

Oceans and Society SCI 327U

Syllabus

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Course theme: The oceans cover 70.8% of our planet's surface; many of the process that govern this dominant system on our blue planet are substantially different from the more familiar terrestrial environments. This course will introduce students to the marine system and will give them a working knowledge of the how the physical, chemical and biological environment of the oceans can impact development and distribution of marine communities. We will focus on discussing how humans interface with the marine systems. Our actions on land and in the seas can have dramatic impacts on the oceans which in turn impact our resources, health and climate. Students will be developing and leading discussions on the environmental, economic and ethical responsibilities humans have for our marine systems.

Course objectives:

- 1) Identify key aspects of underlying factors (biological, physical, chemical) that contribute to marine ecological processes and how humans can impact these processes.
- 2) Develop an ability to identify natural patterns and to make scientifically based extrapolations as to cause and consequence.
- 3) Understand and be able to discuss how the marine environment interfaces with the human experience through discussion of cultural and economic perspectives.
- 4) Develop critical thinking skills and apply them to the many concerns facing marine systems.
- 5) Further develop communication skills in written and oral presentations and group work.

Expectations

- Be **prepared** for class
 - Arrive on time (absence will result in the loss of participation points, you are responsible for course material whether or not you are in class)
 - Communicate and collaborate with your classmates on group assignments.
 - Complete the readings and come to class with assignments completed on time (unexcused late assignments will not be accepted).
- **Participate** in class activities
 - Be aware that good grammar, clear structure and reasoning will all be incorporated into your grades.
 - For goodness' sake, take notes. My notes will not be available to you online or otherwise.
- **Ask Questions!**

Date	Module	Topic, due dates*	Discussion, readings due (reading list will be updated as we proceed)**
22-26 June	1	LECTURE: Introduction, Ocean Services, Physical Oceans	Ocean currents are speeding up, driven by faster winds Deconstructing the conveyor belt
	1	<i>LAB: Physical Oceans: Properties of water, Density, Salinity, Ocean circulation patterns</i>	
29 June-3 July	2	LECTURE: Ocean Chemistry, Climate change	Climate change: Pacific Ocean acidity dissolving shells of key species
	2	<i>LAB: Properties of Water: Impacts of acid rain, pollution, climate change on ocean systems.</i>	
6- 10July	3	LECTURE: Adaptations to life at sea: Trophic groups, Physiology, Behavior, Movement.	Scientists Sample the Ocean and Find Tiny Additions to the Tree of Life There's a little good news about the awful amount of plastic in the ocean Marine pollution: Centuries of abuse have taken a heavy toll
	3	<i>LAB: Physiology and movement through water, Plastic pollution.</i>	
13-17 July	4	LECTURE: Human Impacts: Fisheries, Marine reserves, Habitat restoration and mitigation	Fisheries: eyes on the ocean
	4	<i>LAB: Design a solution to a Human-marine problem. Create a fact-based informative document + elevator pitch</i>	Presentations

*The topics and schedule of discussions listed in this syllabus may change; changes will be announced online

** Readings and assignments are due on FRIDAY of the weekly module.

<i>Student evaluation & policies</i>		%
Participation, preparation		45
Readings	10	
Discussions	15	
Weekly summary quiz (4):	20	
Labs		40
Properties of water and salinity:	14	
pH and Climate change	13	

Policy proposal 15

Total 100%

A= 100 to 94%; A-= 93 to 90%; B+= 89 to 87%; B= 86 to 84%; B-=83 to 80%; C+=79 to 77%; C=76 to 74%; C-= 73 to 70%; D= 69 to 60%; F= 59% and below.

Adhere to the code of conduct: <http://www.pdx.edu/dos/codeofconduct>; e.g., no academic dishonesty or negligence; no harassment, no plagiarism ... failure to follow the academic code of conduct will result in loss of points and may result in further academic prosecution.

Limit spread of diseases: wash hands (20 sec!); use a tissue to cover your sneeze/cough; get a flu shot; stay at home if sick (contact us via. Email or phone!); go to the doctor as necessary.

Participation & preparation:Your participation grade includes any discussions, group work, weekly written assignments and quizzes that are associated with each module.

Labs: Laboratory activities can be completed by Friday midnight of each week. Please establish within your schedule approximately 8-12 hours to complete lab activities each week.

Ocean solutions Project: Students will create a proposal that solves a problem associated with the impacts of humans on the Oceans. The policy will be the logical and supported conclusion based on the quality and preponderance of existing evidence. Students will identify and support their solution as best while evaluating alternative solutions.

Suggested topics include Marine Reserves, pollution, sharks, fisheries, plastics, an expedition (Location, history, community, human interactions...)

Exam: This will consist of a test to be taken at the end of each module. It will be offered online as multiple choice, short answer, matching and should take no longer than 30 min each.

Books:

readings have links on D2L

RUBRICS: Oceans Solutions presentation rubric

5	3	1
Introduce the policy: clearly presented with action and enforcement well defined.	Presented but lacks logical consequences or benefits	unclear
Identify your problem and the key question: Question or problem is open ended and complex (not a yes/no), and proposed as a solution to the problem identified	Problem and question somewhat simplified, not designed as a solvable problem or the question is not applied to the problem	Lacks a relationship between the problem and question
Essential Information: Explain the areas that you identified as essential information. Areas are made relevant and likely to result in	Essential information needed will broadly address the problem	Areas of information needed are overly general

important decision making information		
Summarize the vital information necessary to best understand the problem and evaluate the quality of the sources for bias and study design. Numbers and facts clearly presented and sources cited appropriately (author, year)	Information summarized in a general manner. Quality of the sources is broad (eg. “peer reviewed”, or authority)	Validity of sources is lacking, very broad or nonspecific presentation of sources
Available solutions: Briefly identify at least 3 possible and reasonable solutions	3 solutions identified	Insufficient alternative ideas presented
Explain why your solution is the best: revisit lines of evidence and your policy to make logical and substantiated argument.	Best solution presented, some support given, could be more compelling	Insufficient support for your proposal
Prepared to mediate a discussion and answer questions with clarity.	Weak strategy to mediate discussion	Lacks strategy to keep discussion moving
Presentation Management: Time was managed to stay at 15 minutes for your proposal and 15 minutes for discussion. Group is well prepared to mediate discussion. Everyone participated and all aspects covered.	Deviated no more than 5 minutes from time allotment	Uneven participation and poor time management
Presentation Quality: Slides are readable, evidence presented logically, compelling arguments and reasonable proposal presented	Missing 1-2 from left	Poor quality