

# Forest Biology

## (Biology 307)

--- Fall 2022 ---



### Class Meetings -

**Lectures:** TR 8:30am – 9:50pm

**Place:** 101 VOL

**Lab:** Tues 1:00pm – 3:50pm

**Place:** Klamath 5

### Instructor Info -

Dr. Jeff Diez

Associate Professor, Dept. Biology

[jdiez@uoregon.edu](mailto:jdiez@uoregon.edu)

Office hours: Thurs 10-12 and/or email anytime for appointment

Sarah Erskine

Ph.D. candidate, Dept. Biology

[serskine@uoregon.edu](mailto:serskine@uoregon.edu)

Office hours: Weds 10-11 & on zoom.

### Course Materials

Required:

(1) *Manual of Oregon Trees and Shrubs* (Jensen). This is a very nice, conveniently-sized field guide to common trees and shrubs of Oregon.

In addition, we will use *readings* either posted to Canvas and available for download as pdf files or accessible for free over the internet with UO access.

### Overview

In this course, we explore forest ecology and management from a biological perspective. We will examine forests across levels of organization, from tree cells and physiology, to populations, to the many diverse interactions among species, up to ecosystem processes. This will involve examining details of organismal biology but also ‘zooming out’ to think about larger-scale forest processes. We will try to understand the dynamic nature of forests – how they change from place to place and over time. Because humans depend on and affect forests, we will reflect on our role in managing forests for the varied resources and biodiversity they contain. Prerequisites include familiarity with basic ecological concepts as well as basic chemistry terms and concepts. We will further expect you are willing and ready to think critically and approach complex topics with an open mind.

### Learning Objectives

**Students successfully completing this course will be able to:**

- Recognize and name at least twenty local tree species by memory
- Use a dichotomous key to identify other woody shrubs or trees native to Oregon
- Critically evaluate scientific literature about forest ecology
- Explain why forests are found in certain areas, and why conifers are so prevalent in the PNW
- Explain how forest communities have changed over ecological time in response to climate and project how forests might be altered with future climate change
- Explain how trees’ internal anatomy is related to their physiological ecology
- Describe how nitrogen and carbon cycle within a forest and identify important fluxes and stores
- Explain the roles of seemingly inconsequential organisms including bacteria, fungi, nematodes, and microarthropods.
- Explain the roles of fire, disease, and insects in different forest types
- Evaluate claims about forest management practices and express opinions using credible scientific evidence
- Be comfortable with uncertainty and complexity in answering questions about forest management
- Remain appreciative of the aesthetic values of forests while simultaneously having a better understanding of the biological processes that shape them.

## Course Schedule

Wk	Date	Topic	Readings	Lab / /Assignments
1	9/27	Introduction to Forest Biology and Forests of the PNW	• Background Readings 1	Lab 1: Intro to Tree Terminology and Identification
	9/29		• <a href="#">Article 1</a>	
2	10/4	Tree Physiology and Biology	• Background Readings 2	<b>Lab 2: Campus Tree Walk dress to be outdoors; bring Manual of Oregon Trees and Shrubs</b>
	10/6		• <a href="#">Article 2</a>	
3	10/11	Forest Soil Ecology	• Background Readings 3	<b>Lab 3: Alton Baker Tree Walk – dress to be outdoors, bring Manual of Oregon Trees and Shrubs</b>
	10/13		• <a href="#">Article 3</a>	
4	10/18	Forest Demography & Population Dynamics	• Background Readings 4	<b>Lab 4: Forest Field Methods</b>
	10/20		• <a href="#">Article 4</a>	
5	10/25	Forest Pests & Diseases	• Background Readings 5	Lab 5: Leaf and Stem Anatomy + Tree presentations
	10/27	<b>Midterm Exam</b>		
6	11/1	Community ecology: patterns & mechanisms of species diversity	• Background Readings 6	Lab 6: Wood Anatomy + Tree presentations
	11/3		• <a href="#">Article 5</a>	
7	11/8	Forest Ecosystem Ecology	• Background Readings 7	Lab 7: Microorganisms + Tree presentations
	11/10		• <a href="#">Article 6</a>	
8	11/15	Fire Ecology	• Background Readings 8	<b>Review</b>
	11/17		• <a href="#">Article 7</a>	
9	11/22	Forests & Climate Change	• Background Readings 9	<b>Lab Exam</b>
	11/24	Thanksgiving – no class		
10	11/29	Forest Management	• Background Readings 10	
	12/1		• <a href="#">Article 8</a>	
11	12/7	<b>Final Exam (Cumulative) 8:00 Tuesday, December 7.</b> Take home exam		

## Assignments & Grading

Grades will be assigned on the standard scale: 70-79% = C; 80-89% = B; 90-100% = A; and +/- will be used at the edges. I do not grade on a curve, so you are not competing against each other, and everyone can theoretically receive an A in the class.

### Grading Criteria

<u>Component</u>	<u>Percent of total</u>
Midterm exam	15%
Final exam	15%
Article worksheets	20%
Discussion participation / Group worksheet	10%
Lab exam	20%
Lab presentation & participation	20%
Total	100%

### Article worksheets

There are eight “article worksheet” assignments, for which you will critically evaluate a scientific article from the peer-reviewed literature. These are meant to help us learn how to critically evaluate the scientific literature related to forest biology, and more generally build scientific literacy, critical evaluation skills, and creativity. They are a significant part of your grade, worth 20% total of your course grade, and 30% total including the group portion. The first worksheet must be done in advance of the Thursday discussion period. Late assignments will not be accepted, as it defeats the purpose of preparing for the discussion.

### Exams

Exams will be designed to instigate you to apply or to synthesize information. This should be more valuable and interesting than simply recalling facts. I don't give make-up exams, so note the dates of the exams and don't make plans to be gone on any of those dates. The final exam will be cumulative.

### Lab Activities

Labs are an important part of the course. It is not often possible to make-up a lab because they typically require special materials. If you know in advance that you have to miss a lab, contact me to see if you can make other arrangements. You will not turn in formal lab reports for this class, but some notes that you take in lab may be used on a portion of the lab exam. On the lab days when we are scheduled for a walk, please dress for field conditions: it is usually a good idea to bring several layers of clothes in case it is cold or warm. If it has rained in the past day or so be prepared for damp vegetation; rain coats, rain pants, and rubber boots are a good idea if it is really wet. Bring water and any food you might want.

## Course Policies

### COVID Prevention & Containment

#### Prevention and Containment:

- Refer to [current UO policy and recommendations on COVID](#)
- You are welcome to wear a **mask**
- **Please Stay home** if you're not feeling well
- **Get tested** if you are not feeling well
- Watch for **signs and symptoms** with the daily symptom self-check
- **Wash your hands** frequently or use hand sanitizer

**Support:** The following resources are available to students.

- [University Health Services](#) or call (541) 346-2770
- [University Counseling Center](#) or call (541) 346-3277 or (541) 346-3227 (after hrs.)
- [MAP Covid-19 Testing](#)
- [Corona Corps](#) or call (541) 346-2292
- [Academic Advising](#) or call (541) 346-3211
- [Dean of Students](#) or call (541)-346-3216

### Communications

#### Office Hours:

#### Why should you reach out to me?

I'm happy to talk with students about the course materials and related topics, so please contact me if you're confused or just excited about discussing something. I'm also happy to talk about how (or whether) what we're learning relates to current events, career choices, or other classes you can take UO. Beyond these course-related topics, please get in touch with me if you are having a hard time with the class or other aspects of your academic career. I understand these are still difficult times for many of us, in many different ways, so I would be happy to listen and/or strategize with you to find solutions. I will do everything I can to help you succeed. If there are deeper challenges that would benefit from professional help, please see below ("*Your well-being*") for some ideas regarding available support on campus.

### Academic Integrity & Classroom Conduct

I expect everyone to follow University rules and guidelines for behavior. Academic dishonesty, which includes cheating and plagiarism, is a serious offense and will be treated according to the guidelines in the student conduct code (located at [conduct.uoregon.edu](http://conduct.uoregon.edu)). This doesn't mean you shouldn't talk with other students about what you are thinking or writing; it does mean that when you write something, it should be in your own words, not copied from someone else.

My guiding principle for conduct within this course is **mutual respect**. Our classroom should be a place where each of us is treated with respect, and I welcome individuals of all ages, backgrounds, beliefs, ethnicities, genders, gender identities, gender expressions, national origins, religious affiliations, sexual orientations, ability - and other visible and non-visible differences. All members of this class are expected to contribute to a respectful, welcoming and inclusive environment for every other member of the class. Classroom courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, culture, religion, politics, sexual orientation, gender, gender variance, and nationalities. Class rosters are provided to the instructor with the student's legal name, but I will gladly honor your request

to address you by an alternate name or gender pronoun. Please advise me of this preference early in the quarter (or before) so that I may address you properly.

### Accessibility

I encourage students with disabilities, including "invisible" disabilities like chronic diseases, learning disabilities, and psychiatric disabilities to discuss with me as soon as possible what appropriate accommodations might be helpful. You are also encouraged to contact the Accessible Education Center in 164 Oregon Hall at 541-346-1155 or [uoaec@uoregon.edu](mailto:uoaec@uoregon.edu).

### Your well-being

This continues to be a hard time for people in many different ways. The pandemic can exacerbate existing challenges associated with college life and life in general. If any aspects of your life are not going well, there are UO resources that could help. I would encourage you to pursue the following resources if they would be helpful or get in touch with me directly if it would help to discuss any extenuating circumstances. Getting help is a courageous thing to do—for yourself and those you care about.

[University Health Services](#) help students cope with difficult emotions and life stressors. If you need general resources on coping with stress or want to talk with another student who has been in the same place as you, visit the Duck Nest (located in the EMU on the ground floor) and get help from one of the specially trained Peer Wellness Advocates.

University Counseling Services (UCS) has a team of dedicated staff members to support you with your concerns, many of whom can provide identity-based support. All clinical services are free and confidential. Find out more at [counseling.uoregon.edu](https://counseling.uoregon.edu) or by calling 541-346-3227 (anytime UCS is closed, the After-Hours Support and Crisis Line is available by calling this same number).

**Basic Needs.** Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live and believes this may affect their performance in the course is urged to contact the Dean of Students Office (346-3216, 164 Oregon Hall) for support. The [UO Basic Needs Resource Guide](#) includes resources for food, housing, healthcare, childcare, transportation, technology, finances, and legal support.