SPECIAL TOPICS IN MARINE BIOLOGY
(MARS 6920)
Marine Conservation Biology

HAWAII PACIFIC UNIVERSITY	TIME: ---------- 10:45 – 12:15
OCEANIC LEARNING CENTER (OI)	DAY: ---------- Wednesday / Friday
SPRING SEMESTER, 2010	ROOM: ---------- OLC

INSTRUCTOR:

David Hyrenbach, Ph.D.
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OFFICE HOURS:

Available by appointment

COURSE DESCRIPTION: Marine conservation biology is increasingly important for society, as evidenced by recent reports by the U.S. Commission on Ocean Policy and the Pew Charitable Trusts. Students who take this class will be exposed to multiple perspectives on important conservation issues in the marine environment and gain valuable experience in critical thinking, communication skills, and the use of science in effective debate.

TEXT: Marine Conservation Biology: The Science of Maintaining the Sea's Biodiversity (2005)
~ Elliott A. Norse & Larry B. Crowder (Eds.), Island Press, Washington, D.C.

CREDITS: **3** (Lettergrade)

PRE-REQUISITES: Enrollment in the Marine Science / Environmental Science Graduate Program or permission of the instructor.

COURSE DESCRIPTION:

Scope: Marine Science 6920 is a new course for advanced undergraduates and starting graduate students in ecology and marine science. This is a lecture and discussion course, designed to provide an overview of the theoretical foundations and practice of marine conservation biology. This course will explore the wide array of scientific challenges associated with marine conservation.

This course emphasizes the importance of critically reading the original scientific literature, evaluating and synthesizing conflicting results, and presenting information in oral and written format, using standard scientific formats. Science is a public enterprise; if you cannot effectively communicate your results to your colleagues and the public, you will be unable to make scientific contributions.

This course is designed with this context in mind, and will consist of three linked components. The first part of the course will develop the foundational knowledge needed for coastal marine conservation, focusing on the quantitative approaches used for the management and conservation of marine resources. The second part of the course will allow students to evaluate and discuss real-life conservation case studies where these techniques were applied. The third stage will highlight case studies presented by invited speakers (professors from various disciplines and conservation practitioners).

We will discuss papers from the original ecological literature (journal articles) and will examine their assumptions, contrast their conclusions and management implications, and evaluate how different results and perspectives can be reconciled. We will also review management plans for endangered species and will debate how to address their effective conservation. Because we will explore unresolved issues, often there will not be a single answer or a best way forward. In these cases, we will discuss what types of information we would need as managers to answer these pressing questions and what would be the most efficient way to proceed, given the uncertainties we are faced with. This is the way science often proceeds, and the way contrasting results and management recommendations are reconciled.

Student Learning Outcomes: By the end of this course students are expected to:

- Critically read and relate information verbally from papers published in the scientific literature. In a scientific debate environment students will verbally present assigned papers to the class, and will discuss the merits of alternative management approaches and their implications.
- Critically discuss assigned papers from the scientific literature during group discussions. Following a brief introductory seminar presentation by the instructor, the class will discuss the analytical approaches, conclusions, and management implications of the research.
- Use analytical tools taught in the class to interpret and model species abundance and trends. These skills will be evaluated with homework sets and a "knowledge" exam.
- Perform simple demographic analyses, using Leslie Matrix methods and interpret the results of these analyses. These skills will be evaluated using homework sets and a "knowledge" exam.
- Find and use published information from a variety of printed and electronic sources. This skill will be evaluated with a final project.
- Students will be able to evaluate published scientific information concerning the distribution and status of populations and the impacts/threats affecting them. These skills will be evaluated during group discussions following the presentations of invited speakers.

Academic Honesty:

Directly quoting others, even with proper attribution of the source, is almost never done in scientific writing, so **there are no circumstances in which including someone else's writing in your papers will be acceptable in this course**. Particularly, it is academically dishonest to **plagiarize**: to try to pass off someone else's intellectual work as your own. Any single occurrence of academic dishonesty in any form whatsoever may result in a grade of FD for the course. The grade of FD represents an F for academic dishonesty and it will remain a permanent part of your academic record, not subject to HPU's normal retake policy. Students are expected to comply with HPU's academic honesty policies. All major writing assignments will be analyzed at Turnitin.com. For homework problems and any other take-home assignment, students may work together, but must turn in their own answers to assigned problems. For additional information on plagiarism see the links in Campus Pipeline under the Libraries folder. Another excellent site explaining plagiarism (and how to avoid committing it) can be found at the Purdue University's Online Writing Lab at: http://owl.english.purdue.edu/handouts/research/r_plagiar.html

GRADING: Grades are based on following criteria:

(**Note:** I will scale all scores using the top score as 100%)

Homework	35%	(5 points each * 8 sets) – drop lowest score
Knowledge Exam	25%	
Participation	15%	(Group discussions, Class participation)
Final Project	25%	

Total points: 100

90 - 100%	A	
80 - 89%	B	
70 - 79%	C	
60 - 69%	D	
>60%	F	**Note:** I will use a system of plusses and minuses to fill in the gaps.

Participation points will be evaluated on the basis of your effort and commitment to learning. Evidence of this includes promptness and attendance in class, participating in discussions (and showing evidence of having carefully done the assigned reading) and seeking extra help when needed. You are expected to read any assigned chapters from your laboratory textbook and/or assigned papers prior to coming to class. Failure to do so may lead to some of your participation points being docked.

Missing class will harm your participation score and performance in the course. While there is no attendance requirement, I expect to receive an explanation concerning any absences – preferably before they happen. Thank you.

Written Assignments and Presentations:

Every student will turn in the following:

1) A population trend analysis homework set
2) A population dynamics homework set
3) A life table homework set
4) A whaling homework set
5) A demographic analysis homework set
6) A probabilistic model homework set
7) A MPA design homework set
8) A MPA role play homework set
9) An individual MPA exercise

You will also participate in the following group activities:

1) Two debates discussing assigned papers from the primary literature
2) Two group discussions
3) One role-play exercise

Scientific Debates:

Each day that we discuss scientific papers the class will be split into two groups, taking opposing stances on either side of a management dispute. The groups will be assigned to one side of the argument randomly at the beginning of the class. The 60-minute debate will follow the following format:

- Introductions (Team A and B): 10 mins for each team
- Rebuttal (Team A and B): 10 mins for each team
- Questions (Team A and B): 5 mins for each team
- Concluding Statements (Team A): 5 mins for each team

THE STUDENTS WILL BE ALLOWED TO USE REFERENCE MATERIALS (NOTES, PAPERS) AND TO DRAW ON THE BOARD. HOWEVER, NO POWERPOINT WILL BE ALLOWED.

Final Project:

Students will work on an exercise to determine the best location and design of a Marine Protected Area, using a variety of ecological and socio-economic data, and aided by computer simulation software. Each student will answer a set of questions justifying their design, and will provide a log detailing their "experiments" to reach these conclusions. In addition to this written report and research log, the students will defend their results at a final class meeting, where the group will compare their answers. At the end of the class meeting, the students will vote on the best MPA proposal.