

WH495 - Undergraduate Seminar in Ocean Science Syllabus, Fall 2019

Class Time: Friday 9-10am

Location: Watson 201

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Course Description

Oceanography is an inherently interdisciplinary science dealing with interacting phenomena occurring on micro-to macroscopic scales. In this seminar we will explore different aspects of marine and Earth sciences by reading and discussing research published in the primary literature. In discussing current research, we will also examine how data is collected, processed and analyzed, and how new technologies are contributing to a better understanding of oceanographic processes. The goals of this course are to 1) learn how to read and critically evaluate published literature, 2) explore the interdisciplinary nature of oceanographic research, and 3) understand how this research can contribute to answer societally relevant questions.

Course Materials

Course materials will consist of published papers related to current environmental issues. This syllabus outlines general topics to be discussed, but note that additional topics may be selected and/or substituted based on discussion from the first few classes. All course materials will be distributed via Google Drive.

Grading

Grading for this course will largely be based on class participation (60% of total grade). The idea is to get you thinking critically about the topics and papers we discuss weekly, so come prepared with questions, comments, and/or alternate viewpoints. Each student will also be responsible for choosing and leading the discussion of a paper on a particular day, with topics chosen to relate to your individual research projects (20%). You will coordinate with me regarding paper selection and dispersal. You will also complete a final term project that will culminate in a final paper (20%, see below).

Term Project

Your final term project is meant to complement your existing SAW independent projects, and potentially your work in the Elements of Modern Oceanography course. For this project you will examine the classical papers underlying your current research at WHOI. Contemporary research builds upon the work of countless others in the past, with particular techniques and ideas sometimes borrowed from other disciplines. Ideas are sometimes “rediscovered” without acknowledgement of the original papers, particularly if these papers were published long ago (see the Jackson 1981 paper in the online reference section as an example).

Find and summarize 1-2 classic papers (which may have been recently published, depending on the field) whose ideas or techniques lay the foundation for the research you are building upon, and summarize them. Discuss how the work presented relates to your own research and evaluate if and how the ideas have changed over time. A summary of the two papers you choose will be due on October 4 at 5pm, a first draft of your term project is due on Nov. 8 at 5pm, and the final papers will be due on Dec. 6 22 at 5pm.

Class Schedule

Date	Topic	Lecturer	Written Assignment
6-Sep	Introduction to the Course Discussion	Tivey	
13-Sep	Anthropogenic impacts to coastal systems	Millette	
20-Sep	Heat transport and the warming hiatus	Ummenhofer	
27-Sep	Coral reefs and climate change	Murty	
4-Oct	Carbon sequestration and climate change	Murty	Summary of paper selections due Oct. 4
11-Oct	Hydrothermal vent geochemistry and deep sea conservation	Murty	
22-Oct	Marine fisheries and conservation	Murty	
25-Oct	Oceanic dispersal and anthropogenic impacts	Murty	
1-Nov	Ocean clean-up and new technologies	Murty (skype)	
8-Nov	Radium as an ocean water tracer	Downing	Draft of term projects due Nov. 8
15-Nov	The role of reactive oxygen species in coral bleaching events	Pham	
22-Nov	TBA	Szweda	
29-Nov	Thanksgiving holiday		
6-Dec	From species to ecosystems - management and modeling	Murty	Final projects due Dec. 6 Class will be 90 min. to allow for class review, discussion and feedback