

MARINE BIOLOGY

Summer B | June 26 – August 6 | 2017

1. Course Information

Course Number: ZOO 4403C

Credit hours: 4

Location: 120 Carr

Meeting times: M,T,W,Th,F ; periods 2,3,6,7

See section 4 for more detail on meeting times

Instructor: Lianne Jacobson

Teaching assistant: Philip Shirk

Office: 616 Bartram Hall

Office hours: By appointment

Pre-requisites: BSC 2011 and 2011L, or equivalent, with minimum grades of C. You must be able to swim and be very comfortable in the water.

Course fees: \$174.44. These fees are automatically charged to your UF account, and cover the costs for gas, disposable lab items, and maintenance of University vehicles used for the field trips.

Lab fees: \$400.00. You will need to pay these directly to the department. Lab fees cover the costs associated with the field trips, which includes park entrance fees, camping fees, and boat rental fees. Lab fees do not cover tuition, food, camping gear, or snorkel gear. If you do not have camping and snorkel gear, you can rent these items through the University.

Course website and email communication: If you do not have access to Canvas by the first day of class, please notify me immediately. I will post all course documents and announcements on Canvas , and I will use Canvas for all e-mail communication related to the course. If you have a course-related concern, please send me an e-mail through Canvas. You are responsible for all announcements made in class and/or posted on the course website.

2. Required materials

Textbook: *Marine Biology - function, biodiversity, ecology* (4th edition) by Jeffrey S. Levinton, available at bookstore or can rent via amazon (ISBN 978-0199857128)

Lab materials: Each student will need a lab/field notebook. There is no need for this notebook to be waterproof. If a student has access to a laptop, they should bring it to all labs highlighted in red on the schedule. If a student does not have access, please notify the instructor as soon as possible.

Field materials: Most of the time in the field will be spent snorkeling, and overnight field trips will be spent camping. Students will need access to a snorkel, mask, and fins. Students will need to arrange all other "personal" gear (e.g., food, clothing, bug spray, sunblock, headlamp, sleeping bag, pillow, backpack, towel, etc.)- some of these items can also be rented on campus (through CORE).

3. Content

Description: Marine biology is the study of functional biology, ecology, and biodiversity of life in the sea.
Design: This is a field-oriented course. Most of this course will be spent in the field, snorkeling reefs and seagrass beds to collect data. You will also be able to explore other habitats, such as mud flats, mangroves, sandy beaches, and oyster reefs.

Some field trips will last multiple days. Thus, you will not be able to take this class while enrolled in a different class that requires you to be on campus. If you are trying to take this class while enrolled in another online class, double check to see if that class lets you work at your own pace. I cannot guarantee internet access while on the field trips. You should also keep in mind that these days will start early and will be spent snorkeling. You could be quite exhausted by the time we get to the campsite. If you have a summer job, make sure that you will be able to schedule around the trips.

Objectives: You will learn how physical conditions govern life in the sea, how ecological processes influence species distributions, and how humans have disturbed marine ecosystems. You will develop a Research Proposal that will reinforce the lecture material. You will be trained to collect and analyze ecological data, as well as identify a wide range of marine organisms and gain familiarity with many of Florida's marine habitats.

	Learning Outcome	Formative Assessment	Summative Assessment
1	Recognize the diversity of marine organisms and the evolutionary history of major taxonomic groups in the ocean (e.g., invertebrates, fish, algae)	Species sheets: Become an expert in a group of taxa, and teach your peers Trips: Interactions during field surveys	Exams: 1 & 2
2	Synthesize knowledge of physical and chemical processes of the ocean and the biology of organisms, to ask questions about natural history and ecology	Trips: Lab notebook B Research Proposal: workshops	Research Proposal: presentation and written proposal Exams: 1
3	Form hypotheses after observing marine habitats, and justify the type of experiment would be used to test those hypotheses	Trips: mealtime discussions of lab notebook B Research Proposal: Workshops	Research Proposal: presentation and written proposal Exams: 1 & 2
4	Effectively communicate in written and oral form, demonstrating the ability to create an appropriate annotated bibliography and the ability to use effective presentation skills	Lab: Lab notebook A Research Proposal: Workshops	Research Proposal: presentation and written proposal
5	Appreciate the impact of habitat perturbation on marine organisms, and subsequent ecosystem-level consequences and feedbacks.	Trips: Mealtime discussions of lab notebook B	Exams: 2
6	Manage and analyze data collected in the field and from online databases	Lab: Lab notebook A	Research Proposal: presentation and written proposal

*Modified from the Learning Outcomes set for Marine Biology majors at Scripps Institute for Oceanography

Tentative schedule: Check canvas for updated version of this schedule.

		a.m.	p.m.	Read	Assignments	Points
June	week 1	26 M	Lecture: Sounding the Deep & The oceanic environment	On your own: Become the resident expert in one group of seagrass taxa	Ch 1 & 2	
		27 T	Trip 1: Broward Pool- Practice snorkeling and sampling methods	Workshop: What makes a testable hypothesis? And Introduction to Project Proposals		Lab notebook A: Sampling method 5
		28 W	Lecture: Ecological and evolutionary principles of marine biology	Species sheets: Teach your peers about a group of seagrass taxa	Ch 3	Species Sheets 20
		29 Th	Trip 2: Egmont Key and Anclote Key			Lab notebook B: Egmont Key 5
		30 F	Building a long term dataset: Are the ranges of coral populations expanding?			Lab notebook B: Anclote Key 5
July	week 2	3 M	no class			
		4 T	HOLIDAY			
		5 W	Lecture: Seaweeds, Seagrasses, Cnidarians, and the Seagrass Habitat	Lab: Tutorial (intro to R, loading and manipulating data, data carpentry)	Pgs. 246-53, 262-4, 361-6	Lab notebook A: Statistics and R tutorial 1 5
		6 Th	Lecture: The chemical and physical environment & Life in a fluid medium	Guest Lecture: Tropical fish ID	Ch 4 & 5	
		7 F	Trip 3: Crystal River. Building a long term dataset: Are the ranges of coral populations expanding?			Lab notebook B: Crystal River 5
		10 M	Trip 4: Seahorse Key			Lab notebook B: Seahorse Key 5
		11 T	Lab: Tutorial (intro to R, loading and manipulating data, data carpentry)	Lab: Analyze Gulf Data		Lab notebook A: S&R 2 Gulf Coast Summary 105
August	week 3	12 W	Lecture: Reproduction, dispersal, and migration	On your own: Study	Ch 6	
		13 Th	Exam (Ch 1-4, 14-15: Field methods, ID, Hypotheses)	On your own: Become the resident expert of some fish		Exam 1 200
		14 F	Lecture: Fish and Coral Reefs	Species sheets: Teach your peers about some fish	Pgs. 165-77, 378-401	Species Sheets 20
		17 M	Trip 5: Tour of Florida's Atlantic Coast Bath Tub Reef, Coral Cove, Phil Foster State Park, Red Reef, John Pennekamp State Park How does habitat complexity and habitat type influence diversity?			Lab notebook B: Bathlud Reef 5
		18 T				Lab notebook B: Coral Cove & Phil Foster 5
		19 W				Lab notebook B: Red Reef 5
		20 Th				Lab notebook B: John Pennekamp 5
		21 F				
		24 M	Lab: Analyze trip 5 data	Lab: Analyze trip 5 data		Atlantic Coast Summary 100
		25 T	Lecture: Productivity, food webs, and global climate change	Lab: Tutorial (visualizing data in R)	Ch 10	Lab notebook A: Visualizing Data 5
26 W	Workshop: Projects and how to give a presentation	On own: Become the resident expert of some mammals (Ch 8)		Proposal Plan 25		
27 Th	Lecture: Biodiversity and conservation of the ocean	Species Sheets: Teach your peers about a group of marine mammals	Ch 17	Species Sheets 20		
28 F	Trip 6: Mote Aquarium					
31 M	Workshop: Projects	Lab: Tutorial (figures in R)		Lab notebook A: Figures 5		
1 T	Lecture: Fisheries and food from the sea	Proposal Presentations	Ch 18	Presentation 100		
2 W	Lecture: Environmental impacts of industrial activities and human populations	On your own: Study	Ch 19	Exam 2 200		
3 Th	Exam (Ch 9-10 & 17-19, Analysis, ID, Exp.Design)	no class		Research proposal (11:59pm) 150		
4 F	Trip 7: St. Augustine: Mud flats, intertidal, Whitney Lab					

*Lab notebook entry type A: summarize what you learned, what you still do not understand

*Lab notebook entry type B: 5 observations, pick one to outline a hypothesis, rationale, and experiment

*Activities highlighted in RED require a laptop, let us know if you do not have one available to bring to class

4. Expectations

Responsibilities: To ensure that all students have the potential to succeed, it is my responsibility to be timely, organized, transparent, and communicative. As a student, it is your responsibility to complete all assignments on time, actively participate, and to voice questions and concerns- while remaining receptive to the answers.

Time commitment: The University policy is that each credit hour is associated with 45-hour commitment (= 180 hours total), including time spent studying and reading. This class is only 6 weeks, so please prepare for the accelerated pace (~30 hours per week). An approximate breakdown of this time is 50% field, 20% lecture, 10% lab, and 20% studying.

Attendance: Attendance is required for all class meetings, including lectures, labs, and field trips. You are responsible for all course materials. This class is at an accelerated pace and there are many field trips, thus, a lot of the course material cannot be completed at an alternate time. It is very important that you arrive on time for all activities. If you are late for a field trip, we might not be able to wait for you.

If you are aware of a planned conflict, it is your responsibility to make me aware of any planned conflicts BEFORE the absence- this does not guarantee that you will be able to complete the material at an alternate time. If there is an unforeseen conflict, it is in your best interest to speak to me as soon as possible. If the conflict DOES NOT satisfy *acceptable reasons* for an excused absence, you will receive a zero for all missed activities. Please find the UF policy for excused absences here: (<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>). To justify an excused absence, it is your responsibility to provide all relevant documentation.

Conduct in class: This is a small class, and there will be many assignments that require you to work with your peers. Please be respectful to your peers, instructor, and TA.

Regarding electronic devices, you are welcome to take notes on a laptop. Please do not use your devices that can be disruptive during class; this could include: phones, video recorders, digital cameras and MP3 players. If you repeatedly disrupt class, you will be asked to leave, and will not have the opportunity to complete missed work.

Academic honesty and honor code: All students must review and abide by the University Honor Code (<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>).

Accommodations for students with disabilities: We would like to accommodate all students with disabilities. To do so, the student must first request an Accommodation Letter from the UF Disability Resource Center (<https://www.dso.ufl.edu/drc>). Once we receive the Accommodation Letter, we will be able to discuss arrangements with you, the student.

UF counseling, self-help, and career services: Life can be very difficult, and these situations are often complicated by coursework. If you are experiencing a personal problem or struggling with your coursework, please make use of the available resources: counseling (www.counseling.ufl.edu/cwc/, 352-392-1575), emergency counseling (www.counseling.ufl.edu/cwc/Emergency-Services, or call 911), self-help (: www.counseling.ufl.edu/cwc/SelfHelp-Resources.aspx), career guidance (www.crc.ufl.edu/, Reitz Union, 352-392-1601).

Software use: All faculty, staff, and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate

5. Grading

Semester Grade Calculations: There will be two exams, each is worth 200 points, and together the exams will account for approximately 40% of your final grade. Throughout the semester you will be working developing a Research Proposal. The proposal plan, presentation, and written proposal are worth 275 points. The point estimates for other items (field trips, data summaries, lab notebooks, and species sheets) are subject to change, but will account for about $\frac{1}{3}$ of your grade.

Approximate breakdown of points:

Exams (2)	400 (40% of semester grade)
Project proposal	275 (27.5% of semester grade)
Field trips and data summaries	200 (20% of semester grade)
Lab notebooks	65 (6.5% of semester grade)
Species sheets	60 (6% of semester grade)
Total	1000

Your final score will not be rounded (for example, an 89.9% will not be rounded up to a 90%).

The grade scale is (all numbers are percentages):

A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
≥94	≥90	≥87	≥84	≥80	≥77	≥74	≥70	≥67	≥64	≥61	<61

If Marine Biology is one of your critical-tracking courses, keep in mind that a "C-" does not qualify. For more information, please see:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.

Late assignments: All assignments must be completed on time. Every day that an assignment is turned in late, you lose 10% of the total points possible for that assignment. If you have a planned conflict, you must make arrangements BEFORE the absence,

RE-Grading: If you believe that one of your assignments or exams was incorrectly graded, you may submit a written request for a re-grade. If we re-grade your assignment or exam, the entire document will be reviewed. You must submit an official request within a week of receiving the graded assignment or exam. Your request must include two items, 1) written statement explaining why you think the assignment or exam was incorrectly graded and 2) the original assignment or exam.

If you think there was a clerical or arithmetic mistake, you do not need to submit the assignment or exam for regrading. Bring this type of mistake to my attention at the end of class or by e-mail.