

**BIOL 404: Advanced Topics in Marine Biology
Spring 2007**

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	TOPIC	READINGS
Week 1 9-Jan 11-Jan	Introduction and overview Introductions. Course goals and organization. Elements of excellence and ethics in research. Writing a research proposal for graduate studies. Marine biology--history and challenges	https://www.fastlane.nsf.gov/grfp/
Week 2 16-Jan 18-Jan	Module 1: Marine Biodiversity Marine microbial diversity Essay 1: "Review the history of classification of organisms and discuss the current three domain system." Guidance and some literature will be provided. Macroflora and macro-fauna diversity. The "species problem" in corals, plus the growing lack of classical systematic expertise for most marine groups—what can DNA tell us?	
Week 3 23-Jan 25-Jan	Rapid Environmental Assessments and oceanographic characterizations in the NWHI. Discussion Essay 1: Draft due	
Week 4 30-Jan 1-Feb	Module 2: Current "Hot Topics" in Tropical Marine Biology Physical and anthropogenic stressors. Bleaching, disease, and predation on coral reefs. Essay 1: Draft returned	
Week 5 6-Feb 8-Feb	Ocean chemistry and physics; microbial physiology and habitat; hydrothermal vent communities, deep-sea sediments. Deepwater bottom trawling--Les Watling	

	<u>Essay 1: Final version due</u>	
Week 6		
13-Feb	Marine protected areas	
15-Feb	Community-based ecosystem management. Guest scientist presentation.	

Week 7 20-Feb 22-Feb	Module 3: Productivity in marine ecosystems Microbial productivity <u>Essay 2:</u> Why and what should we know about marine microbial productivity? Plankton productivity in the North Pacific--Karin Bjorkmann	
Week 8 27-Feb 1-Mar	Phase Shifts on Coral Reefs: top down vs. bottom up control. Fisheries management regimes. <u>Essay 2: Draft due</u>	
Week 9 6-Mar 8-Mar	Alien/invasive introductions to Hawaii's marine environment. Discussion <u>Essay 2: Draft returned</u>	
Week 10 13-Mar 15-Mar	Module 4: Marine Biotechnology Aquaculture; fish pens <u>Essay 2: Final version due</u>	
Week 11 20-Mar 22-Mar	Ecotourism Tester Symposium <u>Essay 2: Final version due</u>	
Week 12 26-30 March	Spring Break	
Week 13 3-Apr 5-Apr	Pollution, bioremediation and marine biotechnology I <u>Essay 3:</u> Estimating biotic changes in the marine realm over the past 200 years Pollution, bioremediation and marine biotechnology II	
Week 14 10-Apr 12-Apr	Module 5: Global Scale Issues Large marine ecosystems Global change in marine environments	

Essay 3: Draft due

Week 15 17-Apr 19-Apr	Marine Biology in 2010-2050 Presenting your work: Fonts, colors, animations, photographs, 'personal elements', <i>etc.</i> Essay 3: Final version due	
Week 16 24-Apr 26-Apr	Class Presentations--Powerpoint Student presentations Student presentations	
Week 17 1-May 5-May	Q&A Study Period	
Week 18 5/8/2005, 11:45 a.m.	Term Paper Due=NSF Graduate Research Fellowship Proposal	

Grading:	
Essays	15% each
Powerpoint Presentatio	15%
Grant Proposal	30%
Participation/Attendanc	10%