

BIO 125: MARINE BIOLOGY, Spring 2017, Dr. Michelle Paddack

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Instructor's Office Hours: Wed 1:00-2:20, Thurs 10:00-12:30, or by appointment

Course Website: www.biosbcc.net/ocean

Note: Lecture and reading dates may change if there is a need to adapt to our needs and progress as a class. Changes will be posted in Canvas, emailed & announced in class – it is your responsibility to stay informed.

Week of:	LAB: EBS 210 T/W/R 2:30 – 5:35pm	Lecture # (Date)	LECTURE: EBS 309 Tu &Th 12:45-2:05pm	Reading Homework Castro Huber 10th ed. (9th ed in parentheses if pages differ from 10th)
Jan 16	M: HOLIDAY 1. Plankton	1 (1/17)	Course Intro; Pelagic Zone; Photosynthesis; Phytoplankton	Ch4: 64-71; Ch5: 93-100 Ch15: 336-339(332-335)
		2 (1/19)	Water Properties; Zooplankton; Epipelagic Adaptations	Ch 3: 40-48 Ch15: 339-352(335-348)
Jan 23	2. FIELD TRIP: Carpinteria Intertidal Zones CF Topic Due	3 (1/24)	Quiz 1; Ocean Challenges	Ch 4: 71-76
		4 (1/26)	Tides; Intertidal Challenges & Adaptations	Ch 3: 57-62 Ch11: 246-263(244-261)
Jan 30	3. Sponges & Cnidarians Lab Quiz 1 (Lab1 & 2) <i>Scientific Articles</i>	5 (1/31)	Natural Selection & Evolution; Tree of Life; time worksheet due	Ch 4: 76-84
		6 (2/2)	Quiz 2; Sponges; Cnidarians	Ch 7: 117-124 (115-122)
Feb 6	4. FIELD TRIP: DEVEREUX Intertidal	7 (2/7)	Coral Reefs	Ch 14: all
		8 (2/9)	Molluscs I (snails)	Ch 7: 130-137(127-134)
Feb 13	5. Molluscs; Lab Quiz 2 (Labs 3 & 4); CF 1	** (2/14)	EXAM 1	
		9 (2/16)	Molluscs II (octopus, etc)	
Feb 20	6. FIELD TRIP: Carpinteria Salt Marsh	10 (2/21)	Marshes & Mangroves	Ch12: 281-287(279-286)
		11 (2/23)	Soft sediment ecosystems Worms	Ch13: 289-300(287-297) Ch. 7: 125-130(123-127)
Feb 27	7. Echinoderms & Arthropods; CF 2 Lab Quiz 3 (Labs 5-6)	12 (2/28)	Quiz 3; Arthropods (crabs, etc)	Ch 7:137-143(134-139)
		13 (3/2)	Echinoderms (urchins, etc)	Ch 7:143-147(141-145)
Mar 6	8. Docks (Bryozoans & Tunicates); CF 3 Lab Quiz 4 (Lab 7)	14 (3/7)	Phylum Chordata; Tunicates; Invasive species	Ch 7: 143(140), 148-151 (145-149)
		15 (3/9)	Quiz 4; Food Webs; Productivity	Ch 15: 352-363
Mar 13	9. Algae Lab Quiz 5 (Lab 8) ; CF 4	16 (3/14)	Algae; Seagrass	Ch 6: all
		17 (3/16)	Kelp Forests	Ch13: 300-309(298-305)
Mar 20	10. Kelp Holdfasts CF 5	18 (3/21)	Polar oceans	
		** (3/23)	EXAM 2	
Mar 27- Apr 2 SPRING BREAK				
Apr 3	11. Sandy Shores Lab Quiz 6 (Labs 9 &10)	19 (4/4)	Sandy Beaches (in lab) Marine Reptiles	C11: 264-268 (262-266) Ch9: 179-184 (177-182)
		20 (4/6)	Sea & Shore Birds	Ch9: 184-188 (182-186)
Apr 10	12. Marine Mammals & Birds	21 (4/11)	Marine Mammals	Ch9: 188-211 (190-212)
		22 (4/13)	Quiz 5; Mammal Bio./Behavior	
Apr 17	13. Data analysis ; CF 6; Lab Quiz 7 (L11& 12)	23 (4/18)	Cartilagenous Fish (sharks, etc)	Ch8: 153-158(151-156)
		24 (4/20)	Boney Fish	Ch8: 158-168(156-166)
Apr 24	14. Fishes; CF 9 LAB RPT DUE	25 (4/25)	Quiz 6; Fish Biology & Behavior	Ch8: 168-178(166-176)
		26 (4/27)	Ocean Resources & Impacts	Ch 17: all
May 1	15. Presentations; Lab Quiz 8 (L14); Final Review	27 (5/2)	Climate Change	233-245(231-243)
		28 (5/4)	Marine Conservation	Ch 18: all
May 11	LECTURE FINAL	THURS, MAY 11, EBS 309 11AM-1PM ***NOTE TIME***		

REQUIRED MATERIALS:

- 1. Textbook:** Marine Biology, by Castro & Hubert, 10th edition (earlier versions may be used, but note that page numbers for readings may differ – you will need to be sure you are reading the correct sections). A copy will be available to read in the SBCC library.
- 2. Lab Manual:** Paddock & Anderson, Marine Biology, (Spring 2017 edition). Available in the SBCC bookstore and on class website. If you print your own, you must set it up in a 3-ring binder with labeled tabs for each lab, as per the one in the bookstore.

Welcome to Marine Biology! This course is an introduction to the amazing world that awaits you just offshore. You will learn about the ocean as a habitat and the animals that live within it. This course serves non-science majors, but biology majors will also gain much from the material. My goal is to help you understand the basic principles of science and apply them toward understanding how organisms live in the ocean. Along the way, you may also discover a lifelong appreciation of biology and ecology and see how interesting the world is through the eyes of a scientist.

This course satisfies SBCC general education requirement in Natural Sciences & is transferable to UC and CSU as a general education laboratory science course. This course does not apply toward the SBCC Biology major.

Course Objectives:

The major course objective is to familiarize the student with marine plants, algae and animals, their basic structure, feeding habits, reproductive modes, and interactions with each other and their environment.

In lecture students will learn to:

1. Define the major ecological principles operating in marine communities.
2. Recognize marine plankton as the base of most marine food webs.
3. Identify the major groups of marine organisms.
4. Compare the major littoral habitats, the species of marine organisms commonly found in each one, and their adaptations to the habitat.

In lab students will learn to:

1. Recognize common littoral marine organisms of the West Coast of North America and understand the roles they play in specific marine ecosystems.
2. Specify the major marine physical and biological forces at work in littoral zones.

By the end of the course students will learn to identify the complex and diverse littoral organisms in the marine environment of the West Coast of North America, specify the ecological adaptations inherent in the success of marine organisms, and interpret the marine ecosystem as a major life zone of Earth.

Student Learning Outcomes

1. Diversity: List the nine major animal groups (phyla) and four major marine plant/algae groups (phyla) found in the oceans and explain the differences between them.
2. Ecology: Distinguish between marine and terrestrial systems using the major principles of ecology.
3. Lab: Identify common marine organisms from temperate inshore habitats including rocky shores and sandy beaches.

GRADING will be determined by the total percentage earned in the course. There is one letter grade for this 4 unit class (lecture and lab together) which will be based upon your percentage of points earned out of a possible 1,000 points using the following scale. A student who shows strong effort and/or improvement in the course may be bumped up into the next higher level at my discretion. Remember: **Grades are earned, not given.**

A+: >97%	A: 93-96.9%	A-: 90-92.9%
B+: 87-89.9%	B: 83-86.9%	B-: 80-82.9%
C+: 75-79.9%	C: 70-74.9%	
D+: 67-69.9%	D: 60-66.9%	F: <60%

Points are earned as follows. Note that there are **970 points** in the class. There are 20 extra points embedded, so if you miss 1 lab quiz & 1 lecture quiz for any reason, it will not hurt your grade (unless you fail to learn this material for the exams). If you do them all, these will be extra credit points.

Lecture Activities	Pts	% of grade	Lab Activities	Pts	% of grade
Lecture Quizzes (6 at 20 pts each – drop lowest)	100	10%	Lab Exercises (15 at 15 pts ea)	225	23%
Time management worksheet	10	1%	Lab Quizzes (8 at 10 pts each – drop lowest)	70	7%
Midterm 1	100	10%	Lab Report	50	5%
Midterm 2	100	10%	Creature Feature Outline	5	0.5%
Midterm 3	100	10%	Creature Feature	100	10%
Lecture Final	100	10%	Lab Manual	10	1%

NOTE: 10% per day late will be deducted from grades for all late assignments

SBCC students with disabilities who are requesting accommodations for classes, college activities or tests should use the following SBCC procedure. (NOTE: This procedure also includes student requests to bring into classes personal service attendants who are not SBCC employees. This procedure also includes student requests to bring service animals into classes.)

Step 1: Obtain documentation of your disability from a licensed professional. You may use the “Disability Verification Form” found at www.sbcc.edu/dsps.

Step 2: Make an appointment to meet with a DSPS Specialist to review your documentation and discuss reasonable accommodations. To schedule a meeting, please call DSPS at (805) 730-4164.

Step 3: Bring your disability documentation to your DSPS appointment. The DSPS office is located in room 160 of the Student Services building.

Step 4: *Each semester*, reach written accommodation agreement with the DSPS Specialist and your instructor.

SBCC requests you complete this process at least ten working days before your accommodation is needed, in order to allow DSPS staff time to provide your accommodation.

YOUR ROLE IN THIS CLASS: Congratulations on taking the initiative to learn a fascinating subject! This will be a class that will have you interacting directly with the things we are studying, and with each other. I will try my best to teach you and give you a real feel for Marine Biology. Whether you ever take another biology class or not, I hope you will learn a lot about the ocean so that you will always have a deeper understanding and appreciation for it through your life.

We will provide great tools for you to learn, but it is ultimately YOU who is responsible for your knowledge. If you need extra help, come to my office or make an appointment. I am here for YOU and will work as hard as you do to help you succeed.

Participation: A key element of the sciences is to be inquisitive and interactive with your subject and your peers. Your participation is therefore an important part of your learning, and so is a part of your grade. All science classes build on the foundations laid in each lecture, so it is important that you ***do not get behind***.

Do not be afraid to ask questions or to seek help in understanding from your instructor or your peers – discussion & debate are important aspects of science. Because you are here to learn, **I strongly encourage you to raise your and ask questions or present ideas during lecture**. If you don’t understand something, it is most likely that someone else in the class shares your confusion. The easiest way to resolve your misunderstanding is to speak up. If you have any suggestions or comments about my lectures, the text, or other material related to the class please feel free to speak to me so that we can make this class the best learning environment possible.

Respect your fellow classmates and instructor: Electronic devices such as **cell phones, laptops, mp3s, Ipads, Tablets, Kindles**, etc may ONLY be used for class purposes (ie, taking notes). Please be aware that use of these devices can be distracting to yourself and your classmates. It is obvious when you are not engaged with the class.

Any student who causes any disruption, such as using the above items improperly or talking out of turn, will be given a single warning and points will be deducted from participation grade. If the disruption continues in that or any of the following classes, the student can be removed from the class and will not be able to return until meeting with the Academic Dean.

Tardiness is not good for you or your classmates. Please be on time! I will start lecture and lab on time (you will find it confusing and difficult by coming in late as well as disturbing to others).

If you miss more than 3 consecutive lectures or 2 labs you are subject to being dropped.

Lecture Quizzes There are 6 scheduled quizzes during lecture. Scheduled quizzes are closed book and will be a combination of multiple choice & short answer. Lecture quizzes may be given at any time during lecture. Quizzes can **only** be made-up with a documented absence (e.g., a doctor's note). There will be one extra quiz, so you will be able to drop a missed or lowest score.

Exams will be a combination of Scantron & short answer. Each mid-term will cover material up to the test. The final exam will be half material from the last third of the class (midterm 3) and the other half cumulative.

No exit/re-entry allowed during exams, so be sure that you use the restroom prior to the exam.

You must bring a #2 pencil and 100 question Scantron form to each exam.

NOTE THE TIME OF THE FINAL (11-1) differs from the regularly scheduled lecture time!

- **Make-up exams and quizzes will ONLY be given in cases of documented emergencies.**

ASSIGNMENTS:

READING HOMEWORK: Text readings will support the lecture material. To help you understand, interact, and ask questions, reading assignments for each class should be read **BEFORE** lecture.

A copy of the text is on reserve at the library – you can check it out to read in the library.

Readings support the class material but additional material WILL be presented in lectures. Therefore, if you are absent, it is important that you get class notes from a classmate.

TIME MANAGEMET ASSIGNMENT: This assignment will be given in class within the 2nd week of classes. It is a homework assignment that will help you stay on top of your school work.

CREATURE FEATURE : Details are in your lab manual, but here is a brief overview:

- An in-depth, formal presentation on biology and/or ecology research of a particular marine organism.
- Your presentation will occur in your lab at an assigned date during the semester. You must select your organism & date of presentation by Week 2 - only one student can write on each topic so sign up early.
- You will use published scientific studies and other credible scientific sources to research your organism.
- **10 days prior to your presentation**, you must submit an outline & annotated bibliography of your research so far, including at least 4 credible scientific sources.
- You will present your work to you lab as an oral 8 minute presentation. This will provide you with valuable presentation skills as well as allow you to hear about each other's research.
- Format instruction sheet, rubric, and in-class pointers are included in your lab manual - "Projects" tab.
- Be sure to **practice** your talk at least a few times before you present to the class. Form study groups to give each other pointers and to become comfortable presenting.

LAB QUIZZES- will be given during the first 10 minutes of each lab in which they are scheduled. They will cover lab material from the previous labs as well as test your preparedness for the lab you are about to do (read over your labs BEFORE class!). Students who are late will not have time extended for quizzes.

LAB EXERCISES— Your lab notebook has all of the labs you will do (with the exception of week #1, which will be passed out in the first lab). It is your responsibility to bring your lab notebook to class. Students who forget their printed labs (and are not able to bring a copy to class) will receive no higher than a C on their lab. Lab exercises are to be completed during the laboratory period and turned in before leaving. These will be graded (each worth

15 points) and returned either during that lab or the following week. Each completed lab exercise should be kept in the lab notebook along with the course exams, quizzes, and journal reports.

If you miss a lab, you are still responsible for the material. If you cannot make it up in another lab, be sure to go over the lab with a peer in class, fill it out entirely, and see me in office hours to go over it.

LAB REPORT –This 5 page lab report of your Sandy Beach Lab will follow the format of a scientific article. You will work in a team of 2-4 people for this. Your team will decide one question that your data can address and use that as a theme for your paper (use the questions & discussion points located with each section above). All of the details are in your lab manual.

EXTRA CREDIT opportunities, such as scientific presentations, will be offered throughout the semester. All extra credit opportunities will have no cost, or a no cost option will be available.

Here are a few opportunities:

1. News Flash: If you read or hear a news article about the ocean environment, share it with the class (a quick summary). You may do up to 4 of these (3 points each).
2. Attend a marine biology lecture/presentation/discussion or Beach Clean-up (worth 5 points each)
For any lecture/presentation you attend, you must hand in **within 1 week**:
 - a) the notes you took during the lecture/activity
 - b) a brief summary of the lecture/presentation (2 paragraphs)
 - c) a paragraph (at least 1 paragraph) of your thoughts/reaction/questions from it.

Grade Tracking

I do NOT post grades for all of your assignments on Canvas. You will receive a grade up-date with each exam and can check in with me at any time regarding your grade. It is important that you **keep track of your progress**.

Here is a chart to help you keep track of your grade in this class. Record your grade for each assignment (in both lab & lecture) in the appropriate box. To calculate your grade at any time in the semester, add up all of the points you have earned so far plus all Extra Credit earned. Divide this number by the total of all of the maximum points for those assignments (but not Extra Credit). Multiply this number by 100 for your % score. Remember that you can drop your lowest lecture & lab quizzes.

Assignment	Points earned	Points offered	Assignment	Points earned	Points offered
Lecture Quiz 1		10	Lab 6		15
Lecture Quiz 2		10	Lab 7		15
Lecture Quiz 3		10	Lab 8		15
Lecture Quiz 4		10	Lab 9		15
Lecture Quiz 5		10	Lab 10		15
Lecture Quiz 6		10	Lab 11		15
Time Mgmt HW		10	Lab 12		15
Midterm 1		100	Lab 13		15
Midterm 2		100	Lab 14		15
Midterm 3		100	Lab 15		15
Final Exam		100	Lab Quiz 1		10
Participation		50	Lab Quiz 2		10
Lab Report		50	Lab Quiz 3		10
Lab Manual		10	Lab Quiz 4		10
CF Outline		5	Lab Quiz 5		10
Creature Feature		100	Lab Quiz 6		10
Lab 1		15	Lab Quiz 7		10
Lab 2		15	Lab Quiz 8		10
Lab 3		15	Extra Credit		
Lab 4		15	Extra Credit		
Lab 5		15	Extra Credit		