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
Telephone: 474-7431
Email: jhmcbeath@alaska.edu

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, (2nd 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**

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