



	Instructor	Teaching Assistant
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Office Hours:	Tu 1-2, W 12-1	
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Term:	Spring 2019
Class Meeting Days:	Thursdays
Class Meeting Hours:	11:00-1:45
Class Location:	Engineering E105
Lab Location:	NA
Course Credits:	3

Course Overview

Climate-driven forest die-off is believed to be occurring globally at unprecedented rates and is expected to accelerate with climate change. High rates of tree mortality due to direct effects of drought and indirectly due to increased rates of disturbance by fire and bark beetle are well documented in forest ecosystems of the Rocky Mountains. These tree mortality events have important consequences for future vegetation composition, disturbance regimes, ecosystem services, and land-climate interactions that are just beginning to be investigated.

This seminar will focus on the patterns of tree mortality and their consequences for ecological communities, disturbance regimes, and ecosystem processes. Our focus will be on the southern Rocky Mountains but we will also draw on literature from other regions. The literature included will be diverse ranging from ecophysiology to dendroecology to climate science, and our goal will be to integrate this diverse literature to understand the ecological consequences of climate variability on forest ecosystems of the Rocky Mountains and globally.

The first three-quarters of the semester will consist of discussions of selected articles (~ 3 per week) on each weeks topic. For each week, myself and/or the students in the class will provide several discussion questions to guide your reading of the 3 assigned articles. The final one-fourth of the course will consist mainly of student-led seminar presentations of term paper topics. Each week, three to four students will report on and lead a discussion of their term paper topic. They will each assign one article for the entire class to read in preparation for the seminar discussion.

Course Goals and Objectives

At the end of this course, students will be able to: (1) summarize and apply relevant literature on how climate and disturbances interact to influence tree mortality and recovery in forest ecosystems of the southern Rocky Mountains (2) demonstrate and apply understating of the complexity and challenges in researching forest ecosystems by critically evaluating methodological approaches; (3) effectively facilitate discussions and communicate research to their peers.

Course Prerequisites

Students must be graduate students and should have some prior knowledge of forest ecology either through an undergraduate course or through research/professional experience.

Required Texts and Materials

None.

Supplementary (Optional) Texts and Materials

None.

Library & Research Help

The CSU Libraries Help Desk provides research and technical assistance either in person at Morgan Library or by phone at 970-491-1841. Jocelyn Boice is the librarian supporting this course. Contact her by email at jocelyn.boice@colostate.edu or by phone at 970-491-3882 to ask questions or set up an appointment for in-depth research help.

Course Schedule

This is the tentative schedule and papers (and topics!) are not finalized

Week	Topic	
1. Jan. 24	Introduction; Dendrochronology	
2. Jan. 31	Climate in Colorado; Applied historical ecology	Ray et al. 2008 <i>WWA Report</i> Woodhouse and Lucca 2006, <i>Climatic Change</i> Swetnam et al. 1999, <i>Ecology</i>
3. Feb. 07	Climate Change and Tree Mortality	Anderegg et al., 2015, <i>New Phytologist</i> Williams et al., 2013 <i>Nature CC</i> Gleason et al., 2017 <i>Ecosphere</i> Allen et al, 2010, <i>FEM – optional reading</i>

4. Feb. 14	Fire regimes in the Front Range	Brown and Wu, 2005 <i>Ecology</i> Sherriff and Veblen, 2007 <i>Ecosystems</i> Keith et al., 2010 <i>JVS</i> <i>optional</i> : Schoennagel et al., 2007 <i>Ecology</i>
5. Feb. 21	Climate change and wildfire activity	Williams and Baker 2012, <i>GEB</i> and Fulé et al., 2014 response Fornwalt et al., 2016 <i>Fire Ecology</i> Schoennagel et al., 2017 <i>PNAS</i> Term paper topic due Feb. 21st
6. Feb. 28	Causes of bark beetle epidemics	Hart et al., 2017 <i>Ecology</i> Negrón et al., 2017 <i>Forest Sciences</i> Hart et al., 2014 <i>FEM</i>
7. Mar. 7	Tree recovery following fire	Johnstone et al. 2016; <i>FEE</i> Stevens-Rumann et al. 2017, <i>Ecol. Letters</i> Urza and Sibold 2017, <i>JVS</i>
8. Mar. 14	Ecological consequences of drought- and beetle-induced tree mortality	Anderegg et al., 2013 <i>Nature Climate Change</i> Collins et al., 2011 <i>Forest Ecology & Mgmt</i> Redmond et al. 2018 <i>Journal of Ecology</i>
9. Mar. 28	Disturbance Interactions	Hart et al, 2015, <i>PNAS</i> Harvey et al., 2013 <i>Ecology</i> van Mantgem et al., 2013 <i>Ecology</i> Rough draft of term paper due Mar. 28th
10. Apr. 4	Climate Change and Treeline Dynamics	Ameztegui et al, 2015, <i>GEB</i> McIntire et al, 2016, <i>JOE</i> Elliot, 2012, <i>Ecology</i>
11. Apr. 11	Forest hydrology: Tree density effects on water balance	Background Reading: Bales et al., 2011 (pages 9-20) Morillas et al., 2017, <i>JGR</i> Stevens 2017, <i>Ecological Applications</i> Lundquist et al 2013, <i>WRR</i> Term paper peer-reviews due Apr. 11th
12. Apr. 18	Class Field Trip: Forest Restoration	Brown et al., 2015; <i>CJFR</i> Dickinson et al., 2014, <i>Report</i> Noss et al., 2006, <i>FEE</i>
13. Apr. 25	Term paper presentations	TBD

14. May 2	Term paper presentations	TBD
15. May 9	Term paper presentations	TBD; Term paper due: Thursday, May 9th

Basis for Final Grade

Assessment	Percent of Final Grade
Discussion Participation	15%
Student-led discussion questions and facilitation	30%
Term Paper	35%
Oral Presentation of term paper	10%
Peer-review	10%
	100%

Grades will be assigned as A (93-100%), A- (90 - 92%), B+ (88 - 89%), B (83-87%), B- (80 - 82%), C+ (78 - 79%), C (73 - 76%), C- (70 - 72%), D (60-69%), and F (<60%).

Discussion Participation: This course is designed as a seminar and students are expected to attend class weekly and actively participate in the discussions and come to class prepared, which includes bringing one thoughtful question or comment about each paper read for each week. Students will be marked down for missing more than one class without an official excuse.

Student-led discussion and facilitation: Students will be assigned to lead the discussion of ~ 5 papers during the course of the semester. This includes developing guiding questions and activities in advance and giving a brief summary of the paper and information on the authors' professional backgrounds. More detailed instructions and guidelines are provided on canvas.

Term Paper: Specific instructions and guidelines on the term paper will be posted on canvas. Each student will write a term paper on a topic related to the course. Term papers will vary and can be a data-driven research paper for those students who are conducting research on topics central to the seminar theme or a literature review or meta-data analyses for those students who are newer to graduate school or who aren't currently doing research on topics related to the seminar.

Oral Presentation of Term Paper: During the last few weeks of the semester, each student will give a presentation on their term paper topic and lead a discussion on that topic.

Peer-review: Each student will provide constructive feedback on two other student's papers.

Course Policies

Late Work Policy

Late term papers will be deducted 10% for each day late. Students must notify the instructor at least two weeks in advance if they are not able to lead the discussion on their scheduled dates.

Extra Credit Policy

No extra credit will be offered.

Grades of "Incomplete"

Per university policy, an instructor may assign temporary grade of Incomplete to a student who demonstrates that he or she could not complete the requirements of the course due to circumstances beyond the student's control and not reasonably foreseeable. A student must be passing a course at the time that an Incomplete is requested unless the instructor determines that there are extenuating circumstances to assign an Incomplete to a student who is not passing the course. When an instructor assigns an Incomplete, he or she shall specify in writing using the Department Incomplete Grade Form the requirements the student shall fulfill to complete the course as well as the reasons for granting an Incomplete when the student is not passing the course. The instructor shall retain a copy of this statement in his or her grade records and provide copies to the student and the department head or his or her designee. (Section I.6 of the *Academic Faculty and Administrative Professional Manual*)

Disability Access

Colorado State University is committed to providing reasonable accommodations for all persons with disabilities. Students with disabilities who need accommodations must first contact Resources for Disabled Students before requesting accommodations from the professor. Resources for Disabled Students (RDS; <http://rds.colostate.edu/home>) is located in room 100 of the General Services Building. Their phone is (970) 491-6385 (V/TDD). Students who need accommodations in this course must contact the professor at the beginning of the semester to discuss needed accommodations.

Attendance Policy

Students are expected to attend class weekly and actively participate in the discussions. You are allowed to miss one class and any additional absences need to have official excuses.

Religious Accommodation

Participation in official University activities, e.g., an out-of-town athletic event, or special religious observances may provide a legitimate reason for an excused absence. The student is responsible for discussing this with the instructor at the beginning of the semester.

Final Exam Policy

There is no final exam for this course.

Professionalism Policy

Per university policy and classroom etiquette; mobile phones, iPods, *etc.* **must be silenced** during all classroom meetings. Those not heeding this rule will be asked to leave the classroom immediately so as to not disrupt the learning environment. Please arrive on time for all class meetings. Students who habitually disturb the class by talking, arriving late, *etc.*, and have been warned may suffer a reduction in their final class grade.

When emailing the instructor, please include your full name, CSU ID, and the course number in your email.

Academic Integrity

The Department of Forest and Rangeland Stewardship takes academic integrity seriously. At minimum, academic integrity means that no one will use another's work as their own. The CSU writing center defines plagiarism this way:

Plagiarism is the unauthorized or unacknowledged use of another person's academic or scholarly work. Done on purpose, it is cheating. Done accidentally, it is no less serious. Regardless of how it occurs, plagiarism is a theft of intellectual property and a violation of an ironclad rule demanding "credit be given where credit is due."

Source: (Writing Guides: Understanding Plagiarism.
<http://writing.colostate.edu/guides/guide.cfm?guideid=17>)

If you plagiarize in your work you could lose credit for the plagiarized work, fail the assignment, or fail the course. Each instance of plagiarism, classroom cheating, and other types of academic dishonesty will be addressed according to the principles published in the CSU General Catalog (under “Academic Integrity/Misconduct: <http://catalog.colostate.edu/general-catalog/policies/students-responsibilities/> .)

Of course, academic integrity means more than just avoiding plagiarism. It also involves doing your own reading and studying. It includes regular class attendance, careful consideration of all class materials, and engagement with the class and your fellow students. Academic integrity lies at the core of our common goal: to create an intellectually honest and rigorous community. Because academic integrity, and the personal and social integrity of which academic integrity is an integral part, is so central to our mission as students, teachers, scholars, and citizens, we will ask to you sign the CSU Honor Pledge as part of completing all of our major assignments. While you will not be required to sign the honor pledge, we will ask each of you to write and sign the following statement on your papers and exams:

"I have not given, received, or used any unauthorized assistance."

Title IX Information

CSU’s Student Sexual Harassment and Violence policy, following national guidance from the Office of Civil Rights, requires that faculty follow CSU policy as a “mandatory reporter” of any personal disclosure of sexual harassment, abuse, and/or violence related experiences or incidents shared with the faculty member in person, via email, and/or in classroom papers or homework exercises. These disclosures include but are not limited to reports of personal relational abuse, relational/domestic violence, and stalking. While faculty are often able to help students locate appropriate channels of assistance on campus (e.g., see the CSU Health Network link below), disclosure by the student to the faculty member requires that the faculty member inform appropriate CSU channels to help ensure that the student’s safety and welfare is being addressed, even if the student requests that the disclosure not be shared.

For counseling support and assistance, please see the CSU Health Network, which includes a variety of counseling services that can be accessed at: <http://www.health.colostate.edu/>. And, the Sexual Assault Victim Assistance Team is a confidential resource for students that does not have a reporting requirement and that can be of great help to students who have experienced sexual assault. The web address is <http://www.wgac.colostate.edu/need-help-support>.

Source: <http://oeo.colostate.edu/title-ix-sexual-assault>

Non-Discrimination Statement

Colorado State University does not discriminate on the basis of race, age, creed, color, religion, national origin or ancestry, sex, gender, disability, veteran status, genetic information, sexual orientation, gender identity or expression, or pregnancy. The University complies with the Civil Rights Act of 1964, as amended, related Executive Orders 11246 and 11375, Title IX of the Education Amendments Act of 1972, Sections 503 and 504 of the Rehabilitation Act of 1973, Section 402 of the Vietnam Era Veterans’ Readjustment Assistance Act of 1974, as amended, the Age Discrimination in Employment Act of 1967, as amended, The Pregnancy Discrimination Act of 1978, Americans with Disabilities Act of 1990, the Civil Rights Act of 1991, the ADA Amendments Act of 2008, the Genetic Information Nondiscrimination Act of 2008, and all civil rights laws of the State of Colorado. Accordingly, equal opportunity of employment and admission shall be extended to all persons. The University shall promote equal opportunity and treatment in employment through a positive and continuing affirmative action program for ethnic minorities, women, persons with disabilities, and veterans. The Office of Equal Opportunity is located in 101 Student Services. Source: <http://oeo.colostate.edu/non-discrimination-statement>

