Prerequisite: BI 211, 212, 213 or BI 204, 205, 206 with a C- or better
This course combines 60 hours of fieldwork and instruction, for 4 credits.

Instructors
Dr. Matt Orr (541-322-3141; matt.orr@osucascades.edu)
Dr. Ron Reuter (541-322-3109; ron.reuter@oregonstate.edu)

Reading Materials
1. The instructors will provide a course reading packet that includes scientific articles, handouts, and restoration plans. Please download the packet onto a laptop or print it out and bring it to the course. NOTE: The packet includes various reading assignments to complete before arriving at the course, plus excerpts from the books below.
2. Books (select chapters):
   a. Stevens, W. Miracle Under the Oaks: The Revival of Nature in America
   b. Collier, E. Three Against the Wilderness

Course Overview
Harvard biologist E.O. Wilson predicted that the 21st Century would be the “age of restoration in ecology.” A 2009 editorial in the journal Science stated: “Our planet’s future may depend on the maturation of the young discipline of ecological restoration.” This course offers an immersive experience in ecological restoration. Students will live in the field at active restoration sites and view first-hand how to write and apply a restoration plan. They will conduct hands-on fieldwork to implement and monitor projects in forest, stream, and uplands restoration, and study natural history and tour additional sites to expand their knowledge of ongoing projects and to better understand the scientific issues where our fieldwork occurs.

Course Objectives. At the end of this course, students will be able to:
- Apply basic principles and history of restoration ecology to a restoration project.
- Apply principles to fieldwork in ecological restoration.
- Identify and interpret characteristics of degraded vs. intact ecosystems, especially in stream and dry ponderosa forest ecology.
- Apply principles of experimental design to collect useful data from restoration projects.
- Collect and analyze data in Excel.
- Implement methods in habitat monitoring, including soil assessments, vegetation surveys, fluvial audits, geomorphic surveys, stream flow meters, groundwater wells, aquatic invertebrates, forestry lasers, dbh tapes, PIT tagging, and spatial imagery.
- Evaluate and predict the efficacy of restoration approaches implemented during the course.
- Write a restoration plan.

Suggestions for Success
- Do readings assigned prior to the course.
- Check the “course materials and supplies” list and bring all required materials with you.
- Prioritize time after the course to finish your assignments.
### Assignments and Grading
30% Data sets & figures – (1) Metolius snags, (2) Metolius soils, (3) Camp Polk vegetation; (4) S. Fork cross section, (5) S. Fork vegetation, (6) S. Fork soils and groundwater wells – 5% each.
20% Natural history exam – Plant ids, field methods, soils textures. Due last day of class.
30% Online exam – Principles of restoration, causes of ecosystem degradation. Due 2 weeks after class.
7.5% Participation, discussion, group dynamics.
7.5% Reflective learning statement – Due 1 week after class.
5% Field camp tasks – These points are all or nothing.

### Class Schedule

<table>
<thead>
<tr>
<th>Day</th>
<th>Activity</th>
<th>Reading, Discussion, Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friday</td>
<td>Landscape Processes and Restoration: Trout Creek Wetlands restoration project. Fire in ponderosa and mixed conifer systems: post fire recovery and fire as a restoration tool.</td>
<td>Reading: Fire ecology overview; Wetland type summary</td>
</tr>
<tr>
<td>Weekend</td>
<td>Weekend free</td>
<td>Reading: Cattle &amp; riparian zones; BDAs. Data compilation from week.</td>
</tr>
<tr>
<td>Monday</td>
<td>Depart for South Fork Crooked River Fluvial audits, stream cross sections.</td>
<td>Reference ecosystems &amp; riparian vegetation.</td>
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<tr>
<td>Tuesday</td>
<td>Fluvial audits &amp; stream cross sections, cont’d Vegetation monitoring</td>
<td>How to write a restoration plan: The Jake Place.</td>
</tr>
<tr>
<td>Wednesday</td>
<td>Fish monitoring Landscpe Geomorphology tour</td>
<td>Plot cross-sectional data. Landform evaluation</td>
</tr>
<tr>
<td>Thursday</td>
<td>Restoration tour &amp; fieldwork: Juniper Hills Preserve (1/2 class); Camp Creek (1/2 class)</td>
<td>Study for natural history exam.</td>
</tr>
<tr>
<td>Friday</td>
<td>Lecture: Web resources for ecological restoration. Plot cross-sectional data. Natural history exam. Depart.</td>
<td>Remaining assignments: Written self-reflection Online exam Jake Place Restoration Plan</td>
</tr>
</tbody>
</table>
Course Grading:
A/A- = 90-100%  B+/B/B- = 80-89%  C+/C/C-=70-79%  D=60-69%  F=below 60. Incomplete requires a contract.

Students with Disabilities: Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at http://ds.oregonstate.edu. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

Student conduct and community standards: For important information on classroom conduct, plagiarism, and other OSU rules of behavior that all students are expected to know and to comply with, please review http://studentlife.oregonstate.edu/studentconduct/offenses-0

Dropping the course or changing grading status will strictly follow policies and procedures described in the governing catalog. See http://www.osucascades.edu/advising/academic_calendar for dates.

Academic misconduct will be reported and handled the appropriate governing authority. The Student Conduct Code defines plagiarism as “representing another person’s words, ideas, data, or materials as one’s own.” In completing homework questions, students are encouraged to work together to solve problems, to share information or resources, and to test each other's understanding. These are all acceptable forms of collaboration. However, the written work that each student turns in must be her or his own. Only in this way can individual understanding of concepts or information be judged. You can work together up to the point of committing words to paper. At that stage, each student must work independently. In addition, once a student has written an out-of-class assignment, it must not be shown to another student in the course. Assignments from two or more students that have significant overlap will be regarded as reflecting a violation of the expectation that students turn in independent assignments. These violations will be dealt with according to the disciplinary processes outlined in the Student Conduct Regulations (http://studentlife.oregonstate.edu/studentconduct/offenses-0).

Cell phones and similar devices must be turned off during class and, especially, during examinations. The disruption of class by ringing cell phones is disruptive to the instructor and fellow classmates.