



**FOREST AND RANGELAND  
STEWARDSHIP  
COLORADO STATE UNIVERSITY**

**NR 578: Ecology of Disturbed  
Lands**

**COURSE SYLLABUS**

Department of Forest and  
Rangeland Stewardship  
Warner College of Natural Resources

	<b>Instructor</b>	<b>Teaching Assistant</b>
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<b>Office Hours:</b>	Tuesday and Thursday 10:30-11, 12:15-1	
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	<b>Term:</b>	Spring 2018
	<b>Class Meeting Days:</b>	TR
	<b>Class Meeting Hours:</b>	9-10:30
	<b>Class Location:</b>	Forestry 127
	<b>Course Credits:</b>	3

**Course Overview**

The purpose of this course is to provide you with an in-depth understanding of the role that ecological disturbance plays in ecosystems. By understanding the role of disturbance and the subsequent processes of recovery you will have a greater appreciation for how ecosystems are managed and the tools that are used to guide their development.

**Course Goals and Objectives**

Upon completing this course, you will be able to:

- Describe the role that disturbance plays in the structure and function of ecosystems.
- Describe the mechanisms by which ecosystems recover from various disturbances.
- Recognize when disturbed ecosystems are in need of intervention in order to restore them.
- Describe past research accomplishments, current research themes and future research needs in the area of ecological disturbance. You will demonstrate proficiency in these areas during presentations, written assignments and examinations.

**Course Prerequisites**

NR578 is an advanced ecology course. You are expected to have a basic understanding of ecology and soil science. Recommended prerequisites are LAND 220 or LIFE 220; and SOCR 240, or similar.

**Required Texts and Materials**

There are no required texts for this course but there will be numerous reading assignments posted on Canvas. You will be expected to read these papers at the start of each module.

### **Library & Research Help**

The CSU Libraries Help Desk provides basic research and technical assistance either in person at Morgan Library or by phone at 970-491-1841. Virtual assistance is also available via the Libraries' Ask Us chat and email services (<http://lib.colostate.edu/help/ask-us>). Jocelyn Boice is the librarian supporting the Forest and Rangeland Stewardship Department and this course. Contact her for in-depth assistance at: [jocelyn.boice@colostate.edu](mailto:jocelyn.boice@colostate.edu) / 970-491-3882.

### **Important Dates to Remember**

#### **University Wide**

Classes Begin: Jan 16, 2018  
End Restricted Drop Classes: Jan 19, 2018  
Spring Break: March 12th - 16, 2018  
Withdrawal Deadline: March 19, 2018

### **Course Schedule and/or Schedule of Assignments**

#### **Schedule of Topics**

- 1) The Nature of Disturbance
- 2) Post-disturbance recovery
  - a) Historical perspectives and Modern consensus
  - b) Soil development
  - c) Plant / soil interactions
  - d) Dispersal / Recruitment
  - e) Changing Physical Environments
  - f) Species Life History
  - g) Species Interactions
  - h) Invasive Species
- 3) Disturbance and recovery Examples
  - b) Temperate Forests
  - c) Marine Systems
  - e) Subterranean Ecosystems
- 4) Current Research

#### **Quiz and Exams**

These will be short answer and essay question tests that will include all course material, assigned readings (including discussion papers) assigned prior to the test. Complete sentences and proper grammatical structure and spelling is required.

#### **Discussions**

Students will lead class discussions for 20-30 minutes. You will be graded in part by your participation in other discussion and part in your effective preparation and communication as discussion leader. (Additional details will be provided on Canvas)

#### **Literature review**

You are tasked to conduct a thorough literature review on a topic of your choice relating to disturbance ecology. (Additional details will be provided on Canvas)

## **Greenhouse Project**

This is a group project, in which you will design and implement a greenhouse project that will test the effect of some disturbance on species of your choice. You will present results at the end of the class in both a presentation and paper.

## **Basis for Final Grade**

Details about all assessments are provided in Canvas.

Assessment	Points
Quiz 1	50
Exam 1	125
Exam 2	125
Discussions	100
Participation	25
Literature Review	100
Greenhouse project	165
Total	690

Grading Scale (%)
94-100% = A
90-94%=A-
87-89.9%=B+
84-86.9% = B
80-83.9% = B-
77-79.9%=C+
74-76.9%=C
70-73.9%=C-
67-69.9%=D+
64-66.9% = D
60-63.9%=D-
0-59% = F

## **Course Policies**

### **Late Work Policy**

Late work will be marked off 10% for everyday it is late. Only medical emergencies accompanied with a doctor's note on letterhead or a work emergency will not be penalized

### **Extra Credit Policy**

There will be no extra credit in this class

### **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**

Attendance is not mandatory but strongly encouraged. This class will be run part lecture part discussion. As such your participation and discussion grades will be impacted negatively by excessive absences. Accommodations for work, research, or academic related reasons will be accommodated.

### **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**

Final examination week is part of the regular semester. Student attendance shall be consistent with University policy.

If a student has three or more final examinations (not classes) scheduled for the same day or if conflicts of examination times occur, the student may negotiate a time change with the instructors involved. If the parties involved cannot find a mutually agreeable time, the Registrar's Office indicates which courses must be changed. **Note:** The Registrar's Office must be notified at least one week prior to Final Examination Week to allow instructors time to make appropriate accommodations. It is the student's responsibility to initiate negotiations.

Any student who has a conflict with the examination schedule must inform the instructor as soon as possible before the examination. If an agreement cannot be reached between the instructor and student as to the appropriateness of a make-up examination the student should appeal to the department head.

<http://www.registrar.colostate.edu/final-exams>

### **Professionalism Policy**

When emailing the instructor or TA, please include your full name 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>

## NR578 Spring 2019

**Note – this schedule is tentative (print with caution)**

Date			Topic	Assignment	Notes
Jan	22	T	Introduction		
	24	Th	Human Population		
	29	T	The Nature of Disturbance	Sousa 1984	
	31	Th	Succession and Ecosystem Recovery	Chpt 2 in Walker & del Moral 2003	
Feb	5	T	Historical Perspectives of Succession	Clements 1936 Gleason 1926 Young et al. 2001	
	7	Th	Greenhouse project design		
	12	T	Ecosystem Resilience	Johnstone et al. 2016	
	14	Th	Quiz 1/Discussion		
	19	T	Greenhouse study setup		
	21	Th	Discussion		
	26	T	Soil Development, disturbances and soil		
	28	Th	Front Range Student Ecology Symposium		<i>No class today. Symposium attendance required</i>
Mar	5	T	Dispersal/Recruitment		
	7	Th			
	12	T	Life Histories		
	14	Th	Discussion	Literature Reviews due (March 15)	
	19	T	<b>Spring Break</b>		
	21	Th			
	26	T	Species Interactions		
	28	Th	Discussion		
Apr	2	T	Intermediate Disturbances	Connell 1978 Mayor et al. 2012	
	4	Th	Discussion		
	9	T	Exam 2	Take home exam	<i>No class today</i>
	11	Th	Discussion		
	16	T			
	18	Th	Discussion		
	23	T	Marine Ecosystems		
	25	Th	Subterranean Ecosystems		
	30	T			
	2	Th	Exam 3	Take home exam	<i>No class today Greenhouse experiments must be taken down and cleaned up</i>

May	7	T	Lab presentations		
	9	Th	Lab presentations – Review / Evaluations	<b>Lab reports due (May 10)</b>	