



	Instructor	Teaching Assistant
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Office Hours:	Mondays 9:00- 10:00; Thursdays 2:00-3:00. I also have an open-door policy. When my door is open feel free to stop by anytime. I have a second office in 240F MSNR where you might also be able to find me. If you have trouble catching me, send me an email, or call to set up an appointment	Tuesdays 11-12; Wednesdays 2:00-3:00

Term:	Spring 2019
Class Meeting Days:	MWF
Class Meeting Hours:	12:00 – 12:50
Recitation	1:00-1:50 Wednesdays
Class Location:	140 MSNR
Recitation Location:	201 Natural Resources
Course Credits:	4

Course Overview

The field of Ecological Restoration is a complex interdisciplinary field that is becoming more important in a world that depends on increasingly degraded ecosystems to support growing human societies. Ongoing human disturbances associated with urbanization, energy development, climate change, poor land management, and pollution create the need for professionals that can restore services to degraded ecosystems. Restoration of degraded ecosystems benefits society by improving biodiversity conservation, improving human livelihoods, empowering local people, and improving ecosystem productivity. This course is intended to provide you with an understanding of the process of assisting in the recovery of damaged, degraded or destroyed ecosystems. The greatest amount of attention will be given to drastically disturbed lands, but the principles and concepts will have application to a wide variety of disturbance scenarios.

Course Goals and Objectives

The goal of this class is to provide you with the skills and knowledge that you would need to restore any ecosystem that has been degraded, damaged or destroyed. The class will focus on the underlying principles and approaches used in ecological restoration. Upon completing this class, students will:

- Be able to articulate the historical development of restoration concepts and the role that restoration can serve in the future stewardship of natural resources,
- Be able to describe the major ecological principles underlying the successful restoration of ecosystems including concepts of disturbance and succession,
- Be able to use ecological and management principles and select appropriate methods and tools for designing and conducting restoration projects,

- Be capable of discerning elements of successful versus failed restoration projects

Students will demonstrate proficiency in these areas in the classroom during student presentations, quizzes, written assignments and examinations.

Course Prerequisites

In order to be successful in this class, students need to already have a thorough understanding of ecology as well as familiarity with basic soil science. Specific CSU prerequisites are: 1) BZ 450 or F 311 or LAND 220/LIFE 220; 2) SOCR 240.

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 assignments prior to coming to class in order to fully understand lecture material and engage in discussions of the reading assignments.

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.

Important Dates to Remember

Classes Begin: Jan 22nd 2019
 End Restricted Drop Deadline: Jan 25th 2019
 Spring Break: March 16th – 24th, 2019
 Withdrawal Deadline: March 25th 2019
 Final Examination: Wednesday, May 15th 4:10-6:10pm

Schedule of Topics

- 1) Introduction to Ecological Restoration
 - a) Historical development
 - b) Role in stewardship
 - c) Future needs
- 2) Ecological Concepts
 - a) Ecological Succession
 - b) Reference conditions
- 3) Restoration Process
 - a) Steps in the Process
 - b) Understanding Limitations
 - i) Biological Limitations
 - ii) Physical Limitations
 - iii) Chemical Limitations
 - c) Overcoming Limitations (a few examples)
 - i) Revegetation
 - ii) Mulching
 - iii) Equipment
 - iv) Phytoremediation
 - v) Collaborative Restoration
- 4) Restoration in Various Settings (examples)
 - a) Wetlands
 - b) Rivers
 - c) Wildlife
 - d) Temperate Forests

- e) Grasslands
- f) Tropical Forests

Basis for Final Grade

In order to meet the learning objectives of this course you will be evaluated based upon your performance/participation on the following:

- Twelve quizzes. Quizzes will have a value of 5 points each for a total of 50 points (lowest two scores will be dropped). These quizzes will be given on Canvas, and will cover reading and lecture material. Quizzes will be announced in class and made available in Canvas after class on the day they are announced. Quizzes will be due prior to the next class period. There will be no make-up quizzes, but the lowest 2 quiz scores, including missed quizzes, will be dropped. The purpose of quizzes is to ensure that students are understanding course material and allow the instructor to revisit material to ensure that learning outcomes are met.
- Three short (~one-page) papers will be assigned during the semester. Each will be worth 10 points.
- There will be one group written assignment (120 points). Parts of this will be due throughout the semester. A significant portion of the grade for this project will be participation as judged by your fellow group members.
- There will be three exams and a final exam. Each exam will be worth 100 points. The final exam will be comprehensive and will have a value of 100 points.
- Participate in weekly discussion sections (75 points) and lead one discussion (25 points).
- Extra Credit – Participate in or lead local restoration projects with Wildland Restoration Volunteers. Each day-long project that you participate in will be worth 10 points. You may earn a maximum of 30 points of extra credit. I DO NOT allow any other activities to substitute as extra credit for these WRV projects.

There will be approximately 700 points awarded during the semester but this might change, as the instructor reserves the right to add or delete assignments as needed to ensure learning objectives are being met.

Grading will be on a scale of > 90% = A; 80 to 89% = B; 70 to 79% = C; 60 to 69% = D; <60% = F. The +/- system will not be used in this class.

Course Policies

Late Work Policy

Late assignments will be penalized 10% of the earned grade per day that the assignment is late (including weekend days). Turning in assignments by email is acceptable.

Extra Credit Policy

You may earn a maximum of 30 points of extra credit by participating in WRV projects as described above.

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

Lecture materials will be posted on Canvas but this is not intended as a substitute for attending class. Not all information covered during class periods will appear on the posted lecture materials but students will be responsible for these materials in assignments and exams. Guest lectures may, or may not be posted. Regular attendance of class is expected and encouraged. There will be quizzes posted on Canvas throughout the semester that must be completed on time. There will be **NO MAKEUP QUIZZES or EXAMS**. Rescheduling of exams is only possible for official University-sanctioned activities and medical issues.

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

Per university policy and classroom etiquette; mobile phones, electronic devices, *etc.* **must be silenced** during all classroom and lab lectures. Those not heeding this rule will be asked to leave the classroom/lab 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 or TA, 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>