

BI150 –Ocean Planet: A User’s Guide – Spring 2019

Professor Michelle Wood – miche@uoregon.edu

475 Onyx Bridge -- Office Hours: Thurs. 9:00-10:30 AM and by appointment

GE: Kayla Evans kevans@uoregon.edu

Office Hours: Monday - 12:30-1:30 - 482 Onyx Bridge

SLP Fellow: Adrian Broz abroz@uoregon.edu

Office Hours: Wednesday 12:30-1:30 - 324 Cascade 324

4 Credit Hours, “Lecture” 2-3:20 MW,

“Mini-Labs & Discussion” - Tues. -- 10 AM, 11 AM, Noon **Huestis 129**

Field Trips - Sat. April 27 (7M-6PM) & Sat. May 11 (8AM-6PM)

You must attend one, 5% of course grade, no way to make up for full credit

Earth is a planet of water – 71% of the surface of the earth is covered with an ocean of salt water that is, on average, 3500 meters deep (~2 miles). Throughout this vast fluid environment are an incredible array of organisms, swimming, floating, burrowing, breathing, and making their way as part of the biggest ecosystem on the planet. Few people get to see very much of this amazing realm, but our human species is totally dependent on the oxygen produced by the microscopic plants of the ocean, the way the ocean stores and transports heat and affects climate, produces food, and allows for transport of goods and services around the globe. In this class, we use resources that any citizen can understand and interpret to develop your appreciation for the diversity and beauty of the ocean, and of the way that science can be helpful to long-term protection of the ocean. By the end of the course, I hope you are a fan of the ocean and an enthusiastic ‘patron’ of the sea with a lifelong interest in the marine environment and ways it can be restored and sustained.

LEARNING OBJECTIVES– by the end of the term, the successful student should be able to:

- 1) Describe the basic features of ocean ecosystems and ecological communities – major ocean basins and open ocean, intertidal zone, estuaries, coral reefs, deep sea, continental shelf.
- 2) Explain and apply at least three systems for classifying marine organisms to representative species. These are – systems based on 1) motility and habitat (plankton, nekton, benthos, and related terms), 2) systems based on food web dynamics (e.g. herbivore, primary producer, detritivore), and 3) systems based on taxonomy and relatedness (e.g. species, genus, etc.)
- 3) Understand key defining features of major taxonomic groups of marine invertebrates, marine mammals, and fish (e.g. bony fish vs. cartilaginous fish).
- 4) Explain what an evolutionary ‘novelty’ is and use specific examples to show how the origin of a ‘novelty’ allows for an explosion of new types of animals and given rise to major lineages of animals in the Tree of Life
- 5) Recognize common organisms from the Oregon intertidal or other major domains of the ocean (e.g. deep sea, coral reefs) and be able to create natural history ‘stories’ about them that incorporate knowledge of their basic biology.
- 6) Be proficient enough with the use of tide tables to be able to plan a trip to the coast for clamming, fishing, or tide pooling. Be able to adapt what you have learned about Oregon tide tables to tides in other parts of the world.

- 7) Be able to explain the the role of physical and biological factors in creating intertidal zonation, identify adaptations different animals have to these factors, and create hypothetical communities likely to be found at different locations in the intertidal using data from field guides and other sources about their biology.
- 8) Be able to make informed choices about activities that affect the ocean, including consumption of seafood, applying your own personal sense of ethical sensibilities and standards.
- 9) Be able to describe ways that humans utilized marine resources in pre-industrial times and reasons why over-fishing has become so much more of a problem since the Industrial Revolution.
- 10) Be able to use specific examples to explain how hypothesis testing and data collection lead to revision and refinement of scientific hypotheses.
- 11) Be able to make scientific predictions and describe the results of hypotheses you have tested.
- 12) Read news articles and assimilate other sources of information about the ocean in a way that distinguishes between science and policy and demonstrates your ability to apply information from the course to the topic and/or carry on a thoughtful conversation about the topic and source.



Participation and Workload: This class involves a normal workload that requires about 120 hours of your time over the quarter. This time budget includes ~10 hours for the field trip, 35 hours of face-to-face time in the classroom, and considerable time on your own reading, analyzing data, doing projects, studying for online quizzes, and critically viewing several videos (See attached time budget). There is considerable research now that shows people learn and retain more if they are asked to speak and think during class, and not listen to a professor talking for most of the 'lecture' so be prepared to PARTICIPATE. Many classes will have either 'class prep assignments' or work you do in class. We will take roll, or collect these pre- or in-class assignments in each class session (including discussions); you will be awarded up to 1.5 pts. per week for participation (~0.5 pts per class), and 10 points earns 100% credit. There are no makeups and no late work will be accepted, but with this systems you can miss several classes without penalty. However, you are responsible for everything covered in the classes or discussions you miss. Our teaching team will do what we can to help you 'catch up' if you have a documented emergency, but it is also good to make some friends in the class who will also share their notes and understanding. (This is a good idea, even if you don't miss any classes!!).

Field Trips: The content and goals of the course are best (and most easily met) if you go on both field trips. However, we understand that this can be difficult for everyone and you are only required to go on one of them. There is no makeup for the field trip. We need to know which field trip you definitely plan to go on by April 10, and will begin signups on April 8. Also let us know if you would like to go on both field trips. We will try to accommodate as many people who want to go on both field trips as possible.

Together we will explore Oregon's wonderful coast. The first is to the Oregon Institute of Marine Biology and Charleston Marine Life Center on April 27 and the second is to the Oregon Coast Aquarium on May 11. You will need to have weather-appropriate clothing and be prepared to hike on somewhat uneven surfaces for part of each field trip. Students for whom this may be a problem should bring this to the attention of the instructors.



Images were published by the US Fish and Wildlife Service and are not copyrighted. They were published in *Fishes of the Gulf of Maine* by H. Bigelow and W. C. Schroeder (1953) <https://www.nefsc.noaa.gov/lineart/>

Grading Policy: The final grade will be based on the total (out of 100 pts.) with the cutoff for an A at >90 pts, B at >80 pts, C >70 pts, etc. +/- grades given at instructor discretion based on total points and consistency of effort (See Table 1). Extra credit of 2 pts. given if you visit Professor Wood during her office hours during the first five weeks of the term. If your class or work schedule conflicts with her office hours, you can earn the extra credit by making, and keeping, an appointment to meet with her according to this same schedule. You should bring your class notes, textbooks, and sample work to the meeting. You can also earn 1XC pt. by visiting Kaylee or Adrian in the first five weeks during their office hours. Why this XC? Students who have had a one-to-one discussion with a faculty member are believed to be more engaged in a class and more likely to seek help. We also understand many students are somewhat afraid of meeting with faculty or think they are unwelcome in office hours. We want to 'humanize' those relationships and make sure you will be comfortable seeking help if it can be useful to you. Total Office Hours XC = 3 pts (2 Prof. Wood+1 Adrian or Kayla); note time limits.

QUIZZES & FINAL: Quizzes will be online and timed; the lowest grade of the quizzes and final will be dropped; they are all of equal weight. While the quizzes and online final are open-book, you will need to prepare for them as if they were closed book or you will not be able to finish properly. Correct answers should be based on material covered in the class and accompanying materials. The time allotted will be 1.5-2X the time that would be allowed to take a similar exam in class as a closed-book exam. Technically correct answers that clearly come from other sources will not be counted for full credit and may not be counted at all. Questions that ask you to 'tell a natural history story' about an organism in a picture or from an image will be graded based on the degree to which you draw ideas and relevant content from multiple aspects of the course, including readings and lectures. The bi-weekly quizzes will be available on Friday of the week they are assigned and due by Sunday at mid-night. There is no make-up for the quizzes. The exam grade for the course will be based on the average of the four quizzes and the final, with the lowest grade dropped. You will also have an opportunity to submit a change of answer to two questions on the quiz during the Monday discussion of each quiz.

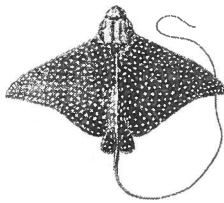
Academic Integrity: Ideas and creative expression are the cornerstone of the intellectual life of the University. Plagiarism and other forms of dishonesty in the academic endeavor are thus



contrary to the goals of the University and an enlightened life, just as personal integrity, collaboration and honest sharing of ideas (with credit given where it is due) is part of the path to new knowledge and a just society. Students are expected to adhere to University policy on academic misconduct and are responsible for consulting with the instructors if they have any questions about proper procedures for attribution, cooperative projects, or other acts that might be construed as plagiarism or other forms of misconduct. It is your responsibility to verify that any action that might be construed as academic misconduct is approved by the instructor BEFORE you take it! So, feel free to ask. Also see guidelines at <http://policies.uoregon.edu/vol-3-administration-student-affairs/ch-1-conduct/student-conduct-code> and information about plagiarism at <http://researchguides.uoregon.edu/citing-plagiarism>.

Inclusivity and Accessibility: Freedom of academic inquiry, equity among our entire diverse array of students, and responsiveness to individual needs so that everyone is able to perform at their best are all core values for the UO and the Ocean Planet Team.

Accommodations for documented disabilities will be made most easily if you let us know as soon as possible what accommodations are needed. For some accommodations, you may need register with the Accessible Education Center (<https://aec.uoregon.edu>) but if any



aspect of the course is causing difficulty of access for you, please speak to an instructor whether or not you are also working with the AEC.

While we cannot all totally understand each other's personal experiences, we can all work to eradicate discrimination and we can all share and benefit from each other's perspectives with respect and generosity. Courtesy and thoughtfulness will enrich our journey together this term, and are expected from everyone.

Prohibited Discrimination and Harassment Reporting

Any student who has experienced sexual assault, relationship violence, sex or gender-based bullying, stalking, and/or sexual harassment may seek resources and help at safe.uoregon.edu. To get help by phone, a student can also call either the UO's 24-hour hotline at 541-346-7244 [SAFE], or the non-confidential Title IX Coordinator at 541-346-8136. From the SAFE website, students may also connect to Callisto, a confidential, third-party reporting site that is not a part of the university. As a student-directed reporter, Professor Wood is not required to report sexual harassment or assault that you report to her if you request that she keep your report confidential.

Students experiencing any other form of prohibited discrimination or harassment can find information at respect.uoregon.edu or aaeo.uoregon.edu or contact the non-confidential AAEO office at 541-346-3123 or the Dean of Students Office at 541-346-3216 for help. As UO policy has different reporting requirements based on the nature of the reported harassment or discrimination, additional information about reporting requirements for discrimination or harassment unrelated to sexual assault, relationship violence, sex or gender based bullying, stalking, and/or sexual harassment is available at [Discrimination & Harassment](#). Specific details about confidentiality of information and reporting obligations of employees can be found at titleix.uoregon.edu.

TEXTBOOKS:

Required:

- **Whelks to Whales* – R. M. Harbo – UO Bookstore
- **Marine Biology: A Very Short Introduction* – Philip. V. Mladenov – UO Bookstore
- SimULINK Voucher or online purchase of SimBio Virtual Labs - details shown below, you need voucher (from bookstore) or credit card to get going with this.
- iClicker
- Additional Readings will be posted on Canvas.
- *On Reserve in Science Library
- Also on Reserve in Science Library:
 - Kozloff – *Seashore Life of the Northern Pacific Coast*
 - Recommended for details on Oregon and Pacific natural history
 - Wisehart, Rampala, & Leboffe - *Photographic Atlas of Marine Biology*
 - Recommended for details on Tree of Life, evolution, and the photos.
 - Castro & Huber - *Marine Biology*
 - Recommended as this is a basic Marine Biology textbook, it has more detail than VSI, especially good on tides, physical environment and climate change. (Chs. 2, 3, 11 and special section “Our Changing Planet”)

GETTING ACCESS TO SIMUTEXT:

It is important that you review the information below *before* you subscribe to the SimUText for **Ocean Planet** at **University of Oregon - Eugene**. **To avoid possible problems, do not wait until the last minute. To get full credit for Week 3 discussion, you must be registered with SimUText and have completed the Introduction to Keystone Predator before the discussion starts (bring work to class)**

- **CHECK YOUR TECH!** Visit <https://simutext.zendesk.com/hc/en-us/categories/200170134-Check-Your-Tech> to confirm that the SimUText application will work on your computer, and/or to explore your options if there is a problem.
- If you purchased a SimUText Voucher from your bookstore, be sure to have it with you when subscribing, as you will need to enter your voucher code.
- When you are ready to subscribe and download installers, follow this link to initiate the process: <https://www.simutext.com/student/register.html#/key/U3Bg-UWG5-ZyZ5-TpAp-RGxY>
- After you have completed the subscription process, if you need to download the SimUText application installers again, you will be able to access them by logging into the SimUText Student Portal (<https://www.simutext.com/student/>).

Save this email! Should you encounter problems, you may need your course-specific Access Key. It is: **U3Bg-UWG5-ZyZ5-TpAp-RGxY**

Problems or questions? Visit SimUText Support (<http://simbio.com/support/simutext>)

TABLE 1. BI150 OCEAN PLANET - PROJECTED WORKLOAD AND GRADING

STUDENT ENGAGEMENT	Estimated Hours	GRADING	Total Points
Classroom face-to-face	35	Discussion	20
Weekly News Item Analysis & Other Readings	30	Weekly news Item or Film Review (submitted online)	10
Other Preparation (online film screenings, etc.)	7	Field Trip	5
SimUText Simulations of Intertidal Research	16	SimUText - Keystone Predator	5
Tree of Live/Personal Project	6	SimUText- Barnacle Zone	5
Field Trip	10	Exams (quizzes and final, lowest dropped)	40
Online Quizzes	12	Attendance and Preparation*	10
Final	4	Tree of Life/Personal Project	5
Total	120	Total	100

*Each week, you will be awarded up to 1.5 points for attendance and participation based on work turned in during lecture classes, or recorded attendance. Approximately 1 point will be awarded per lecture with XC possible for especially good work, when appropriate. No makeups or late work accepted, but 100% is awarded if you earn 10 points so this allows you to miss some classes.

FINAL GRADE scale is: >=90% A, >=80% B, >=70% C, etc., +/- final grades at instructor discretion usually within 1-2 points of cutoff. A+ very rare.

INDIVIDUAL ASSIGNMENT GRADES:

Quizzes and final on point scale; weekly news items, field trip report, SimUText, and Projects will be graded with this general standard:

Letter grade awarded	% points awarded	Description
A+	100%	Outstanding, as for an "A" but with substantial original or creative thought (or, for field trip, really good detail).
A	95%	Exceeds basic expectations, completed fully & accurate, good use of detail, well-edited, includes original or creative ideas and 'optional' work for SimUText units
B	85%	Very good work, no major errors, complete and thoughtful
C	75%	Meets basic requirements for completion of assignment; few actual errors but little or no effort to 'fill in' with details
C-	70%	Effort ma; more than 60% complete and largely accurate or nearly complete but with quite a few errors and little effort
D	65%	Sub-par effort, sloppy work, mis-spellings, incomplete, errors
F	50% or less	Unacceptable work, many errors and/or largely incomplete

Penalties for late work -- Weekly news item - 50% off if turned in within 24 hours, then zero credit

Late SimuText workbooks, Projects, or Field trip reports not accepted without doctor's letter, coach's letter, or academic advisor's letter

BI 150 – OCEAN PLANET SCHEDULE – SPRING 2019

Book Codes – VSI – Very Small Introduction to Marine Biology by P. Mladenov
W2W – Whelks to Whales by Rick M. Harbo

Week 1 – April 1& 3 - Introduction

No discussion

Readings: Ch. 1 The Marine Environment (pp. 3-19), VSI

Ch. 6 Deep-Ocean Biology, (pp. 100-118) VSI

Weekly news item: plastics in the trenches – discuss Wed., April 3

Movie screening (at home) – *Beneath the Emerald Seas* –

Assigned Wed. April 3, due in class April 8

Week 2 – April 8, 9, 10 - Sources of Energy; Light in the Sea

Readings: Ch. 2, Marine Biological Processes, (pp. 19-37) VSI

Ch. 3 Life in the Coastal Ocean (pp. 38-60) VSI

W2W, Ch. 8, pp. 1W2W, Ch. 12 – be able to describe major groups of seaweeds,
not species per se

Weekly news item: Discuss Tues & Wed. April 9 & 10

Organisms: Seaweeds and Phytoplankton

Movie Screening (in class) – Light in the Sea

SIGN UP FOR FIELD TRIP BY WEDNESDAY!!

Online Quiz 1 assigned April 12, due 10PM Sunday, April 14

Week 3 April 15, 16, 17 - Edges of the Ocean – Tides and the Intertidal

Readings: Ch. 7, *Intertidal Life* (pp. 119-131) VSI

The Tide, H. Anderoy-Williams, pp. 50-69;

Tides&Waves, Castro&Huber, Ch. 3.3; (7 pp,) On Canvas)

Recommended – Castro & Huber, Ch. 11 *Between the Tides*

W2W – Ch. 7

Weekly news item:

Organisms: Echinoderms and non-vertebrate chordates

SimUText starts –Keystone Predator, available March 13, 7AM, come to class Tuesday

having completed the introduction. Bring laptop to class Wednesday if you can.

Week 4 April 22, 23, 24 – Edges of the Ocean II

April 27 FIELD TRIP - 7AM-6PM.

SimUText Keystone Online Questions Due 7PM, Tues. 4/23, Workbook due in Class 4/24

Readings: See Week 3

W2W pp. 6-23 & Ch. 10

Bird brochure – Canvas

Grey Whales – Schultz article On Canvas

Weekly News reading:

Organisms: Birds and Mammals

Barnacle Zone SimUText starts – Available 7AM 4/20 - come to class Tuesday having begun
introduction, bring laptop to class Wednesday if possible.

Week 5 April 29, 30, May 1 - Getting to Know the Tree of Life

SimuText Barnacle Online questions due 7PM, Tues. April 30, workbook due in class May 1 :

Readings: W2W Chs. 5 & 6 & TBA

Weekly News Reading:

Quiz 2 Assigned May 3, due online Sunday May 5 - 10PM

Week 6 May 6,7,8 - Ethics 101 and History of Life

MAY 11 - FIELD TRIP 8AM-6PM

Quiz 2 due May 5, 10PM

Readings: -Thinking about animals and their lives

Soul of an Octopus, Dolphin in a mirror, & Spineless (ON Canvas)

W2W - Ch. 2

Weekly News Reading:

Organisms: Jellies and some fish

NOTE - Discussion meets at Museum of Natural and Cultural History

Organisms: Jellies and some fish

Week 7 - May 13, 14, 15 - Antarctic and Acoustic Adventures

Sound in the Sea -Guest lecturer - Dr. Paul Cziko, May 13

Polar Biology -Guest Lecturer - Dr. Lisa Munger, May 15

Readings: Polar Marine Biology, (pp. 60-76) VSI

Acoustics reading TBA

W2W, Ch. 1

Weekly News Reading:

Organisms: Icefish, Sponges

Quiz 3 starts, assigned May 17, due 10PM May 19

Week 8 - May 20, 21, 22 - Tropical Marine Biology

Quiz 3 due 10PM Sunday, May 19

Readings, Marine Life in the Tropics (pp. 77-99) VSI

Online readings from NOAA's Coral Watch site

Seafood assignment made May 22 ,

includes at-home screening of Empty Oceans/Empty Nets

Organisms: Symbiotic Partners

Week 9 May 28, 29

Memorial Day - class only on Tuesday and Wednesday

Film Screening - Empty Oceans; Empty Nets (at home)

Readings : TBA

Weekly News Reading:

Seafood assignment due May 29

Organisms: Sharks & Sea Turtles

Quiz 4 assigned May 31, due 10 PM June 2

Week 10 June 3, & 5, NO Discussion

Quiz 4 due 10PM Sunday, June 2

Tree of Life/Personal Project Due June 5

Readings TBA

Organisms: Cirtters on Demand

FINAL: Online final available by 5PM, Saturday, June 8

DUE ONLINE by 5PM, Tuesday June 11