Fall 2015

BIOS 3651

Jerry Howard
University of New Orleans

BIOS 3651 - GENERAL ECOLOGY LABORATORY
Dr. Jerry Howard
Fall Semester 2015

Meeting time: Thursday 1:00-3:50 PM, BB 100
Office: BB 221; **phone:** 280-5441; **email:** jjhoward@uno.edu
Office Hours: M 1-2 PM, W, F 12:30-3:00 (subject to change; check Moodle for updates)

Tentative Course Schedule

Date	Activity	Reading	Location	Assignment due
Aug 20	Orientation: 6 questions		Lab	
Aug 27	Design: Wetland communities ecology	Barbour et al. 1987, Ch 9	Lab	
Sept 3	Wetland communities ecology		Jean Lafitte National Park	
Sept 10	Analysis: Wetland communities Design: Spider niches	Barbour et al Ch 10; Magurran 2004; Foelix 2010 Ch 5,6	Lab	
Sept 17	Spider niches		Tulane University Hebert Center	Wetland communities
Sept 24	Analysis: Spider niches Design: Life histories and reproductive allocation	Krebs 1999 Ch 13	Lab	
Oct 1	Life histories and reproductive allocation		City Park/Bayou Sauvage	Spider niches
Oct 8	Analysis: Life histories and reproductive allocation Design: Demography	Carey 1993, Ch 1	Lab	
Oct 15	FALL BREAK - No class			

Oct 22	Demography		St. Louis Cemetery	Life histories and reproductive allocation
Oct 29	Analysis: Demography Design: Competition Design: Population growth	Carey 1993, Ch 2; Caughley 1977 Ch 8; de Wit 1961 Case 2000, Ch 5	Lab	
Nov 5	Competition/ Population growth		Lab	Demography
Nov 12	Competition/Population growth check		Lab	
Nov 19	Analysis: Competition Analysis: Population gowth		Lab	
Nov 26	THANKSGIVING HOLIDAY			
Dec 3				Competition/ Population growth

Bibliography:(additional readings from the original literature may be assigned)

Barbour, M., Burk, J., Pitts, W. Gilliam, F. and Schwartz, M. 1998. Terrestrial Plant Ecology, 3rd ed. Benjamin Cummings, New York.

Carey, J. 1993 Applied Demography for Biologists. Oxford University Press, New York.

Case, T. 2000. An Illustrated Guide to Theoretical Ecology. Oxford University Press, New York.

Caughley, G. 2004 Analysis of Vertebrate Populations Blackburn Press, Caldwell, N.J.

De Wit, C. 1961. Space relationships within populations of one or more species. Symposia Soc Exptl Biol.15: 314-329.

Foelix, R. 2010. Biology of Spiders, 3rd ed. Oxford University Press, New York.

Krebs, C. 1999. Ecological Methodology, 2nd ed. Benjamin Cummings, New York.

Magurran, A. 2004. Measuring Biological Diversity. Blackwell, Oxford

Southwood, T. and Henderson, P. 2000. Ecological Methods. Blackwell, Oxford.

Course Notes

Philosophy: This lab is designed entirely around the process of inquiry, in which you, the student, design and execute projects to address questions about central concepts in ecology. This will be unlike any other laboratory you have taken in that you will receive no laboratory manual or handouts. There are no guided exercises in this class, no recipes to follow, and no handouts to tell you how to do anything. For each of the exercises this semester the instructor will present a general problem to be investigated by the class, and discuss the conceptual background and the resources available to address the problem. Working as a group, and with the guidance of the instructor, the class will then develop specific hypotheses to be tested, design a protocol for data collection, and agree on a method of analysis that the class will use to test hypotheses. The instructor will provide relevant readings from the ecological literature and assist with the technical details of data analysis. This approach produces deep learning but requires active engagement, attendance at every class meeting, and accountability to your classmates. You will not be allowed to be a passive bystander in this course.

Student Learning Objectives: After completing this course, students will be able to:

1. Formulate testable hypotheses about ecological problems.
2. Design and analyze experiments that test ecological hypotheses.
3. Select appropriate statistical methods for the analysis of ecological experiments.
4. Summarize scientific information using appropriate illustrative tables and graphs.
5. Communicate scientific information using the format of a standard scientific paper.
6. Effectively work as a member of a team to carry out scientific investigations.

Text: None. Readings will be assigned from a variety of books on ecological methods and from the original literature. These will be provided on the course Moodle website.

Office hours: Hours may be altered as necessary due to changing schedules, new assignments, meetings, etc., during the semester. Come to class, check my door (Biology 221) or consult Moodle for current office hours each week.

Attendance: You must attend class every meeting. Missing class in this course seriously affects your ability to carry out assignments and puts extra and unfair burdens on your lab partners.

Schedule of activities: We will devote seven sessions to conducting class activities, and we will analyze the results of these activities at a later time, generally the following week. Competition and population growth experiments are an exception, as two weeks are required to complete each activity.

Field trips: Five field trips are planned for this semester. These trips may in some cases extend beyond the assigned lab time so please make sure you plan your return time accordingly. If you have problems please do consult me ahead of time. Equipment for these field trips will be provided although you should wear appropriate clothes for field work including

sensible shoes, long pants, hat, sun screen and gloves. Detailed information for each field trip will be provided in class the week before.

Class discussion: Each week we will discuss the activity planned for the following week. During analysis sessions we will discuss the analysis and presentation of data, and place the activity in the context of current ecological thought. Participation in these discussions counts toward your final grade.

Research teams: The class will be divided into research teams of approximately four students for each activity. Team membership will be rotated during the semester. Teams will be responsible for carrying out their assigned portion of each activity and will collaborate in the analysis during the following session. One member of each research team will present some aspect of the group's work to the class each week. Over the course of the semester each student in the class will make at least one presentation. Presentations count toward your final grade.

Lab reports: Reports on each activity are due the week after the in-class analysis session. Reports will follow the general format of a scientific paper, with Introduction, Methods, Results, and Discussion sections. Each report is expected to present a data summary, at least one table or figure, and either a statistical description of data or of a hypothesis test, depending on the activity. Although students will collaborate on activities and their analyses, the lab report is expected to be the work of an individual. Lab reports will be graded for completeness, accuracy, clarity, grammar, spelling, and punctuation.

Grading: Point distributions are as follows:

Activity	
Lab reports	70%
Individual class presentation	10%
Participation in discussion	20%

	100

FINAL DROP DATE is **October 14, 2015.**

Academic honesty and Disability Policies

Students are expected to conduct themselves according to the principles of academic integrity as defined in the statement on Academic Dishonesty in the UNO Student Code of Conduct. Any student or group found to have committed an act of academic dishonesty shall have their case turned over to the Office of Student Accountability and Advocacy for disciplinary action which may result in penalties as severe as indefinite suspension from the University. Academic

dishonesty includes, but is not limited to: cheating, plagiarism, fabrication, or misrepresentation, and being an accessory to an act of academic dishonesty.

It is University policy to provide, on a flexible and individualized basis, reasonable accommodations to students who have disabilities that may affect their ability to participate in course activities or to meet course requirements. Students who seek accommodations for disabilities must contact the Office of Disability Services prior to discussing their individual needs for accommodation with their instructors.

This material is available in alternative formats upon request. Please contact: Coordinator, Disabled Student Services, 260 University Center, 280-6222 (voice/TDD) or 280-3975 (fax).