

## **FORS232: Forest Insects and Disease**

9:30-10:50 am TTH

*Instructor:* Diana Six, Bioresearch Building 104 diana.six@umontana.edu

Office hours: Thursdays 1-2pm or by appointment

*Class objectives:* Students will learn about the array of insects and pathogens affecting western forests. Topics covered include the identification, ecology, and management of insects and diseases. Students will use the information they learn to identify the main insect and diseases of western conifers in the field and to develop appropriate management approaches given a number of real-world scenarios.

### *Grading:*

Four exams (20% each) (NO makeups without proof of a serious reason for missing exam)

One group scenario presentation (plus short write-up) (5%)

Collection (10%) (NO late collections accepted- early okay!) Collection due May 3!!!

In-class activity participation (5%)

*Grading scale:* (please note - this class is offered for a traditional letter grade only)

A = $\geq$ 94%	A- = 90-93%	
B+ = 87-89%	B = 84-86%	B- = 80-83%
C+ = 77-79%	C = 74-76%	C- = 70-73%
D+ = 67-69%	D = 64-66%	D- = 60-63%    F = <60%

*How to succeed in this course:* **Attend!!** - Attendance is crucial to be exposed to the material and to learn. **Take good notes** - Not only will this ensure you have all the info needed to learn the material and to do well on exams, it is a crucial tool in 'remembering/learning' by itself. Review notes often, not just the days before the exam. **Do the readings BEFORE the lecture.** If you miss a class, get notes from a classmate. Check Moodle for powerpoints and readings. A lot of what I discuss is not on the powerpoints!

### **TEXTS**

**On Moodle:** Bark Beetle Outbreaks in Western North America: Causes and Consequences, Bentz et al. 2007.

**Physical copies:** Provided but must be returned (if not returned you get an incomplete in the course that will later turn to an F)

Mistletoes of North American Conifers, Geils et al. 2002.

Field Guide to Diseases and Insects of the Rocky Mountain Region, Allen et al. 2010

**Optional but strongly recommended if you don't know your trees:**

Rocky Mountain Tree Finder, Tom Watts, any edition. \$2.00-\$6.00 online

**LECTURE SCHEDULE (Readings for each lecture are provided in parentheses. These will be in your texts or on Moodle)**

Jan 18	Intro to course. How to succeed in this class. Why do we study insects and diseases of forest trees?
Jan 20	Insect biology
Jan 25	Insect taxonomy and ID
Jan 27	Insect population dynamics and dispersal
Feb 1	Forest insect management
Feb 3	Ambrosia beetles
Feb 8	Intro to bark beetles and their management (Bark Beetle Outbreaks in Western North America - Moodle)
Feb 10	Case study: Mountain pine beetle (Ted Talk, Kelseya article, example exam available on Moodle)
Feb 15	Bark beetle management (student activity - in class), review
Feb 17	<b>Midterm I</b>
Feb 22	Introduction to defoliators, defoliator management
Feb 24	Case study: Spruce budworm (TBA)
Mar 1	Various defoliators
Mar 3	Other insect guilds: Gall and sap sucking, miners, root and shoot
Mar 8	Other insect guilds: Miners, cone and seed, wood-boring, animal damage (example exam available on Moodle)
Mar 10	Defoliator management student activity - in class, review
Mar 15	<b>Midterm II</b>
Mar 17	Intro to forest pathology, disease diagnosis
Spring Break	
Mar 29	Disease management
Mar 31	Introduction to fungi, taxonomy and ID
April 5	<b>No class</b> - comp time for collections
April 7	Various fungal diseases - cankers, rusts, needle diseases

April 12	Case study: <i>Heterobasidion</i> root disease; other root diseases, decays
April 14	Mistletoes and mistletoe management (mistletoe book chaps 5-8) class activity)(bring your mistletoe book to class!) (example exam available on Moodle)
Apr 19	Abiotic diseases, die-offs, review
Apr21	<b>Midterm III</b>
Apr 26	Anthropogenic change - invasive pathogens. Case studies: white pine blister rust (TBA), Chestnut blight (TBA)
April 28	Anthropogenic change - invasive insects. Case studies Emerald ash borer (TBA), red bay ambrosia beetle (TBA)
May 3	Anthropogenic change - climate change effects on insects and pathogens (TBA)
May 4	Student scenario presentations
Final	<b>Take home/open book/open notes exam IV: finals week</b>

**COVID – Class will meet in person. Masks are required. We will follow Franke College of Forestry and Conservation and UM guidelines which may shift over time, so please check your email often for guidance. If you are sick, quarantining, and/or have been exposed to COVID, contact me so I can keep you up to date with course material.**

**General:**

- Mask use is required within the classroom or laboratory.
- If you feel sick and/or are exhibiting COVID-19 symptoms, please don't come to class and contact the Curry Health Center at (406) 243-4330.
- If you are required to isolate or quarantine, you will receive support in the class to ensure continued academic progress.

**Do you need help?**

I am here to help you succeed. If you have questions or have extenuating circumstances, please reach out to me. I encourage you to do this sooner than later as it provides more options. If you are experiencing depression, please don't try to ride it out alone. See (and use) the resources available to you (contact Curry Health Center).

## **Class expectations**

### ***Cell phones and computers***

Please turn off electronic devices during class, unless they are being used for an in-class exercise.

### ***Assignment due dates***

*Due dates are firm.* Late assignments will not be accepted unless you have unusually extenuating circumstances *and* have made arrangements prior to the due date. This includes missing an exam: *there are **NO** make-up exams* without prior arrangement.

### ***Communication***

If you e-mail me, please do the following so that the e-mail is read and understood: (a) include "FORS 232" in the subject line, (b) write in complete sentences, with proper grammar, and (c) sign the e-mail with your full name. Even though I work to reply promptly, sometimes I am in meetings, classes, or in the field all day and try to catch up on email at night.

## **Classroom environment**

Students at the University of Montana are diverse in many ways, including race, gender, age, religion, preparedness, and mobility. Please create a respectful learning environment by honoring all student contributions and expressing your views in ways that do not diminish other students' perspectives.

**Accessibility** The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and the Office for Disability Equity (ODE). If you anticipate or experience barriers based on disability, please contact the ODE at: (406) 243-2243, [ode@umontana.edu](mailto:ode@umontana.edu), or visit [www.umt.edu/disability](http://www.umt.edu/disability) for more information. For accommodation you must notify me at the beginning of the course and then prior to each exam. Retroactive accommodation requests will not be honored, so please, do not delay. As your instructor, I will work with you and the ODE to implement an effective accommodation.

**Academic honesty, plagiarism, and student conduct** All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the [Student Conduct Code](#). Academic dishonesty of any form is unacceptable and will be taken seriously by the instructor, the College of Forestry and Conservation, and the University of Montana. This includes plagiarism (copying materials from other sources without citing the source or copying someone's work) and cheating (copying material from other students during tests or quizzes). In both cases, you will fail the assignment/exam or if very serious the course. The incident will be passed on to the Dean and the Vice Provost of Academic Affairs. It is your responsibility to be familiar with, and adhere to, the [University's definition of plagiarism](#).

## **Course withdrawal (and other) deadlines**

- See [calendar](#)