

Biology 3244 – Experimental Marine Biology

Summer I 2016

Lecture: MTW 11:50 – 1:50, SERC 108A

Lab Section 1: MW 9:40 – 11:40, BIOSCI 233

Lab Section 2: MW 2:00 – 4:00, BIOSCI 233

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Lab 2 Instructor: Alanna Durkin

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Required Text: Jeffrey Levinton (2014) *Marine Biology: Function, Biodiversity, and Ecology*. 4th Edition. Oxford University Press.

Course Description: *Experimental Marine Biology* is an upper level biology course focused on the types of experiments that are used to further the science of marine biology. The course will be structured around three themes: Oceanography, Physiology, and Ecology. The oceanography section will examine the marine environment in terms of the physics of current flow and the chemical properties of seawater. The physiology section will examine how different organisms respond to these abiotic factors. In the ecology section, we will discuss how organisms interact with each other as individuals and populations, and how communities and ecosystems are structured.

To compliment these discussions, there will be a series of paired laboratories and recitations. The laboratories will provide the students with a hands-on experience with the different types of experiments in marine biology. Following the laboratory, there will be a recitation session where the teaching assistants will provide instruction on the analysis of the data collected, including an introduction to some statistical techniques, and guidance on the writing of lab reports.

Approach to Teaching: I am very much a lecture oriented instructor. If you come to class, pay attention, and (most importantly) TAKE NOTES IN CLASS, you will do well. I will not force-feed you the answers to the exams, and much of what I discuss in class is not carefully laid out in the textbook. The text is a good place for background information and should be read prior to class, but you cannot rely on it alone. The best approach to doing well in this class includes coming to class, taking notes, and participating in the discussions.

Blackboard: All course announcements, assignments and grades will be posted online using Blackboard. I will also post the upcoming lecture notes on Blackboard before each class. These notes will not be complete, and much of the material discussed in class will not be present in these files – this is not a substitute for attending lecture, reading the book, and taking careful notes. Note that there is a separate Blackboard page for the laboratory component of the course. Updates to this syllabus will be posted; please periodically check Blackboard. If you have not used Blackboard previously, ask your TA or a fellow student to spend a few minutes helping you.

Grades: The lecture grade and the laboratory grade are combined to determine your final grade for the course. The lecture is worth a total of 500 points, the lab is worth 300 points, and participation and attendance (including paper discussions) is worth 200 points.

The letter grade will correspond, roughly, to a percentage scale with standard letter-grade breakdowns utilized. E.g. 93–100% = A, 90–92.9% = A-, 87–89.9 = B+, 83–86.9 = B, and so on. All of your grades will be posted on BB so you can keep a running tab of your class average.

Lecture Grades will be determined as follows:

Midterm Exams: 150 points each. There will be two, non-cumulative mid-term exams worth a total of 300 points.

Final Exam: 200 points. There will be a comprehensive final exam covering the entire course, including material from our class discussions (however, not the primary literature discussions). The final exam will consist of 50% new material and 50% comprehensive material.

Class participation: 50 points. This will cover all of the discussions during lecture over the course of the semester, as well as attendance and participation in the labs. As I will try to present most of the course material in a discussion format, it is important that all students in the class arrive having read the material in the textbooks and reading assignments, as well as bringing in outside ideas to discuss.

Primary literature discussion: 150 points. In science, you must be able to read and synthesize papers you find in peer reviewed journals. This is an essential skill that you must master in order to be successful in conducting experiments in general. To that end, you will lead the class in a discussion based on a paper of your choosing (approved by me in advance). The discussion should last 20-30 minutes and cover the basics of the paper you have chosen. You will need to be prepared to lead a round table type discussion on the paper; additional details will be posted on blackboard and discussed in class.

Lab Reports: 50 points each. There are 4 lab reports for a total of 200 points.

Lab Final: 100 points. There will be a comprehensive exam on all of the material covered during the laboratory portion of the class.

There are **NO MAKEUP EXAMS**. In the case of severe illness, sports competitions or other excused absences, you will be excused and the exam will not factor into your final grade. You must have a note from your physician, a coach or whoever is appropriate for explaining a legitimate absence. These should be arranged in advance, or (in the case of illness) I must be notified by the time of the exam. If you are not excused by the time of the exam, you will receive a zero.

Honesty and Civility: You must abide by Temple's Code of Conduct (see <http://www.temple.edu/assistance/udc/coc.htm>), which prohibits: 1. Academic dishonesty and impropriety, including plagiarism and academic cheating. 2. Interfering or attempting to interfere with or disrupting the conduct of classes or any other normal or regular activities of the University.”

Attendance: If you miss a class meeting for any reason, you will be held responsible for all material covered and announcements made in your absence.

Disabilities: Any student who needs accommodation because of a disability should contact us privately to discuss the specific situation as soon as possible. The Office of Disability Resources and Services (215-204-1280) in Ritter Annex 100 can coordinate reasonable accommodations for students with documented disabilities. Students who are eligible for extra time on exams need to talk with their TA well in advance of the exam to make arrangements for extended time.

Date	Lecture	Text Pages	Lab Activity
Mon, 9-May	Introduction to the Course, Approaches to marine biology	p 1-12	Properties of Seawater
Tues, 10-May	The Ocean Floor	p 13-18	
Wed, 11-May May 13 – Last day to drop	Properties of Seawater	p 18-22	Seawater Recitation
Mon, 16-May	Circulation in the Ocean	p 22-29	Ocean Acidification
Tues, 17-May	Climate Change and the Oceans	p 29-33	
Wed, 18-May	Waves and Tides Paper Discussion #1	p 33-39	O.A. Recitation
Mon, 23-May	EXAM 1		Salinity Tolerance
Tues, 24-May	Physiology – Temperature & Salinity	p 69-83	
Wed, 25-May	Physiology – Oxygen and Light Paper Discussion #2	p 83-90	Salinity Recitation
Mon, 30-May	Memorial Day – No class		No lab this week
Tues, 31 May *Last day to withdraw	Life in a Fluid – Density, Viscosity and Water Motion	p 91-101	
Wed, Jun 1	EXAM 2		
Mon, Jun 6	Ecology – Interspecific interactions and populations	p 40-52	Population Dynamics
Tues, Jun 7	Ecology – communities	p 52-62	
Wed, Jun 8	Classifying species and biogeography Paper discussion #3	p 62-68	P.D. Recitation
Mon, Jun 13	Reproduction	p 102-114	
Tues, Jun 14	Dispersal and Migration	p 114-139	
Wed, June 15	FINAL EXAM		LAB FINAL