NRSM 265: Elements of Ecological Restoration

W.A. Franke College of Forestry and Conservation
University of Montana

LOGISTICS

Time: Tuesday, Thursday, 12:30 – 1:50 pm
Location: Education 312
Web Site: https://moodle.umt.edu/course/view.php?id=65979#section-1

INSTRUCTORS*

Philip Higuera (he/him/his), Professor
Virtual Office: umontana.zoom.us/my/philip.higuera
Office Hours: Tue. and Wed., 2:00-3:30
E-mail: philip.higuera@umontana.edu
(Include "NRSM 265" in subject)

Diana Six (she/her/hers), Professor
Office Hours: TBD
E-mail: diana.six@umontana.edu
(Include "NRSM 265" in subject)

*This course is team-taught by Higuera and Six. Higuera is the lead this year and leading Sections 1, 2, and 3; Six is leading Section 4.

COURSE OVERVIEW

The complex challenges involved with restoring degraded ecosystems requires an understanding not only of the science of restoration ecology, but also the management practices and social factors that lead to successful project implementation. This interdisciplinary course is designed to give students an overview of the natural and social elements of ecological restoration. Topics covered include the ecological foundations of restoration, restoration goals and practices in terrestrial and aquatic habitats, social perspectives on restoration, restoration policies and planning, and restoration initiatives in Montana and the United States.

Learning Objectives

By the end of this course, students should be able to:

1. Communicate the definition of ecological restoration and its relationship with other disciplines.
2. Describe the scientific principles and management practices used to assist in the repair of forest, grassland, and aquatic systems.
3. Describe some of the human dimensions of restoration.
4. Express ideas in verbal and written formats and follow directions associated with assignments.

Course Organization

The course is taught in discreet sections, each with a different set of instructors. A variety of teaching approaches are used, including lectures, group activities, and fieldtrips.

Section	Weeks of the Sem.	Dates
Restoration Theory	Weeks 1-3	8/29 - 9/14
Forest Ecosystem Restoration	Weeks 4-7	9/19 - 10/19
River Restoration and Human Dimensions	Weeks 8-11	10/24 - 11/9
Grassland Restoration, course wrap up	Weeks 12-15	11/14 - 12/7

Course Materials

This course uses readings from the scientific literature, chapters from books, and popular sources, in addition to other audio (e.g. podcasts) and video materials. All of the course materials will be available on-line through Moodle.

Optional: *Nature's Restoration* by Peter Friederici (Island Press, 2006); this book is available via on-line booksellers, including an electronic version. Students interested in delving more deeply into aspects of restoration can find reference information within The Science and Practice of Ecological Restoration book series, published by Island Press.

Computer Access for Moodle

You need reliable internet access to keep up to date with course materials, successfully access and hand in assignments, and receive important update and/or participate in discussions via Moodle. We will also use laptop computers, tablets, or cell phones (any way to access the internet), as available, for in-class activities. If you do not have access to any of these devices, please contact your instructor; there are options.

Assignments and Assessments

Reading assignments

Each section and class period has associated reading material that should be read *before* class. You may want to download all reading materials at the beginning of each course section to ensure that you have access to the documents when you need them.

Pop quizzes and in-class questions

To assist students with staying current with reading materials, there may be pop quizzes on the reading assignments during class, and/or assignments due before class related to the day or weeks' reading. We will waive one of these scores for each student over the course of the semester.

Exams

Each section will conclude with an exam, which will be distributed on Moodle and done individually. The exams will consist of: definitions and fill-in-the-blank-style questions; short-answer questions; and a question that requires critical thinking and/or application. Students

should review all of the lectures and readings for each section. In addition, a study guide reflecting potential questions will be provided to help students focus their studying.

Fieldtrips

For 2023, the course *MAY* include a field trip highlighting forest restoration near Missoula (organized by Higuera). This remains TBD at the start of the semester, depending on college support. Field trip details and dates will be provided as soon possible in the semester.

Writing assignments

There is one writing assignments for this course (not including quizzes and exams). Detailed information on each assignment will be posted on Moodle, where they are to be submitted.

1. **Seminar Report:** At the end of the semester, students will participate in an in-class discussion of *Nature's Restoration*. Each student is required to write a 4-6 page seminar paper, which is due on the class period of the seminar. Instructions on how to write a seminar paper and participate effectively in a seminar is posted on Moodle. An example seminar paper is also posted on Moodle. This report is the final assessment for the course.

2. ~~**Fieldtrip Report:** Each student is required to submit a report from one of the field trips. Please read through the assignment BEFORE the field trip, so that you maximize learning while on the trip and are fully prepared for to write the fieldtrip report.~~

Format and grading for writing assignments:

- All assignments must be typed (except for in-class work) and handed in via Moodle.
- Assignments will be graded for both substance and writing; approximately 20% of the grade for each writing assignment will be based on grammar and clarity of writing.
- For assignments submitted via Moodle, save your document with the following file naming format: "NRSM265_AssignmentName_StudentID#". For example, the seminar paper should be saved as, "NRSM265_SeminarPaper_790123456" (make sure the proper file extension is included too, if relevant).
- In your text, include an appropriately formatted header with the title of your paper, the course number, and your student ID number [790*], and the date on the first page.
- Please do NOT write your name on assignments, but be certain your correct student identification number is on it.
- Students who do not meet the file-naming and header requirements will be docked one grammar grade (e.g., 3% of total grammar points).
- Any in-text citations and bibliographies must follow the "Author-Date" format. For example, the in-text reference would be: (Jones 2016) if it is a single author, (Jones and Brown 2016) if there are two authors, or (Jones et al. 2016) if there are three or more authors. When in doubt, follow the format from a paper in the journal *Ecological Applications* (which you are assigned early on in the semester: Swetnam et al. 1999) and be consistent.

Course Grade

Student grades will be determined based on the exam for each section, weekly during-class assessments and participation in activities, and the field trip report(s). The course is scored on a total of 650 points.

Section	Assignment	Points
Section 1: Restoration Theory	Exam	100 (≈15%)
Section 2: Forest Restoration	Exam	100
Section 3: River Restoration and Human Dimensions	Exam	100
Section 4: Grassland Restoration	Final Exam	100
Throughout the course	Weekly assessments & participation	50 (≈9%)
Throughout the course	Seminar Report	50
Throughout the course	Field Trip Report	50
	TOTAL:	**550**

**NOTE: The last exam is during the finals period, but it is not cumulative and thus not a true "final exam". It will be of similar length as the first three exams.*

Letter grades will be assigned bases on students' numeric scores as follows:

A = ≥ 94%	A- = 90-93%	
B+ = 87-89%	B = 84-86%	B- = 80-83%
C+ = 77-79%	C= 74-76%	C- = 70-73%
D + = 67-69%	D = 64-66%	D- = 60-63%
F = <60%		

COURSE POLICIES

Class expectations

Cell phones and mini-computers

Please turn off electronic devices during class, unless they are being used for an in-class exercise. We expect you NOT to be texting, browsing, or checking e-mail during class. If you feel you need to engage with your electronic device, please leave the classroom.

*Class participation**

The "participation" portion of your course grade is based in part on class attendance, and also on participation in-class through questions and activities.

*Assignment due dates**

Due dates are firm. Late assignments will not be accepted unless you have unusually extenuating circumstances *and* have made arrangements with your instructor at least 48 hours prior to the due date. This includes missing an exam: *there are no make-up exams* without prior arrangement.

If you have extenuating circumstances (e.g., health, educational conflicts, family, etc.) and contact your instructor at least 48 hours in advance of a due date, we are generally happy to grant extensions.

Communication

We encourage you to communicate with the instructor and/or the TA if you have questions about course material or assignments. If you have questions about your grade or your standing in the course, please meet with an instructor during office hours. We are happy to help outside of class, particularly when students demonstrate an interest in learning, but to do so, we ask that you follow these guidelines:

> Coming to office hours is the best way to get questions answered. E-mail can be a less effective way to communicate, unless requested to do so. If you e-mail an instructor or TA, please do the following so that the e-mail is read and understood: (a) include "NRSM 265" in the subject line, (b) write in complete sentences, with proper grammar, and (c) sign the e-mail with your full name. Reply times will vary and may be up to 60 hours.

Classroom environment

Students at University of Montana are diverse in many ways, including race, gender, age, religion, preparedness, and mobility. Please help create a respectful learning environment by honoring all student contributions and expressing your views in ways that do not diminish other students' perspectives.

Academic Honesty, Plagiarism, and Student Conduct

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with and adhere to the Student Conduct Code.

Academic dishonesty of any form is unacceptable and will be taken seriously by the instructor, the College, and the University of Montana. This includes plagiarism, when you copy materials from other sources without citing the source or copy someone's work, and cheating, copying material from other students during tests or quizzes. In both cases, you will fail the assignment/exam and the information will be passed on to the Dean of Students Office. It is your responsibility to be familiar with, and adhere to, the University's definition of plagiarism.

Disability Equity

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Office for Disability Equity (ODE). If you think you may have a disability adversely affecting your academic performance, and you have not already registered with ODE, please contact ODE via (1) an inquire form, (2) e-mail, mailto:ode@umontana.edu or (3) phone, at 406-243-2243. I will work with you and DSS to provide an appropriate modification.

Course Withdrawal Deadlines

Important dates restricting opportunities to drop a course are listed on the Fall 2023 Official Dates and Deadlines calendar (https://www.umt.edu/registrar/calendar/autumn.php).