

NRM 211
INTRODUCTION TO APPLIED PLANT SCIENCE (3 credits)
Fall 2018

Schedule (this is an in-person course with two lectures and one 3-hour lab each week):

<i>Lectures:</i>	Monday, Wednesday	9:15AM - 10:15AM	AHRB 183
<i>Labs:</i>	Monday	2:15PM - 5:00 PM	AHRB 1W05

Blackboard (<https://classes.alaska.edu>) will be used for announcements, lecture notes, handouts and other relevant information.

Course Description:

Basic principles and requirements for plant growth and development with special attention to the production and management of field and greenhouse grown crops.

Course Objective:

To guide students to an understanding of the physiological processes controlling plant growth and development emphasizing the implications and applications for plant growth and production at high latitudes.

Expected Student Learning Outcomes:

Evaluation Policy:

Grades will be based on exams, plant identifications, several sets of lab questions, one lab activities report, one literature review, and class participation. No make-up exams will be given unless there is a verifiable emergency or arrangements have been made with the instructor prior to the scheduled exam time.

The relative importance of each component for the final grade is indicated below:

Exam I	100 (10%)
Exam II	150 (15%)
Final Exam	250 (25%)
Lab	400 (40%)
Lab and Plant ID I	(150 or 15%)
Lab and Plant ID II	(150 or 15%)
Several sets of Lab Questions	(50 or 5%)
Lab Activities Report	(50 or 5%)
Literature Review	50 (5%)
Class participation	<u>50 (5%)</u>
	1,000 points (= 100%)

Letter grades will be determined using the following scale:

A	90.0 to 100 %
B	80.0 to 89.9 %
C	70.0 to 79.9 %
D	60.0 to 69.9 %
F	Below 59.9 %

Plus and minus are not used in assigning grades. Borderline grades may be curved based on class participation, attendance and student progress during the semester. Note that this course cannot count as a requirement with a grade less than a C.

Plant ID and Lab Tests:

The first part of the Lab and plant ID tests on October 1 and November 5 consists of questions from lab exercises. These questions will constitute 20% or 30 points of the 150 possible points. The second part is identification of plants in form of pictures, pressed samples or live plant material. Common names and scientific names (correctly spelled) are required for each plant. The plant ID includes 6 groups of plants (agronomy crops; invasive species commonly referred to as weeds; native Alaska plants for ornamental and revegetation purposes; vegetables; herbaceous ornamentals; fruit and berry crops) for a total of 100 species.

Lab Questions:

In addition to the lab activities report (see below), there are several weekly sets of lab questions. The questions are related to the most important concepts covered in the lab. The answered lab questions are due at the end of the lab period and will be administered for lab I, II, III, IV, VI, VII, VIII, IX, XI and XII.

Lab Activities Report:

One lab activities report describing effects of temperature, light and mineral nutrition on plant growth

support, disability services, computing and technology, veteran and military support, academic
ore.

UAF Help Desk. Go to <http://www.alaska.edu/oit/> to see current network outages and technology news. For technical questions, contact the Help Desk at:

e-mail at helpdesk@alaska.edu

phone: 450.8300 (in the Fairbanks area) or 1.800.478.8226 (outside of Fairbanks)

Student Protections and Services:

Every qualified student is welcome in my classroom. As needed, I am happy to work with you, disability services, veterans' services, rural student services, etc. to find reasonable accommodations. Students at this university are protected against sexual harassment and discrimination (Title IX), and minors have additional protections. As required, if I notice or am informed of certain types of misconduct, then I am required to report it to the appropriate authorities. For more information on your rights as a student and the resources available to you to resolve problems, please go the following site: www.uaf.edu/handbook/.

All of us have strengths and weaknesses when it comes to learning. If you have a particular learning disability that may interfere with your ability to perform the work in this course, I am happy to make reasonable accommodations. Please obtain an Accommodation Letter from the Disabilities Office of the Health Center (ext.6158). Accommodations will not be made retroactively (i.e. if you need additional time to complete the exams, you must present the letter *before* any exams are administered). I appreciate your cooperation.

For more information on your rights as a student and the resources available to resolve problems, please see the Student Handbook <https://cms-test.alaska.edu/handbook/>

M	Aug. 27	Course introduction.	p. 2-12
M	Aug. 27	Lab I: Landgrant universities and experiment stations	
W	Aug. 29	Origin of cultivated plants	p. 250-252, 438-450, 196.97 .6()JT
M	Sept. 3	Labor Day no class or lab	
W	Sept. 5	Plant nomenclature and systematics	p. 128, 282-297, (A1-A19)
M	Sept. 10	Plant cell and tissue structures	p. 30-44, 53-64
M	Sept. 10	Lab II: Greenhouses	
W	Sept. 12	Plant growth substances (hormones)	p. 191-200
M	Sept. 17	Plant growth substances (hormones)	p. 191-200
M	Sept 17	Lab III: Start mineral nutrition experiment	
W	Sept. 19	Control of plant growth and development	p. 201-209
M	Sept. 24	Light measurements for plant growth	p. 168-169, 172
M	Sept. 24	Lab IV: Growth regulators	
W	Sept. 26	Light quality and plant growth	p. 169-170, 210-212
M	Oct. 1	Light duration (photoperiod) and plant growth	p. 209-212
M	Oct. 1	Lab V: Lab and plant ID I	
W	Oct. 3	Plant response to photoperiod	
M	Oct. 8	Plant response to photoperiod (continued)	
M	Oct. 8	Lab VI: Light	
W	Oct. 10	EXAM I	
M	Oct. 15	Plant response to daily light duration	
M	Oct. 15	Lab VII: Germination and seedling vigor	
W	Oct. 17	Photosynthesis and respiration	p. 166-180, 180-190
M	Oct. 22	Temperature and plant growth	p. 212-213, A76
M	Oct. 22	Lab VIII: Temperature	
W	Oct. 24	Response to high and low temperatures	p. 183
M	Oct. 29	Average temperature, day and night temperatures	
M	Oct. 29	Lab IX: Physical properties of soils	
W	Oct. 31	Physical properties of soils	p. 78-82
M	Nov. 5	Chemical soil properties, mineral nutrition	p. 20, 82
M	Nov. 5	Lab X: Lab and plant ID II	
W	Nov. 7	Essential macro- and micronutrients	p. 159-163, 491-493
M	Nov. 12	Essential macro- and micronutrients	p. 159-163, 491-493
M	Nov. 12	Lab XI: Marketing Alaska grown products	
W	Nov. 14	Essential macro- and micronutrients Lab report is due	p. 159-163, 491-493
M	Nov. 19	Properties of water	p. 17-20, 490
M	Nov. 19	Lab XII: Mineral nutrition	
W	Nov. 21	EXAM II (Thanksgiving, Nov.	