BI150 –Ocean Planet: A User's Guide – Fall 2017

Professor Michelle Wood – miche@uoregon.edu
475 Onyx Bridge –- Office Hours: Wed 12-1:30 PM and by appointment

GA: Matthew Schultz – mschult2@uoregon.edu
Office Hours: Tues 2:30-4 PM – Huestis 129
Undergrad Fellow: Ellie Jones - ejones7@uoregon.edu
Office hours by appointment

4 Credit Hours, "Lecture" 4-5:20 MW, **Lillis 112**
"Discussion" - Tuesdays -- 9 AM, (Java), 10 AM (Mocha), 11AM (Sencha) **Huestis 129**
Field Trips (You must attend one – worth 5% of grade) Sat., Oct. 14 & Sun., Oct. 29

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 (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.
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.
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) Explain how science is used in several specific examples of social issues where policy and marine science intersect.
11) Be able to make scientific predictions and describe the results of hypotheses you have tested.
12) Recognize the difference between a scientific question, a scientific hypothesis, and a policy question or proposal.

Participation and Workload: This class involves a normal workload that requires you to spend about eight or nine hours per week actively working on the class, reading papers and working on assignments. There are online lab modules and we will discuss material in the MW 'lecture' class as well as the 'discussion' sections. There is much 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. We will take roll, or collect assignments during the term and accumulate participation points; your final participation score will be based on the percentage of the total awarded that you earned. These cannot be made up or turned in early or late; "you must be present to win"; but each person starts out with extra points (3% of the total points) to allow some leeway in case of emergency. These will be added to your personal total at the end of the term and serve as XC for those who accumulate all possible points. iClickers will be used to help generate discussion and gauge student understanding in lecture, not to grade performance. If we take roll, you must sign the roll.

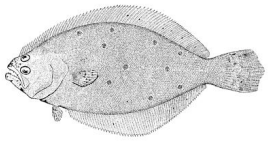
Field Trips: You are required to go on one of the two Saturday field trips. Together we will explore Oregon's wonderful coast. The first is to the Oregon Coast Aquarium, and the second is on Sunday, Oct. 29 to the Oregon Institute of Marine Biology and Charleston Marine Life Center; the second is longer because of travel time (~7AM-6PM). Sign up for the field trip of your choice in discussion during Week 2 . 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.

Course Grade: Participation (including film assignments) 20%, Midterms 30%, Final 15%, Field Trip 5%, Discussion 30%

Grading Policy: The course grade includes several components to allow you to show your engagement in the course and what you have learned in a variety of ways. Writing assignments, discussion reports, participation and preparation assignments, and field trip reports will be graded using a High Pass- A, Pass- B, Low Pass- C, and No Pass -D or F.); this translate to 95, 85, 75 and 65, <60% of the assigned points for the work of A, B, C, D, F, respectively; A+ (100%) is assigned by instructor discretion for exceptional work. Late work is subject to significant penalties and cannot be turned in after grades are assigned to the rest of the class. "High Pass" or "Check plus" work always shows evidence of editing and

includes a fairly high information content that links ideas in the work to course topics and reflects individual initiative to go beyond the basic assignment. Information is also nearly 100% accurate. "Pass" or "Check" work shows evidence of extra effort but may not rise to the level of an "A" effort in one or more areas, and includes some inaccuracies. "Low Pass" or "Check minus" work has major deficiencies in several areas but the student made an effort and mastered the basics of the assignment. "No Pass" work that earns 65% credit represents some effort, is acceptable in at least one area, but deficient in others. When the grade is <60%, it is either because no aspect of the work rises to acceptable levels, major portions of the assignment are missing, or, despite some small aspect being acceptable, most of the work is extraordinarily subpar, and % awarded (0-59%) is determined by the instructor.

Exams will be graded on a 'normal' 100 pt. scale with letter grades assigned. If you are happy with the average of your first two mid-terms, you can use that grade for the final. The final is comprehensive so if you miss one mid-term, plan to take the final. No makeups for mid-terms.



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.

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TEXTBOOKS:

Required:

- BI150-Ocean Planet – Readings from Castro & Huber – UO Bookstore
- *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 for purchase shown below
- iClicker
- Additional Readings will be posted on Canvas.

GETTING ACCESS TO ONLINE SimULINK – you must be registered by next Tuesday to receive full credit for the first discussion session.

It is important that you review the information below *before* you subscribe to the SimUText for **Ocean Planet** at **University of Oregon**. **To avoid possible problems, do not wait until the last minute.**

- 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.simutext2.com/student/register.html#/key/Utqc-nDT4-YdvU-Ep4V-JGS3
- 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.simutext2.com/student).

Save this email! Should you encounter problems, you may need your course-specific Access Key. It is: **Utqc-nDT4-YdvU-Ep4V-JGS3**

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

BI 150 - PLANET OCEAN (CRN 16390) - FALL 2017 - SCHEDULE

Lecture MW 112 Lillis 4-5:20PM --- Tuesday AM Discussion Sessions in 129 Huestis

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DATE		TOPIC	WEEKLY READINGS
			C&H - Castro & Huber, WW - Whelks to Whales, VSI - Mladenov, Short Intro to Marine bio - Some Canvas Assignments TBA
WEEK 1			
25-Sep	Lillis 4PM	Introduction & Film Assignment	
27-Sep	Lillis 4PM	Basics of the Ocean Environment	VSI - Ch. 1, C&H 3 22-38 Film Assgmt: Beneath the Emerald Sea - https://www.youtube.com/watch?v=4pcs9SPbqyw
WEEK 2			
Oct. 2	Lillis 4PM	Food Webs and Primary Production	VSI - Chs. 2,3
Oct. 3	Discussion	Start Keystone Predator Virtual Lab	Keystone Predator Worksheet. Do Startup & Exercise 1 before class - field trip sign up due
Oct. 4	Lillis 4PM	What is the intertidal? Who are the players?	VSI - Ch. 7, WW 7-26, Section Introductions, C&H 39-44 https://www.youtube.com/watch?v=qvzc9yF3g6c C&H- Ch. 3, http://www.moonconnection.com/tides.phtml, http://weather.hmsc.oregonstate.edu/weather/tides/tides.html,http://www.math.nus.edu.sg/aslaksen/teaching/tides.html
WEEK 3			
Oct. 9	Lillis 4PM	What's in A Name - Whelks to Whales Indeed	WW-7-26 * Section Intros; Seabird Brochure (Canvas), Schultz (Canvas)
Oct. 10	Discussion	Meet Some Intertidal Players	BRING WW -
Oct. 11	Lillis 4PM	Seabirds and the Coastal Ocean	Tide Worksheet Due - VSI, Ch. 3 - Bird Brochure (Canvas) & Schultz (Canvas)
Oct. 14	FIELD TRIP	Oregon Coast Aquarium	
WEEK 4			
Oct. 16	Lillis 4PM	Analyzing the Science/Solving Puzzles	C&H Ch. 1 - Online Questions for Keystone Due by 8PM
Oct. 17	Discussion	Discuss Keystone Predator	All Online Questions Due by 8PM, Oct. 16, Worksheet Due in Discussion
Oct. 18	Lillis 4PM	MIDTERM 1	
WEEK 5			
Oct. 23	Lillis 4PM	Intertidal Ecology & Hypothesis Testing	C&H Ch. 3 (waves); C&H, Ch. 1
Oct. 24	Discussion	Start Barnacle Zone Lab	Begin Assignment before discussion, as assigned in class, come prepared!
Oct. 25	Lillis 4PM	Intertidal Zonation	C&H 11, WW As Assigned in Class
Oct. 28	FIELD TRIP	Center for Marine Life & Oregon Inst. Marine Biology	
WEEK 6			
OCT. 30	Lillis 10 AM	Humans in marine environment	VSI, Ch. 8; C&H Ch. 17, 18; Online questions for Barnacle Zone due by 8PM
31-Oct	Discussion	Discuss Barnacle Zone	Barnacle Zone worksheet and reports due
NOV. 1	Lillis 10AM	Bonneville Dam Case Study - Pinniped Biology	TBA on Canvas
WEEK 7			
Nov. 6	Lillis 4PM	Basic Salmon Biology	TBA on Canvas, C&H 17
Nov. 7	Discussion	Museum of Natural and Cultural History	
Nov. 8	Lillis 4PM	Fisheries	Film Assignment 2 - "Empty Oceans-Empty Nets" https://www.youtube.com/watch?v=0VbcfQfmwPw, Due Monday 11/13 if not done 11/8 in class
WEEK 8			
Nov. 13	Lillis 4PM	Polar Ecosystems	VSI - Ch. 4, C&H Ch. 18
Nov. 14	Discussion	Report on Personal Research	Seafood Sources & Plastics & U-the-Consumer Contribution Due
Nov. 15	Lillis 4PM	MIDTERM 2	
WEEK 9			
Nov. 20	Lillis 4PM	Tropcical Ecosystems	VSI - Ch. 5, TBA (Canvas)
Nov. 21	Online	Online Assignment - No class meeting	Film TBA_Assignment Due Online Nov. 26, 8PM
Nov. 22		NO CLASS	
WEEK 10			
Nov. 27	Lillis 4PM	The Oceans as Our Charge	Science of Marine Reserves (Canvas); TBA (Canvas) Film assignment: https://www.ted.com/talks/sylvia_earle_s_ted_prize_wish_to_protect_our_oceans,
Nov. 28	Discussion	Be A Bedazzling Beachcomber	Worksheet Completed and Due In Class..
Nov. 28	Lillis 4PM	Wrap Up	Film Assignment from 11/27 Due
EXAM WEEK	Final due on Canvas - 1445 (2:45PM) Wednesday, Dec. 6 or before		