

NR365 Silviculture Syllabus

Instructor

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Office Location

180-506

Office Hours

M/W 10:00am – 12:00pm
Or by appointment

Course Meeting Times

MWF 8:10 – 9:00 am
F (lab) 12:10 – 3:00 pm

Course Overview: Silviculture is the art and science of caring for and cultivating forests to meet our diverse needs and values. This course will cover the principles, concepts, and issues associated with silviculture and vegetation management. Students will gain a greater respect for the complexity of achieving ecosystem management objectives through the implementation of silvicultural prescriptions. Students will also learn that management is associated with balancing local ecological, economic, and social values. Material will cover common techniques but will focus on the importance of understanding the local species and forest ecosystems when making management decisions.

Learning Objectives:

- Introduce the application of ecological concepts to forest management.
- Train students to critically evaluate complex ecosystems and identify the main factors influencing ecosystem dynamics and management decisions.
- Increase problem solving skills for balancing ecological, economic, and societal needs in forest management.
- Emphasize a learn-by-doing approach and collaborative project implementation.

Prerequisites: Requires completion of NR 208/NR 315 (Forest Measurements) and NR306 (Natural Resource Ecology)

Required Text:

Tappeiner, J.C. et al. (2015) *Silviculture & Ecology of Western U.S. Forests*.

Putteman, K.J. et al. (2009) *A Critique of Silviculture: Managing for Complexity*.

Study Suggestions:

- Attend class. Research shows that students with regular attendance receive (on average) one full letter grade higher than those who do not attend regularly.
- Take notes! You are responsible for the material presented and discussed in class, regardless of whether or not it is on the slides.
- We all learn differently. Find study methods that work best for you, and practice them.
- Meet with me if you are struggling. I'm here to help, and I love to talk about forestry!

Class Etiquette: Cell phone use is not permitted in class. Keep the texting, emailing, and social media for your own personal time. If you are caught using your phone, you will be warned once and then asked to leave the class. Do not disrupt the learning of your peers.

Faculty Respect:

- Office hours are for reviewing complex material, advising, and mentoring. Office hours are not designed as one-on-one lecture time for students who miss class.
- I do not respond to email after 5pm or on weekends. Plan your ecological emergencies accordingly.
- Meet with me to address low grades early on in the quarter. Waiting until the last minute puts an unnecessary burden and additional workload on your professors. Be respectful of others' time.

Readings and Assignments

Assigned Reading: You are expected to assume responsibility of some learning of new material on your own. The vast body of knowledge cannot be covered during class time. Class time is meant to reinforce concepts and provide examples from real-world scenarios. Preparing for class includes completing the assigned readings. During lecture, you will be periodically asked to answer questions that apply knowledge from the assigned reading. These assessments will apply toward your participation grade.

Critique of Silviculture Summaries & Discussion: This portion of the class is designed to expose you to the current state of Silviculture & Forest Management. We will read Putteman's *A Critique of Silviculture* and hold group-led class discussions throughout the quarter. Groups will be assigned at the start of the quarter, and each will lead discussion of one chapter. All students must read the assigned chapter and prepare a one-page (maximum!) summary of the main points. I will not grade anything beyond 1 page of text. Discussion leaders will provide the following: a summary of the chapter, a review of the main concepts, and questions to drive discussion. The format of the discussion is up to the group leaders and may vary week to week (i.e. large group discussion, small group discussion, activities, etc.). Come prepared to participate.

Lab Activities and Assignments

Attendance is mandatory. We will work in the field for the majority of our labs and will do so regardless of weather conditions. Wear appropriate field clothing, including pants, closed-toe shoes, and long-sleeved shirts. Hazards in the field may include falling rocks, ticks, and poison oak. *Each lab will have an associated lab assignment due the following week.*

Silvicultural Prescription Project

This assignment is designed to expose you to all of the steps involved in planning forest management, from generating objectives to marking trees. You are encouraged to begin thinking purposefully about the project from the beginning of the quarter. We will collect data on specific stands during our field trip to the Sierra Nevada (Oct 9-11). Discuss ideas and use labs to familiarize yourself with methods. Projects will conclude with an oral presentation and submission of a prescription during lab on Friday, December 4th.

Homework Policy

Assignments are to be turned in via PolyLearn on the due date. Late assignments will be penalized at 20% per day and will not be accepted two days after the due date. This holds true for both lecture and lab assignments

Academic Dishonesty

Homework must be individual work. It is okay to work with other students to understand the material, but you must write up your own homework assignments. Cheating will not be tolerated. Examples of cheating include, but are not limited to:

- Turning in identical homework assignments.
- Plagiarizing from sources outside of the course. You may use information from books, articles, or websites but must give credit to the source.
- Using one student's homework and changing some words in your version.

Attendance and Participation

Attendance and participation will count toward your professionalism grade. Field labs are meant to support learning and provide you with the opportunity to connect abstract concepts to natural ecosystem dynamics. Field labs are also designed to expose you to different topics and sampling techniques, which will provide the foundation for your silvicultural prescriptions. Your presence is essential for your group to function well. *Perfect attendance and active participation will be rewarded with extra credit added to your final grade in the class.*

Grading

- Exams (40%)
 - Midterm Exam (15%)
 - Final Exam (25%)
- Lab Exercises & Presentations (40%)
 - Laboratory Exercises
 - Forest Management Case Study Presentation
 - Silvicultural Prescription Report & Presentation
- Assignments (15%)
 - *Critique of Silviculture* Chapter Summaries
 - *Critique of Silviculture* Discussion Lead
 - Homework Assignments
- Professionalism (5%)

Exams will cover the material from lectures (including everything discussed and written on the board), readings, and homework assignments. Exams will evaluate your ability to apply knowledge rather than your retention of facts and definitions. The Final Exam will ask you to think critically and synthesize material from across the semester. The Midterm Exam will be short answer format, while the Final Exam will be one long question.

Make-up exams will only be offered to students who have extenuating circumstances and with proper documentation.

Grading Scale is as follows: 100 – 93% = A, 92 – 90% = A-, 89 – 87% = B+. 86 – 83% = B, 82 – 80% = B-, 79 – 77% = C+, 76 – 73% = C, 72 – 70% = C-, 69 – 67% = D+, 66 – 63% = D, 62 – 60% = D-, < 60% = F.

A curve may be generated at any time at the discretion of the instructor.

Lab Schedule

Date	Subject
Sept 25	Assessing Ecosystem Structure & Complexity (Cerro San Luis)
Oct 2	Building Blocks: Writing Complete Stand Descriptions (Montana de Oro)
Oct 9	Weekend Field Trip: Sierra Nevada Silvicultural Prescription Data Collection (Oct 9 – 11)
Oct 16	Investigating Stand History & Disturbance Interactions (Rancho Marino, Cambria)
Oct 23	Overnight Field Trip: Swanton Pacific Ranch Uneven-aged Management (Oct 23 – 24)
Oct 30	Midterm
Nov 6	Free Lab – Work with group on silvicultural prescriptions
Nov 13	Emulating Natural Disturbance (Diablo Canyon Power Plant)
Nov 20	Managing at the Landscape Scale (Cuesta Ridge Botanical Area & Oak Woodlands)
Nov 27	NO LAB - Happy Thanksgiving!
Dec 4	Silvicultural Prescription Presentations

Tentative Lecture Schedule

Week	Subject	Readings** & Assignments
Sept 21	Silviculture and Ecology NO CLASS WEDNESDAY Ecological Principles	Ch. 1 and 3 Read Syllabus This I Believe (1) Homework
Sept 28	Stand Dynamics <i>Critique of Silv Chapter 1 Discussion</i>	Ch. 3 and 5
Oct 5	The Silvicultural System <i>Case Studies: Sierra Mixed Conifer & lodgepole pine (Oct 7th)</i>	Ch. 2
Oct 12	Stand Density & Growth <i>Critique of Silv Chapter 2 Discussion</i>	Ch. 6
Oct 19	Even-aged Management Uneven-aged Management	Ch. 8 Ch. 10
Oct 26	Intermediate Treatments <i>Critique of Silv Chapter 3 Discussion</i>	
Nov 2	Salvage & Sanitation Variable Density Thinning <i>Critique of Silv Chapter 4 Discussion</i>	Salvage Logging Debate Argument Prep
Nov 9	Emulating Natural Disturbance Veteran's Day - NO CLASS WED <i>Case Studies: Coastal chaparral & Closed pine</i>	Ch. 11
Nov 16	Managing for Resistance & Resilience Salvage Logging Debate <i>Case Studies: Coastal endemics & coast oak woodlands</i>	
Nov 23	Forest Genetics Thanksgiving - NO CLASS WED/FRI	This I Believe (2) Homework
Nov 30	Managing Forests under Climate Change NO CLASS WEDNESDAY <i>Critique of Silv Chapter 5 Discussion</i>	
Dec 9	Final Exam (8:10 – 10:00 am)	

** Chapter readings should be completed prior to each date listed. These readings will be the basis of class discussion.