

San José State University
Environmental Studies Department, College of Social Sciences
ENVS 173, Forest Ecology and Conservation, Fall 2019

Instructor: Dr. Will Russell
Office Location: Washington Square Hall 115E
Office Hours: Monday 1:30 - 2:30
Email: will.russell@sjsu.edu
Class Days/Time: Friday 10:00 - 4:00
Classroom: DMH 164
Prerequisites: ENVS 01 and ENVS 10, or upper division standing

“Any fool can destroy trees. They cannot defend themselves or run away.” – John Muir

Catalog Description

A field based course designed to provide students with the conceptual framework and practical tools necessary for understanding the ecology and conservation of local forest ecosystems. Topics covered include forest restoration, succession, wildlife, diversity, natural and human disturbance, and the history of forest management.

Prerequisite: ENVS 01, ENVS 10, or upper division standing.

Misc/Lab: Lecture 3 hours/lecture 2 hour/lab.

Course Overview

This course is designed to provide students with the conceptual framework and practical tools that are necessary for understanding the ecology and management of forests. Through this course, students will gain an understanding of Basic forest ecology; disturbance and succession; forest community interaction; natives, endemics; invasive exotic species; and local variation of species and community types. In addition, the course will focus on historical and current forest management practices; impacts of timber management on forest ecosystems; and forest restoration. Field observation, and hands-on field techniques will be emphasized.



Required Materials

Textbooks and other Materials

- **Textbook available on Canvas:** Forest Ecosystems. 2008. D. A. Perry. John Hopkins University Press. Baltimore and London.
- **Textbook available on Canvas:** Coast Redwood: A Natural and Cultural History. J. Evarts and M. Popper. Cachuma Press.
- **Journal articles available on Canvas**
 - Helms, J. A. 2004. Old-growth: what is it?. *Journal of Forestry*, 102(3), 8-12.
 - Russell, W., J. Sinclair, and K. H. Michels. 2014. Restoration of Coast Redwood (*Sequoia sempervirens*) Forests Through Natural Recovery. *Open Journal of Forestry* 4:106-111.
 - J. M. McGraw, and C. Rutherford. 2007. Distribution, abundance, size structure and conservation status of three populations of the endangered Santa Cruz cypress (*Callitropsis abramsiana*). US Fish and Wildlife Service.
 - McGraw, J. M. and C. Rutherford. 2011. Effects of fire and manual vegetation removal on Recruitment of the endangered santa cruz cypress (*Hesperocyparis abramsiana* var. *abramsiana*) within the Bonny Doon ecological reserve Santa Cruz County, California. US Fish and Wildlife Service.
 - Thornburgh, D. A., Noss, R. F., Angelides, D. P., Olson, C. M., Euphrat, F., & Welsh Jr, H. H. 2000. Managing redwoods. *The redwood forest: history, ecology, and conservation of the coast redwoods*, 229-261.
- **Recommended Field Guide:** Plants of the California Coast Redwood Region. 1988. By: K. Lyons and M. B. Cooney-Lazaneo. Looking Glass Press.
- **Field Notebook** Spiral or hardbound notebook for: field activities and quizzes, daily plant list, drawings and descriptions of all plants (and other organisms) identified in the field, notes from all field lectures (including those by guest speakers).

Field Trips

This course will be taught primarily in the field. All field trips will take place on Friday's beginning at 10:30 am and will continue well into the afternoon, and will often require moderate to strenuous hiking to reach field sites.

Transportation

Most of our field sites will take place in the Santa Cruz Mountains 60-90 minutes from San Jose State. Transportation to field sites will be the students' responsibility. Carpools are highly recommended, not only because they are more environmentally friendly, but also because there is a \$10-15 per-car parking fee at some of the sites.

Wilderness Preparation and Etiquette

To-do List

1. Always be on time – we will be leaving for our hikes promptly, and will not be waiting for stragglers.
2. Wear comfortable walking shoes and weather appropriate layered clothing.
3. Bring rain gear if necessary!
4. Bring plenty of water and snacks.
5. Bring your field notebook, pens, plant guides, camera, etc.
6. Carry any medications or first-aid supplies that you might need on the trail (epipen, band-aids for blisters, etc.).
7. Be respectful of other park visitors at all times.
8. Be prepared to help/support your classmates when necessary.
9. Have fun, swim in a creek, hug a tree, kiss a slug, etc.

Do-not-do List

1. Do not pee in the creek!
2. Do not drink water from the creek (see #1)!
3. Do not eat any berries, mushrooms, or other forest organisms without explicit instructions from the instructor!
4. Do not approach wildlife (deer, skunks, yellow jackets, rattlesnakes, etc.)!
5. Do not cut trail!
6. Do not play amplified music in the wilderness.
7. Do not make personal phone calls during field trips.
8. Do not experiment with mind-altering substances during the field trips. Save the party for later – we need to keep our wits about us!

Course Requirements and Assignments

Weekly Quiz

Completion of a short weekly online quiz on the week's readings will be required before each class meeting. The quiz will be offered on Canvas.

Field Activity

Each class meeting in the field will include a formal activity and/or plant quiz. Results of the field activity should be turned in at the end of the day. Ask the course instructor if you are unclear about the day's assignment.

Field Presentation: Species Description and Fact Sheet

Each student will conduct research on an organism of their choice that lives in the Santa Cruz mountains, and present an oral 10-15 summary in the field. The summary will include the ecology, life history, evolutionary history, habitat requirements, and distribution of the species. A single page (single spaced 12 point type) synopsis on the organism will be provided to all members of the class (approximately 25 copies), and will include a title with the species' name (common and scientific), and at least five academic references in APA style. The synopsis can be two sided, but **must fit on a single page**.

Field Exam:

A final field exam will be given **in the field** focused on the identification of plant species, but may include other site specific material as well.

Final Content Exam:

A final written exam will be given in the classroom focused on reading materials and lectures/discussion from the field as well as the classroom.

Class Participation:

Attendance on all field trips is essential. Please be respectful of your classmates by listening quietly when the instructor, guest speakers, or student presenters are speaking. We are a big group, often on a narrow trail, it is very difficult for students to hear when extraneous conversations are competing.

Grading

Your grade in this course will be based on field assignments, online quizzes, group presentations, and the final exam. See chart below.

| <i>Assignment</i> | <i>Points</i> |
|--------------------|---------------|
| Field Assignments | 10 |
| Online Quizzes | 10 |
| Field Presentation | 20 |
| Final Content Exam | 30 |
| Field Exam | 30 |

| <i>Grade Percentage Breakdown</i> | |
|-----------------------------------|----|
| 97% and above | A+ |
| 90% - 96% | A |
| 87% - 89% | B+ |
| 80% - 86% | B |
| 77% - 79% | C+ |
| 70% - 79% | C |
| 60% - 69% | D |
| 0% - 59% | F |

University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' [Syllabus Information web page](http://www.sjsu.edu/gup/syllabusinfo) at <http://www.sjsu.edu/gup/syllabusinfo>

Tentative Course Schedule – ENVS 173, Fall 2018

Subject to revision due to weather, etc.

Check for updates before heading to field sites!

| Date | Content | Readings | Assignments |
|-------------|--|---|---|
| 8/23 | <ul style="list-style-type: none"> • Class introductions and logistics • <i>Lecture</i> –Introduction to Forest Ecology | | |
| 8/30 | <p><u>Location:</u> Henry Cowell State Park. 101 N Big Trees Park Rd, Felton, CA 95018</p> <p><u>Topics:</u> Local Variation in Community Types</p> | Perry Ch-5 Evarts and Popper Ch-1 | <i>Quiz 1</i> |
| 9/6 | <p><u>Location:</u> Fall Creek Unit. 1400 Felton Empire Rd, Felton, CA 95018 (Lime Kiln Trail)</p> <p><u>Topics:</u> Historic management of redwood forests.</p> | Evarts and Popper Ch-5 | <i>Quiz 2</i> <i>Student field presentations</i> |
| 9/13 | <p><u>Location:</u> Butano State Park 1500 Cloverdale Rd, Pescadero, CA 94060</p> <p><u>Topics:</u> Redwood forest ecology</p> | Evarts and Popper Ch 2 & 3 | <i>Quiz 3</i> <i>Student field presentations</i> |
| 9/20 | <p><i>No Class Meeting</i></p> <p><u>Topics:</u> Disturbance and succession:</p> | Perry Ch 7 & 8 | <i>Quiz 4</i> |
| 9/27 | <p><u>Location:</u> Forest of Nisene Marks State Park. 100 Aptos Creek Rd, Aptos, CA 95003.</p> <p><u>Topics:</u> Forest restoration and conservation management</p> | Russell et al. 2014 Evarts and Popper Ch-7 | <i>Quiz 5</i> <i>Student field presentations</i> |
| 10/4 | <p><u>Location:</u> Castle Rock State Park 15300, Skyline Blvd, Los Gatos, CA 95033.</p> <p><u>Topics:</u> Community interactions</p> | Perry Ch-11 | <i>Quiz 6</i> <i>Student field presentations</i> |

| Date | Content | Readings | Assignments |
|-------------|---|--|--|
| 10/11 | <u>Location:</u> Fall Creek Unit. 1400 Felton Empire Rd, Felton, CA 95018 <u>Topics:</u> Wildlife. | Evarts and Popper Ch-4 | <i>Quiz 7 Student field presentations</i> |
| 10/18 | <u>Location:</u> Bonny Dune Ecological Reserve. 975 Martin Road, Santa Cruz, CA 95060 <u>Topics:</u> Natives, endemics, invasives, and exotics (non-natives) | McGraw and Rutherford (2007) McGraw and Rutherford (2011) | <i>Quiz 8 Student field presentations</i> |
| 10/25 | <u>Guest Speaker:</u> Rachel Lazzei-Aerts? <u>Location:</u> Mount Madonna County Park, 7850 Pole Line Rd, Watsonville, CA 95076 <u>Topics:</u> Fire in the redwoods | Lazzeri-Aerts and Russell (2014) Jones and Russell (2015) | <i>Quiz 9 Student field presentations</i> |
| 11/1 | <u>Location:</u> Byrne-Milliron Forest 809 Browns Valley Rd, Corralitos, CA 95076 <u>Topics:</u> Harvest & Utilization | Thornburgh et al. (2000) | <i>Quiz 10 Student field presentations</i> |
| 11/8 | <u>Location:</u> Big Basin State Park. 21600 Big Basin Way, Boulder Creek CA, 95006 <u>Topics:</u> What is old-growth? | Helms 2004 | <i>Quiz 11 Student field presentations</i> |
| 11/15 | <u>Location:</u> Fall Creek Unit. 1400 Felton Empire Rd, Felton, CA 95018 <u>Topics:</u> Plant identification review | | <i>Student field presentations</i> |
| 11/22 | <u>Location:</u> Henry Cowell State Park <u>Topic:</u> <i>Field Exam</i> | | Field Exam |
| 11/29 | <i>No Class – Thanksgiving Holiday</i> | | |
| 12/6 | <u>Location:</u> On campus Final content exam | | Final Exam |