

## ESPM 134: FIRE, INSECTS & DISEASES IN WILDLAND ECOSYSTEMS

<http://plantbio.berkeley.edu/~bruns/espm134/>

Instructors: Tom Bruns (Microbial Ecology), Rick Everett (Fire Ecology), Nick Mills (Entomology)

3 units; control number 29364

Class time and location 12:30-2:00 Tues Thurs; 132 Mulford

In this course we will provide insights into the importance of fire, insects and diseases through lectures, discussion sessions, and field trips. In addition, we will discuss how humans are affecting wildland ecosystems through both direct (forest management) and indirect (travel, air pollution, commerce, etc.) actions that change the roles of these agents.

### Textbook

Edmonds et al. 2000, Forest Health and Protection. This should be available in the bookstore. We will also put one copy on two-hour reserve in the Bio Sciences Library in the Valley Life Science Building.

### Grades

The grades will be based on one midterm exam worth 30%, a comprehensive final exam (40%), and two papers (10% each), participation in discussion (10%). The two papers can be either two fieldtrip reports, or one fieldtrip report and a term paper. Fieldtrip reports are due on the Tuesday one week after the weekend of the fieldtrip. Late reports drop in value by half a grade point (5%) each day after the due date. **Participation on at least one trip is expected**, but a term paper can be substituted for a fieldtrip if there is an unavoidable conflict. **We strongly recommend participation in both trips**. Most of the material for the tests comes directly from lectures and from the written material handed out during lectures; therefore **attendance at lectures and discussions correlates strongly with grades**. Outside readings will be posted on the website as PDFs.

### Reading discussion sessions

We have five sets of two papers that we read and discuss as a class. A set of 3 students will be responsible for leading the discussion for each paper, but all students are expected to read the material and be prepared to discuss it. The presentation of these papers by the small groups and **the participation in the discussion constitutes 10%** of the grade. If you have an unexcused absence on a discussion day will receive a zero for that discussion (2% of your total grade). We will also incorporate questions for the readings into the midterm and final.

## Field trips and associated extra costs

Trip: 1. March 1. **Pt Reyes National Seashore:** Wild fire interactions in coastal ecosystems, and effects of introduced pathogens. Trip leaves at 8:00 am and returns by 5:00 the same day. Bring appropriate clothes (rain gear) and a lunch.

Trip 2 April 26-27. **Blodgett Research/Demonstration Forest:** interactions of disease, insects and fire in production forestry and prescribed burning. Leaves Saturday morning 8:00 AM, April 29, returns Sunday April 30 by mid to late afternoon. Bring a lunch, sleeping bags, warm cloths, and rain gear. We will sleep indoors in cabins and cook together - its plush. Estimated food cost is \$18.

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This and other information is posted at the class website:  
<http://plantbio.berkeley.edu/~bruns/espm134>

**Reminders and announcements will be sent out by email. To get on the class email list send a message to Tom Bruns at [pogon@berkeley.edu](mailto:pogon@berkeley.edu)**

## Syllabus

Tues	1/22	Introduction to course and plant disease	Bruns
Thurs	1/24	Misteltoes and parasitic plants	Bruns
Tues	1/29	Insects: Diversity, structure & function	Mills
Thurs	1/31	Roles of insects in forest ecosystems	Mills
Tues	2/5	Forest Insect Groups-cones, shoots, wood feeders	Mills
Thurs	2/7	Introduction to Fire and Fire Terminology	Everett
Tues	2/12	Fuels and Behavior	Everett
Thurs	2/14	Fire and and forest restoration	Everett
Tues	2/19	<b>Reading:</b> Disturbance regimes	Everett
Thurs	2/21	Characteristics of fungi	Bruns
Tues	2/26	Beneficial Microorganisms and Mycorrhizal interactions	Bruns
Thurs	2/28	<b>Reading:</b> Mt Vision (Pt. Reyes) Fire	Bruns
Sat	3/1	Pt. Reyes Trip	
Tues	3/4	Pt. Reyes Fieldtrip Review	all
Thurs	3/6	Canker and Wilt diseases	Bruns
Tues	3/11	Defoliating insects ( <b>Pt. Reyes paper due</b> )	Mills
Thurs	3/13	Bark Beetles	Mills
Tues	3/18	Natural enemies of forest insects	Mills
Thurs	3/20	<b>Midterm (covers through 3/13)</b>	
Tues	3/25	<b>Spring break</b>	
Thurs	3/27	<b>Spring break</b>	
Tues	4/1	Decay fungi and root disease	Bruns
Thurs	4/3	root disease II	Bruns
Tues	4/8	<b>Reading:</b> Yosemite and root disease fire interactions	Bruns
Thurs	4/10	Foliar pathogens and rusts	Bruns
Tues	4/15	Population dynamics of insects	Mills
Thurs	4/17	<b>Reading:</b> insect dynamics and Forest Response	Mills
Tues	4/22	Prescribed Fire, Fire hazard mitigation	Everett
Thurs	4/24	Reading: TBA - fire surrogate studies	Everett
Sat	2/26	Blodgett Trip	all
Sun	4/27	Blodgett Trip	all
Tues	4/29	Blodgett review	all
Thurs	5/1	Invasive forest insects	Mills
Tues	5/6	Introduced pathogens ( <b>Blodgett paper due</b> )	Bruns
Thurs	5/8	<b>Reading:</b> insect, pathogen & fire altering introductions	all
Tues	5/20	Final Exam	