

ENV 265/365: FIELD ECOLOGY OF LAVA BEDS NATIONAL MONUMENT

COURSE SYLLABUS

ENV 265: Field Methods in Environmental Science (CRN 18541, 3 credits)

ENV 365: Adv. Field Methods in Environmental Science (CRN 18542, 3 credits)

Dr. Kerry Byrne

Office: DOW 205

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Office Hours: MF 1-2, T 3-4, or by appointment

Class Meeting time: W 3:00 – 5:50 pm in DOW E242^{1, 2}

¹ Check blackboard and your OIT email for updates to course meeting location. At times we may meet in another location for lab work

² **Required Field Trip:** Friday October 17 – Sunday October 19, Lava Beds National Monument

Course Description:

In this experiential-based course students will learn the general ecology and geology of Lava Beds National Monument, specifically as these topics relate to primary succession. Students will learn how to collect, process, and interpret field data related to successional processes across a soil chronosequence and present their results in a professional research talk.

Course Objectives: In this course, students will learn:

- 1) Fundamental concepts in Ecosystem and Community Ecology
- 2) Sampling techniques for select static organisms (vascular plants and lichen)
- 3) Sampling techniques for select mobile organisms (ground-active and airborne invertebrates)
- 4) How to characterize soils in the field and in the lab
- 5) How to assemble, analyze, and interpret vegetation, invertebrate, and soils-related field data in a cohesive manner

Assessment: Course grades at Oregon Tech follow a “whole grade” structure: A = 100-90%, B = 89-80%, C= 79-70%, D = 69-60%, F < 60%. Field/lab exercises, a midterm and final exam, and group oral presentations will provide the basis for grading student performance. Advanced students (those registered for ENV 365) will conduct a literature review and turn in a final paper.

Component	ENV 265 % of grade	ENV 365 % of grade
Participation in class/field/lab/ exercises	40	30
Midterm Exam	15	15
Final Exam	25	25
Group Oral Presentations	20	20
Literature Review	N/A	10

Class/field/lab exercises: students will conduct field exercises and data collection during the mandatory field trip, and will process and analyze the data during class time in the weeks following the field trip. The instructor will train students on basic methods and then students will collect their own original data (and process data) under the instructor's supervision. If you do not attend class and participate then your grade in this category will suffer.

Midterm: will include information covered in lecture and assigned readings. The format may include multiple choice, fill-in, and short answer.

Final exam: will include topics covered in lecture, lab, the field trip, and assigned readings. The final exam may include multiple choice, fill-in, and short-answer.

Group oral presentations: students registered in ENV 365 will lead their group in developing a presentation on a subtopic developed with consultation from the instructor. All students will participate in the preparation of the presentation by assisting in data organization, graphing, lab work, etc. ENV 365 students will be graded based on completeness and clarity of results. ENV 265 students will be graded based on their performance in a supporting role.

Literature review: students enrolled in ENV 365 are required to conduct a review of primary literature on a topic of their choice (that is approved by the instructor). Students must submit a synthesis paper on their topic, including at least seven primary sources. This paper must be short (3 pages double spaced) and succinct.

Field trip information:

- Students *must* attend the field trip Friday afternoon Oct 17 - Sunday Oct 19. There is no "make-up field trip."
- Students must be able to hike or otherwise navigate in a natural setting, including walking over rough terrain (lava flows) off trail. Students must also be able to carry 10-20 pounds of equipment and/or supplies.
- I will provide a "packing checklist" to assist you in packing for the trip. Consult the weather forecast and pack appropriately (even if the forecast looks safe, local weather can change fast, so better to be prepared).
- We will camp in tents at Indian Well campground at the Monument, which has bathrooms and running water. You are expected to furnish your own camping equipment. If you don't own camping equipment, borrow it from a friend or rent it from the OIT Outdoor Program in the College Union. Sharing a tent with another student enrolled in the course is advised.
- The class will have access to the Research Center for meals, talks with rangers, and hanging out at night. A full kitchen will be available for cooking. We will plan meals the first week of class. We will be required to clean the Research Center before we leave.
- The class will take rental vans for transportation to and from the site. Students are not allowed to drive themselves. We will depart OIT at approximately 4 PM on Fri Oct 17 and return Sun Oct 19 at approximately 4 PM.
- You will be representing OIT on the field trip. As such, you must follow all University policies regarding student conduct. Any misconduct will be reported to student affairs.
- While there will be no "official" time to explore the caves, you will have some free time in which you may explore the caves (with a partner). See packing list for optional items if

General Details

Attendance: teaching faculty are required to report non-attendance during the first two weeks of the term from a class if the student has not attended. Students will be administratively withdrawn from the course based on non-attendance.

Make up exams or deadline extensions: may be offered only in the case of a documented illness or personal emergency. In either case, the student must contact the instructor by phone or email no later than one hour before the exam time explaining the general circumstances responsible for their absence. In the case that an emergency prevents such communication, the instructor may waive the requirement of a notification phone call or email. The instructor reserves the right to deny any student a make-up exam or deadline extension unless doing so would violate an applicable university policy.

Disrupting the Academic Environment: obstruction or disruption of teaching, research, administration, disciplinary procedures, or other institutional activities, including the Institution's public service functions or other authorized activities on institutionally owned or controlled property is strictly prohibited by Oregon Tech's code of student conduct and may result in disciplinary action.

Statement on recording lectures and in-class discussions: please be advised that this class may be recorded. HOWEVER, if you would like permission to record this class you must speak with the professor prior to making any recordings.

Student Success Center: <http://www.oit.edu/academics/ssc>

The Student Success Center provides a wide range of student support services including Testing Services which promotes academic success by working with faculty by providing testing services for any of the OIT academic courses as well as specialized testing services such as those needed for accommodations for students with disabilities, a computer lab, and Career Services, which offers career advising, resume writing, job interviewing workshops, job search assistance, career fairs, and job listings. They also provide peer consulting services, which provides free course assistance to all OIT students in most subjects. Finally, they house the Disability Services office, which coordinates academic adjustments and aids for students with disabilities.

If you may need a course adaptation or academic accommodation because of a disability, or if you might need special arrangements in case the room or building must be evacuated, please see me as soon as possible. I rely on the Disability Services for assistance in verifying the need for accommodations and developing accommodation strategies. If you have not previously contacted that office, I encourage you to do so. Staff will assist in communicating information about needs and adjustments to instructors.

Testing Services: 541-885-1791

Career Services: 541-885-1020

Peer Consulting Services: 541-851-5236

Disability Services: 541-851-5227

Academic Dishonesty: cheating and plagiarism are strictly enforced in this course. Students with “wandering eyes” during exams will be asked to move seats one time, after that you will be asked to leave the exam and receive a 0 grade. Students may work together to understand laboratory assignments and projects, but each individual must write up their own assignments (in their own words). Students caught cheating will receive a zero on the exam or assignment and be reported to student services.

Plagiarism means to:

- to steal and pass off (the ideas or words of another) as one's own
- to use (another's production) without crediting the source
- to commit literary theft
- to present as new and original an idea or product derived from an existing source

All of the following are considered plagiarism:

- turning in someone else's work as your own
- copying words or ideas from someone else without giving credit
- failing to put a quotation in quotation marks
- giving incorrect information about the source of a quotation
- changing words but copying the sentence structure of a source without giving credit
- copying so many words or ideas from a source that it makes up the majority of your work, whether you give credit or not (see our section on "fair use" rules)

For more information on plagiarism and how to properly cite scientific works and writings contact your instructor or visit www.plagiarism.org

Reading Material: Select readings are identified below. These readings will be made available as PDF's on blackboard. Read the assigned reading before coming to class.

Huggett, R.J. 1998. Soil chronosequences, soil development, and soil evolution: a critical review. *Catena* 32: 155-172.

Smith, TM, RL Smith. 2012. Community Dynamics. In *Elements of Ecology* (pp. 353–373). New York, NY: Benjamin Cummings.

Walker, LR, DA Wardle, RD Bardgett, BD Clarkson. 2010. The use of chronosequences in studies of ecological succession and soil development. *Journal of Ecology* 98: 725-736.

Wheater, CP, JR Bell, PA Cook. 2011. Chpt. 3: Sampling Static Organisms. In *Practical Field Ecology* (pp 67-89). West Sussex, UK: Wiley-Blackwell.

Wheater, CP, JR Bell, PA Cook. 2011. Chpt. 4: Sampling Mobile Organisms. In *Practical Field Ecology* (pp 95-89). West Sussex, UK: Wiley-Blackwell.

Course Schedule

Week	Date	Topic	Reading
1	1-Oct	Course administration and Introduction to Lava Beds National Monument	
2	8-Oct	Primary Succession, Soil Chronosequences	Smith and Smith Chpt 19 (2012), Huggett (1998), Walker <i>et al.</i> (2010)
3	15-Oct 17-19 Oct	Sampling techniques for static and mobile organisms; field trip planning Field trip to Lava Beds	Wheater <i>et al.</i> Chpts 3 & 4 (2011)
4	22-Oct	Literature review and group work	
5	29-Oct	Midterm and data analysis	
6	5-Nov	Laboratory analyses: soils. Meet at Cornett Lab. <i>Arrive promptly as this method takes 2 full hours and we won't begin until everyone has arrived and knows the methods</i>	Soil protocols posted on blackboard
7	12-Nov	Group work	
8	19-Nov	self-directed group work. <i>We will not meet officially this week, but I will be in my office during class time if any student/group would like to meet with me.</i>	
9	26-Nov	No class- Thanksgiving break	
10	3-Dec	Student presentations	
	5-Dec	Friday Dec 5 by 5:00 pm students enrolled in ENV 365 must submit their literature review, 3 pages (double spaced) maximum via email.	
	10-Dec	Final Exam, 4-6 pm	