responsibly and to respect the rights of others. Cheating, plagiarism or other forms of academic dishonesty may result in disciplinary action and sanctions. The UAF Student Code of Conduct is adhered to in this course.

#### Disability Services

The UAF 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. Your

instructor will work with the Office of Disability Services (208 WHIT, 907□474□5655) to provide reasonable accommodation to students with disabilities.

UAF Disability Services for Distance Students UAF has a Disability Services office that operates in conjunction with the College of Rural and Community Development (CRCDD) campuses and UAF Center for Distance Education (CDE). Disability Services, a part of UAF Center for Health and Counseling, provides academic accommodations to enrolled students who are identified as being eligible for these services. If you believe you are eligible, please visit the Office of Disability Services on the web or contact a student affairs staff person at your nearest local campus. You can also contact Disability Services on the Fairbanks Campus at (907) 474□5655, [fydso@uaf.edu](mailto:fydso@uaf.edu).

Make up quizzes and exams will be given only in emergency situations. (Note from Dean, Physician, Employer).

Incomplete grades: Incompletes will be given only in the case of family or medical emergencies or circumstances beyond your control. You must have a C- or better average in the class, have attended all of the classes and labs, and shown good progress toward completing the course BEFORE the emergency in order to receive an incomplete grade.

Audits: Auditing the class is accepted but not recommended. You must complete all work, including the exams, readings and lab reports. They simply won't be graded but will receive full feedback from the instructor. If exams, etc. are not completed, the instructor will initiate a withdrawal from the class.

Spelling and Grammar: On all written papers including essays and exams, you will lose points for poor spelling and grammar.



## **Tentative Schedule (by week)**

1. Course introduction: The importance of seeds to humans and processed products resulting from seeds: waxes, oils and fats; medicines; spices and condiments; agriculture; bird and wildlife food; domestic animal feed; cosmetics; aromatic compounds; beverages; ornamental decorations. Main crops propagated by seeds esp agronomic crops, flower and vegetable seeds, tree seeds. (quiz 1, essay 1)
2. Where seeds come from - flower initiation: the development of flowers in annuals, biennials and perennials and the process by which flowers are formed; environmental factors that influence flower initiation and development; recognizing flower buds and when they occur. (quiz 2, video commentary 1)
3. Flower development: mitosis, meiosis, results of these processes (quiz 3, essay 2)
4. Pollination and production of seeds – types of pollination; the special case of honey bees; wild Alaska abiotic and biotic pollinators; pollination in naturally cross pollinated and self pollinated crops; the consequences of inadequate pollination. (quiz 4, video commentary 2)
5. Hybrid seed production and incompatibility - selfing versus cross pollination and how plants prevent self pollination (timing differences, incompatibility). The invention of the F1 Hybrid. (quiz 5, essay 3)
6. A bit of anatomy - the anatomical components of seeds and how they affect germination, Fruit and fruit ripening, where to find fruits and seeds. (quiz 6, video commentary 3)
7. Mid term exam
8. Seed Processing: harvesting, extraction, cleaning, drying, storage. (quiz 6, essay 4)
9. Seed conditioning - color, texture, size sorting, gravity separation, seed treatments such as pelleting, color coding, primed seeds, etc. (quiz 7, video commentary 4)
10. Seed germination: the process of germination, the germination environment, methods to hasten germination (quiz 8)
11. Seed dormancy- mechanical, chemical, physical, secondary (quiz 9)
12. Methods of overcoming dormancy (stratification, scarification, etc.) (quiz 10, essay 5)

13. The seed industry Seed quality: seed purity, noxious weeds, moisture content, seed size Seed testing: Association of Official Seed Analysts (AOSA), International Seed Testing Association, Society of Commercial Seed Technologists (SCST) International Seed Testing Association (ISTA) American Seed Trade Association (ASTA), USDA Agricultural Marketing Service (USDA/AMS) Seed Testing Service Canadian Food Inspection Agency (CFIA), Association of Official Seed Certifying Agencies (AOSCA) Association of American Seed Control Officials (AASCO), Seed Quest, National Seed Health System, Alaska Division of Agriculture Seed testing Program (quiz 11, video commentary 5)

14. Seed certification- Alaska Division of Agriculture Seed testing, noxious weed program (quiz 12)

15. Final Exam