

Biology 370 – Ecology

Instructor: Dr. C. Ben Crabtree

Required Texts: Ricklefs, R.E. and G.L. Miller. 2000. Ecology. 4th Ed.

Alden, P. and D. Paulson. 2002. Field Guide to the Pacific Northwest. 2nd Ed.

Welcome to Ecology. You have chosen a course that will cover an immense amount of material and will tantalize your curiosity daily as you explore the natural world. We will focus on three areas of ecology: populations, communities, and ecosystems. We will not treat these areas as isolated entities as the world is not quite as neatly organized as we might hope. The relationships among and between members of populations in a community are often quite complex, particularly when we factor in the influences of the physical environment. This is what makes the study of ecology difficult, but it is also what makes it exciting.

Our time frame will necessitate focus on particular areas of study, but you as budding ecologists will have the opportunity to get your feet wet (sometimes literally) in the study of local species with respect to your own projects. The lab will be predominantly “hands-on” investigative in structure, with either predetermined activities, or experiments of your design. You will need to read and evaluate research papers associated with your individual projects. Should you find something of particular interest to you, I encourage you to bring this to our attention for discussion in the class.

Exams, field trips and the laboratory are not optional. Your participation and effort will translate into a greater understanding of the course material. This will provide a valuable experience for you and the entire class. In the event of serious illness or other emergencies, please contact me as soon as possible such that we are able to address the situation. That is, if you know you have a conflict with the scheduled exam, please let me know such that we can make alternative arrangements. **The final exam will be given only at the time specified by the finals schedule – there will be no exceptions.**

The syllabus below is a guide, not a mandate **EXCEPT the exams and field trips**. There are two required field trips. These dates cannot be changed. At the end of the first lecture I would like to discuss possible projects with each of you. That is, I hope that you will think about your projects and topics of interest prior to the first meeting. Our brevity will require us to hit the ground running but will also allow us to do some meaningful studies during this class. As opportunities arise, topics and readings may be modified. I will notify you of these changes as early as possible. Enjoy.

Classroom/Lab/Office – 111 Huestis

Office Hours – Monday and Wednesday – 12:00 to 1:00 or by appointment

Date	Topic	Reading – Text
19 Jul	Introduction to Ecology/Course Structure and Evolution	Ch 1,2,30,31
20	Climate and Lab (Data collection at Mount Pisgah)	Ch 6
21	The Physical Environment and Physiological Ecology	Ch 3-6
22	Analytical Methods and Lab (Aquatic Sampling/Independent Study)	Handout
23 Jul	Field Trip to Yaquina Head/Yaquina Bay (depart 6:30 am)	

26 Jul	The Biosphere and Biomes	Ch 8
27	Ecosystems, Energy Flow and Nutrient Cycling in Ecosystems	Ch 9-13
28	Review for midterm and Lab (Independent Studies Presentations)	
29	Midterm and Population Growth	Ch 14,15
02 Aug	Population Regulation, Fluctuations and Metapopulations	Ch 16-18
03	Symbiotic Relationships, Coevolution, Mutualism and Lab (Traps)	Ch 7,25
04	Competition and Modeling	Ch 20-22
05	Predator/Prey Interactions and Lab (Mark)	Ch 23,24
06 Aug	Field Trip to the Cascades (Andrews Experimental Forest)	
09	Community Definition and Structure	Ch 26,27
10	Reproduction, Mating Systems, Parental Investment and Lab (Recapture)	Ch 33,34
11	Optimality, Territoriality and Kin Selection	Ch 31,34
12	Review Session and Lab (Clean and Return Equipment)	
13	Final Exam (10:15am - 12:15pm)	

Grading:

Midterm Exam	20%
Individual Project/Paper	30%
Final Exam	25%
Lab/Field Assignments	25%

The grade you receive in this class will be based upon the number of points that you earn during the next four weeks. I will periodically discuss your individual performances on graded materials if you wish, or if I perceive a potential problem. If the entire class does very well on the evaluated materials, I have no problem giving grades that reflect that level of performance. Alternatively, if I write exams that are too difficult, or too long, I will evaluate my expectations.

During this class, several class exercises will be conducted as part of the lab. These experiments will form the basis of much of your lab grade, including our weekend field exercises and analysis of the data associated with these activities. Although much of the work in the lab will be performed in groups, your individual assignments and your individual projects are independent efforts. That is, you are expected to do the writing and research independently from the other members of the class. Similarly, the writing that you submit as your work must be your writing. We in science rely on the work of others to provide a foundation for the advancement of science and our own research efforts, but we must also give credit to those that have provided that foundation with appropriate recognition where credit is due.