

SYLLABUS

COURSE:	Bi 101 Oregon Ecology	OFFICE:	WOH-211
TERM:	Spring, 2019	PHONE:	541-990-6228 (cell)
INSTRUCTOR:	Bob Ross	E-MAIL:	rossb@linnbenton.edu
OFFICE HOURS:	T-R: 8-8:30; 11:30-12:00	Secretary:	Kambria Wallace: MH-101 541-917-4740

DESCRIPTION: Ecology is the scientific investigation of the relationships found among living things and their natural environments. Oregon Ecology is designed for people who are interested in Oregon's natural ecological systems such as ponds, meadows and forests. It presents a modest introduction to the primary themes of ecology: the qualities of the physical environment, the creatures that are living there and how they are adapted to the environment, how everything is organized, and how it all works together to form a system.

This course has been designed for non-science majors. Unlike a class for majors, there is less use of math, chemistry, physics, geology, meteorology and biology to explain how nature works, and more emphasis on relating ecology to other subjects such as political science, ethics, sociology, art and other topics that students take at a liberal arts college. There is also more emphasis on relating ecology to your personal life. Two metaphors are used to facilitate an understanding of ecosystems: life is like a game and life is like a business.

This is an activity-oriented class. It is designed to be a lively, fun and provocative class that quickly propels you into a clear understanding of how the world works and how you can participate in the game of life successfully. Learning about ecosystems can help you enjoy your recreational outings in nature more fully by knowing more about the places you visit when you hike, camp, swim, bike, hunt, fish, and do sight-seeing. Yards and gardens are mini-ecosystems, so understanding how ecosystems work can help you manage your yard and garden more effectively as well.

THINGS YOU NEED IN ORDER TO SUCCEED:

- The Oregon Ecology Manual by Ross.
- Ecology Kit, loaned to you from class.
- Camera. Digital is best. Cell phone is adequate.
- a few household items.

QUIZZES: Quizzes are given daily. Each quiz focuses primarily upon the topic for that day, so it is important to have read the assigned chapter before coming to class. Each quiz is worth 10 points, and the best 10 of the 17 quiz scores contribute to the term grade. It is not possible to make up a quiz if you are absent at the time the quiz is given.

EXAMS: You will have two midterm exams and a final exam. Each exam is worth 100 points. For the most part, each exam deals with the material covered since the last exam, although the final is comprehensive. Exams typically contain multiple-choice, short- and long-answer questions. Exams are designed to measure a person's knowledge and comprehension, as well as the ability to think: to analyze, apply, evaluate and synthesize. Science honors clarity and brevity, so students who answer certain exam questions clearly, completely, correctly and concisely, and who demonstrate "seeing the connections" receive bonus points.

"LAB" IS A FIELD PROJECT. Since it is impossible to bring a natural ecosystem into the lab to study, we are asking you to visit ecosystems in place of attending a two-hour lab each week. You will need to be able to travel to parks and other natural areas in your community. You will be given specific tasks to do each week that include gathering data, exploring, and making observations that lead to discovering how nature is organized. The results are put into a "Field Report" that contains the photographs, data and discussions of the results of your investigations. Since "Bi101 Oregon Ecology" is a lab science, students must earn a minimum of 50% of the points on the "Field Report" in order to receive a grade for the class; otherwise, an "F" is given for the course regardless of what is earned on the exams and quizzes. It is not hard to do the field work, but this is the important minimum requirement to meet in order to receive a passing grade.

You are being asked to do the field project because this is really the only way you can experience ecological systems and gain firsthand experiences with scientific processes — something the State Board of Higher Education thinks is important for you. Additionally, ecologists would like you to enjoy nature enough that you will value it and take care of it. Employers in our college district want you to do projects like this in order to develop your skills of following directions, working independently on a project, and submitting work in a timely manner. The Field Report is due on Tuesday of Week 9. Five points will be deducted for each day that the report is late, up to a total of 50 points. The 100 point minimum that is required to receive a grade in the class is the total points earned before deductions for a late submission of the report.

IMPROVING YOUR THINKING and COMPREHENDING. We are *homo sapiens*, the sentient ones: the thinking ones. We especially compete with each other with our thinking. The winners are thinkers. One of the greatest gifts of higher education is the opportunity to improve your thinking and problem-solving abilities. Science courses in particular are valuable in this way. Oregon Ecology is especially focused on improving your thinking. We will exercise your thinking skills as you read, hold discussions, and conduct your field studies. Critical thinking questions are posed everywhere in the course. Be careful to not "read through them" or let others answer them for you; on the contrary, take up the challenge of answering the questions for yourself. As you read along in the manual, pause to answer the questions as they arise. That is the quickest way to gain comprehension. Just memorizing the terms is no more comprehending a subject than possessing a bunch of tools and materials and thinking you have a doghouse or a lemon meringue pie. Comprehension comes about as you work to identify the components of relevant information and as you organize them into meaningful stories or mental constructs.

DEEP READING

Reading for comprehension is an active learning process that requires curiosity, analysis, comparison, an openness and willingness to explore new pathways of thinking, evaluating the merits of content, the willingness to work at understanding new material that includes rereading and sustained attention. It is hard work but it pays big dividends. Deep reading broadens our vocabulary, enables us to communicate more fluently, increases our ability to understand our world conceptually, to adapt more readily to new thinking and methodologies, to be more creative in our pursuits, and to analyze complex systems more successfully because we think faster. It increases these cognitive abilities by rewiring our brains. You can develop this skill by being self-disciplined, patient and working at it. It is a core skill in college so find a way to do it — and yes, it takes time.

USE OF WORDS IN THIS COURSE

We have carefully weighed the value of using each and every ecology-related word in this course. We have selected about 200 words for you to master out of a thousand that an ecology major would need to learn in order to more fully master the subject. Each of these terms sheds valuable light on the topic of ecology and makes conversations efficient. It is important to develop a functional use of each word as it is introduced because many of them will be used to develop other concepts. If you fail to learn the word “species,” for instance, you will have a fuzzy understanding of a later topic that includes the word such as interspecies interactions or speciation. When the second topic is used to develop a third topic — perhaps the development of ecological communities, you will have an even hazier idea of what is being discussed. Some educators call this process of becoming less and less capable of understanding a future topic “cumulative ignorance.” It is easily avoidable.

PERCEPTUAL SKILL-BUILDING

The various courses at LBCC offer different opportunities to develop special skills that lead to a more rewarding life. Having a more exciting life, and a safer one too, requires developing one’s senses and perceptions — both promoted by Oregon Ecology. Perception is the identification and organization of sensory data, followed by interpretation. Actively engaging in sensing and perceiving has the power of turning a walk through the woods into a long-remembered and exciting and enriching experience — far more than just a passive walk through the woods. Accurate perceptions help us to truly understand how our world is organized and how it works; thereby enabling us to find our place in life and be more successful at living.

The field project provides you with the opportunity of developing the following perceptual skills:

- Form separation: distinguishing between the subject and background by screening out irrelevant material.
- Form constancy: recognizing the form despite changes in color, shading, direction, orientation, size or age.
- Visual discrimination: identifying similarities and differences of shapes, textures, objects, etc.
- Visual memory: remembering and recognizing what you have seen.

- Analysis and synthesis: determining how the various parts make up the whole — rather than just observing a collection of objects.

These perceptual skills will not only help you to enjoy nature better, but will also help you to get more out of movies and other visual experiences! We use our eyes all day long, and it seems as if we see just fine, but what is at issue is not the clarity of the lenses, but how the mind, the processor, makes sense out of what the eyes are seeing. That is something that we can improve considerably!

DOING YOUR WORK ETHICALLY

Science and society only work effectively when people are honest. We expect you to do your own work (not use other people’s work or plagiarize), to be honest, and to collect data accurately. You will not receive credit for the portions of work that are discovered to have been produced unethically. Furthermore, you might be disciplined as set forth in “BOARD POLICY SERIES NUMBER 7035: STUDENTS’ RIGHTS, RESPONSIBILITIES AND CONDUCT.”

OUTCOMES

Outcomes established by the Biology Department.

Upon completion of the course with a “C” or better, the student should be able to:

1. discuss biological community interactions.
2. explain how changes in human populations and/or actions impact natural ecosystems.
3. describe the movement of energy and nutrients through trophic levels.
4. recognize the appropriate taxonomic level of an organism based on key characteristics or traits.

Outcomes specific to this course.

If fully engaged in this course, you should be able to

1. name some famous places to visit in Oregon and describe some of the ecology of each of those areas.
2. use your knowledge about soils to develop a more productive garden.
3. have improved critical thinking skills.
4. use your perceptual skills to recognize and interpret more details of nature.
5. use scientific processes to investigate parts of nature and come to reasonable conclusions.
6. interpret the structural and functional aspects of an ecosystem using basic ecological terms.
7. use the ecological perspective to help you improve your fitness for living in our world.
8. be a better steward of Earth’s resources and explain how you can live more sustainably and economically.
9. be more at ease in nature by reducing fears, increasing recognition and knowledge of the various parts of nature, feeling connected to nature, and having positive experiences.
10. continue to grow in knowledge and skills toward more fully understanding the world from an ecological perspective.
11. have better study and test-taking skills.

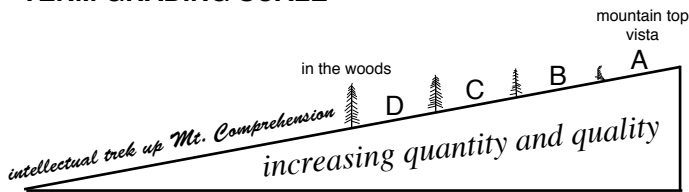
Spring, 2019
WOH-203

OREGON ECOLOGY CALENDAR

8:30 CRN 41250
10:00 CRN 40304

Week	Day	Date	Topic	Quiz#	Readings	# of pgs	Field Work
1	T	4/2	Intro to the course Intro to the field project		2-7 244-247	6 4	
	R	4/4	1. The Game of Life	1	9-17	9	248-9
2	T	4/9	2. Exploring the Game Scientifically	2	19-33	15	
	R	4/11	3 From Atoms to Biomes	3	35-45	11	250-1
3	T	4/16	4. The Creation of Oregon's Environments	4	49-59	11	
	R	4/18	5. Oregon's 10 Provinces	5	61-79	19	252-5
4	T	4/23	EXAM				
	R	4/25	6. Milieus: Air, Water and Soil	6	81-93	13	256-7
5	T	4/30	7. The Kingdoms of Organisms	7	99-109	11	
	R	5/2	8. Natural Selection: The Process	8	113-124	12	258-9
6	T	5/7	9. Natural Selection: The Results	9	127-135	9	
	R	5/9	10. Activities of Life	10	137-146	10	260-2
7	T	5/14	11. Populations in Action	11	149-152	4	
	R	5/16	EXAM				264-5
8	T	5/21	12. Community Basics	12	155-163	9	
	R	5/23	13. Building Communities: Succession	13	169-174	6	266-7
9	T	5/28	14. Energy	14	177-186	10	REPORT DUE
	R	5/30	15. Nitrogen	15	189-192	4	
10	T	6/4	16. Extinction	16	193-204	10	
	R	6/6	17. Promoting Nature	17	207-215	9	
11	T	6/11	Final Exam 8:00 section: 7:30 a.m. 9:30 section: 9:30 a.m.				Total: 182

TERM GRADING SCALE



POINTS POSSIBLE:	600
100 quizzes	510 A 85%
100 1st exam	509
100 2nd exam	432 B 72%
100 final exam	431
200 field project	360 C 60%
—	359
600 TOTAL POINTS	300 D 50%

F and **D** students tend to believe that they can master a subject by memorizing facts and terms. They can define but not describe things. They fail to move on toward comprehension and insightfulness; therefore, they cannot manipulate the information, use it to test questionable statements or integrate the subject with other parts of their knowledge base. Neither can they solve problems.

College Workload Standard:

- 15 credits = 45-hour work week. It includes . . .
- 15 class hours of instruction/week
- 30 hour of homework/week (two/instruction hour)

The way it works out for Oregon Ecology:

4 credits of Bi 101 (a lab science) translates into

- | | | |
|-------------|---|---|
| 13
hours | } | 3 in-class hours/week (for 3 credits) |
| | | 2 lab hours (for 1 credit) that you are to spend in the field |
| | | 8 hour of homework apportioned as follows; |
- 6-7 hours/week on reading and homework
 - 1-2 hours/week on report write-up

STUDENT QUALITIES RELATED TO LETTER GRADES

A-F grades reflect the degrees of the following things;

From classroom work and testing:

- mastery of terminology
- comprehension of concepts and principles
- insightfulness; seeing the connections
- using clear, precise, well-reasoned thinking
- mastery of the subject of ecology
- recognition of cause-effect relationships
- application of concepts to real-life situations
- use of thinking and reasoning skills such as hypothesizing, synthesizing, analyzing
- attendance and participation

From working on the field project

- development of sensory awareness
- formation of useful and accurate perceptions
- use of scientific processes
- completion of field work and project report

INC An incomplete grade is issued when a student has failed to submit a report or to take the final exam. The student must complete the work prior to the end of the following term in order to receive a grade.

HOW TO GET STARTED

- Read through this syllabus (pages 2-7) to understand the nature of this course and pick up some learning and test-taking tips.
- Read the Field Project Overview on pages 242-244 and scan through the Field Project Instructions that follows to get a sense of what you will be doing on your own in the field. Choose a site this week!
- Look at the Calendar on page 4 and do the assigned reading before coming to class.

POINTERS FROM PREVIOUS STUDENTS:

- Budget time for the field project each week. Get started the first week of class and be faithful in working on the project regularly. Procrastinators can get burned.
- Be faithful in attending class since things discussed in class appear on the tests. You will also notice that the assigned field project topics follow the order of lecture topics. When Bob talks about a topic in class, see how to integrate the information into your project and report.
- You can't slide by in this class and do well. This is a "doing" class; it is not particularly hard to learn the information, but you have to be working on your field project regularly. Bring plant specimens to class for identification.