

ENV 307: SOIL SCIENCE

COURSE SYLLABUS

Dr. Kerry Byrne

Office: DOW 205

Contact: Kerry.Byrne@oit.edu

Office Hours: MF 2-4, T 1-2, F 12-1, or by appointment

Lecture: MW 11:00 – 11:50 pm in DOW 252

Lab: W 2:00 – 4:50 location TBD

Required Field Trip: Sat., Oct 8, 7:30 am – 3:30 pm

Course overview: in this course you will learn about the chemical, physical, and biological nature of soils.

Topics will include: what soil is and why it's important, how soil forms, how we describe soils, physical properties of soil, soil water, soil chemistry, soil biology, and soil sustainability. The topics that we cover in lecture will be augmented by hands-on lab and field activities.

Course Objectives: students should leave this course able to:

- Describe six major environmental functions of soil.
- Explain the five factors of soil formation and describe how each of these factors has contributed to the soil we see today.
- Summarize how a soil's properties affect its suitability for a variety of uses including agriculture, silviculture, habitat, and building sites.
- Explain the chemical processes that control the release of nutrients from the soil matrix, and how this affects the plants and animals present on the landscape.
- Explain the controls on water availability and water movement in a soil profile.
- Explain the roles of macrofauna, microfauna, and microflora in processing soil organic matter.
- Perform calculations involving soil physical properties, water content, and soil nutrient availability.
- Synthesize principles of soil science in order to describe why soils are key to sustaining the ecosystem services that we depend on.

Required Textbook: *Elements of the Nature and Properties of Soils* (3rd edition), Brady and Weil. For a more in-depth resource, *The Nature and Properties of Soils* may be substituted (11th edition or newer). The student is responsible for identifying the appropriate pages correlated with the assigned reading. A copy of *The Nature and Properties of Soils* will be on reserve at the library for interested students.

Student 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%. Student grades will be based on the following percentage breakdown:

	Component	% of grade
Lecture:	Midterm Exams (Mon., 10/17 & 11/14)	40
	Final (Tues, 12/6, 12-2 pm)	25
Lab:	Lab participation & attendance	5
	Lab worksheets	15
	Field report	15

Notes about Student Assessment

Both lecture and lab contribute to your final grade in this course. *Exams may not be made up unless you have a doctor's note or are participating in an OIT sponsored sporting event. It is the student's responsibility to contact me as soon as possible (before you miss exam) to notify me of your absence.*

Lecture Midterm Exams (Mon., 10/17 & 11/14): the midterms may include information covered in class, lab, and field trips, and information from the textbook not covered in class. The second exam will focus on material covered since the last exam. The format may include TF, multiple choice, short answer, and essay.

Students must purchase BLUE scantron sheets for MIDTERMS and FINAL exams. You may purchase these at the student bookstore.

Lecture Final Exam (Tues, 12/6 12-2 pm): the final exam is cumulative and will include information covered in lecture, lab, and field trips. *You may bring two 3x5 inch notecards to consult during the lecture final exam.*

Lab participation and attendance: please attend all laboratory sessions and the mandatory field trip. Full credit for participation and attendance will be given to those students that arrive on time and actively participate in individual and group work in labs and on the field trip. One third of a student's participation grade shall be deducted for each session missed. Students that don't attend the field trip will also be unable to submit the field report

Lab worksheets: students will be provided with a worksheet for each lab or activity. Some of these worksheets will be checked during lab periods; others will require completion outside of class time.

Field report: this report will be described in more detail on the field trip.

General Details

Make up exams or deadline extensions: are issued only for University-excused absences. There are no early exams or extra credit. Late assignments are penalized 20% per day overdue.

Policy on contesting grades: I like to consider my classroom a democratic monarchy. I am the first to admit that I am not perfect- I may grade something incorrectly, or there may be more than one correct answer that I have not thought of. Thus, if you feel that your work falls into one of these categories, I encourage you to contest the grade. You have one week after the work is returned to contest. Please return your original assignment with a typed statement of why your answer is correct and why I should consider it for regrading.

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.

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/current-students/student-support>

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, in-class test proctoring, and a computer lab, and Career Services which offers career advising, resume writing, job interviewing workshops, job search assistance, career fairs, and job listings.

Testing services: 541-885-1791

Career services: 541-885-1020

Peer consulting services: <http://www.oit.edu/current-students/student-support/tutoring> Peer Consulting is a **completely free** academic support service available for all students of Oregon Tech. Peer Consultants are typically Oregon Tech students who have taken the same classes you have and have earned a B or better in their areas of expertise. We often have professors and staff that offer their time and assistance in the Center as well. Our goal is to provide assistance in all areas, majors, and courses offered at Oregon Tech. Peer Consulting reinforces what you are learning in your classes, fosters your sense of community and strengthens intercultural communication. Peer Consulting helps empower you to become successful in your academic career and reach your graduation goal. **Office:** LRC 233 **Tel:** 541.851.5236

Disability services: If you have a physical, learning, sensory or psychological disability and require accommodations, please let me know as soon as possible. You will need to register with and, in most cases, provide documentation of your disability to Disability Services. Please contact Erin Ferrara, Coordinator of Disability Services at (541) 851-5227 or erin.ferrara@oit.edu. Disability Services is located in the LRC room 229.

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:

- steal and pass off (the ideas or words of another) as one's own
- use (another's production) without crediting the source
- commit literary theft
- 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

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

Tentative Lecture Schedule

This is a tentative schedule of lecture topics; check on blackboard or come to class to get updates from me as the quarter progresses. The midterms and final dates will not change.

WEEK	DATES	TOPICS	READINGS
1	26-Sep	Importance & Functions of soils	Chpt. 1
	38-Sep	Components of soil/soil horizons	~
2	3-Oct	CLORPT- soil formation factors	Chpt. 2
	5-Oct	Soil formation factors, cont.	~
3	10-Oct	Soil taxonomy/classification	Chpt. 3
	12-Oct	Soil taxonomy/classification, cont.	~
4	17-Oct	Exam 1	
	19-Oct	Soil physical properties	Chpt. 4
5	24-Oct	Soil physical properties, cont.	~
	26-Oct	Soil water	Chpt. 5
6	31-Oct	Soil water, cont.	~
	2-Nov	Hydrologic cycle	Chpt. 6
7	7-Nov	Clay mineralogy	Chpt. 8
	9-Nov	Cation Exchange	~
8	14-Nov	Exam 2	
	16-Nov	Cation Exchange/ Nutrient uptake	Chpt. 9
9	21-Nov	Soil Organic Matter	Chpt. 11
	23-Nov	Nutrient Management	Chpt. 13
10	28-Nov	Soil Erosion & Management	Chpt 14
	30-Nov	Soil Erosion & Management, cont.; course wrap-up	~