

# **NRM 452: FOREST HEALTH AND PROTECTION**

**Spring Semester 2014**

## **COURSE SYLLABUS**

### **CLASSES**

Lectures and discussions, Tuesdays, 3:30 pm to 6:30 pm, AHRB 1W05 Horticulture Teaching Lab.

### **INSTRUCTOR**

Dr. Jenifer Huang McBeath

Office: 130 Arctic Health Research Building

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### **OFFICE HOURS**

Monday and Wednesday 11:30 am—1:30 pm. and by appointment

### **SCOPE AND LEARNING OBJECTIVES**

Diseases, insects and fire are major natural disturbance agents affecting forest ecosystems. The course on forest protection covers three large fields of study: forest pathology, fire science and entomology, which typically are taught as three separate courses. The primary objectives of this course are to introduce students to the concepts of forest health, and illustrate how the health of forest ecosystems is influenced by the interaction of diseases, insects and fire, as well as by other biotic (human activities) and abiotic (wind, pollutions, etc.) factors. More specifically, students will gain an understanding of: 1) the causes of forest health issues; 2) how to recognize the signs and symptoms of insects and disease problems in the boreal forest, with emphasis on Alaska; 3) how disturbance agents (biotic and abiotic) interact to shape forest ecosystems, and 4) practical management systems for protecting forests from these disturbance agents

### **TEXTBOOK**

The primary text for the course is Edmonds, Agee and Gara Forest Health and Protection, (2<sup>nd</sup> edition, 2011)

### **GRADING SYSTEM**

Final grades will be assigned based on your absolute achievement in the course. The bottom and top three percentage points of each letter grade below will be assigned a ‘-’ and ‘+’, respectively.

A = 90% or higher

B = 80-90%

C = 70 -79%

D = 60-69%

F = <60%

## REQUIREMENTS

1. Attendance and Participation. Regular attendance is essential and good attendance will be rewarded. Attendance counts for 10 percent of the course grade. Active participation in class by asking questions and engaging in discussion improves the learning environment for all students, and is strongly encouraged. Please avoid distracting classmates (and instructor) by open cell phones, texting in class, and surfing the web.

2. Examinations. Two essay examinations will be given during the semester, to test your knowledge of lectures, reading and discussions. The exams will ask you to define terms and write essays. All exams will be given in the classroom and each count for 30 percent of the total grade.

3. Other Work. Each student will select a research project of his/her choosing at the beginning of the semester and give a 20 minute oral presentation of research findings at the end of the semester. The research report and presentation account for 25 percent of the final grade.

4. Plagiarism and cheating are serious offenses. Sources of references in your assignments should be properly cited.

5) Contact the instructor immediately if you are unable to attend an exam, or hand in an assignment on time. If you miss an examination or presentation, you will receive no grade.

## COURSE OUTLINE AND READING SCHEDULE

<u>Date</u>	<u>Topic</u>	<u>Pages</u>
Jan. 16	Introduction, The concepts of Forest Health	1-22
Jan. 21	Ecological Principles, Impacts of wind and fire on forest health	27-52 173-195

	Introduction to Diseases	199-213
Feb. 04	Impacts of abiotic factors and animal-caused injuries	215-242
	Disease causing organisms	247-272
Feb. 18	Nursery diseases and mycorrhizas	273-292
	Root diseases	295-329
Feb. 25	Midterm Exam	
Mar. 4	Insect morphology, taxonomy and diversity	451-473
	Dr. Derek Sikes, 032 Museum of the North, x 6278	Supplemental
Mar. 11	Principles of forest insect management	435-448
	Insect defoliator	499-524
March 17-21	Spring Break	
Mar. 25	Bark beetles and diseases associated with insects	527-552
	(Dutch elm diseases, chestnut blight and pine wilt nematode)	Supplemental
Apr. 08	Stem and branch diseases	359-393
	Foliage diseases and rusts	333-356
Apr. 15	Forest Declines	397-415
	Management strategies of fire, insects, and diseases in forest	
Apr. 29	Student Presentations, term paper due	
May 6	Final Exam	