



Spring 2007 (Course #7698)

Oceanography-115

Class Instructor: **Poorna Pal** MS MBA Ph.D., Professor of Geology & Chair: Physical Sciences Division

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Office Hours: MTWTh: 1⁰⁰-2³⁰ pm or by appointment

This 3-unit physical science lecture course examines the physical, chemical and geological aspects of oceans and the oceanic environment, in order to help you

- describe how oceanography, perhaps the most visual of all physical sciences, exemplifies the scientific process of continually matching the empirical observations and theoretical constructs and helps us understand the forces that shape our natural environment;
- establish the oceanographic connections that bridge geology, meteorology, ecology, biology, physics, chemistry, economics and ethics; and
- explain why understanding the oceanic realm has become increasingly crucial to our collective future.

In the process, it should help sharpen your skills in critical reasoning and articulation.

Textbook: Garrison: Oceanography - An Invitation to Marine Science (Brooks/Cole, 2007)

Schedule for Lectures, Tests and Final Examination (6³⁰ – 9³⁰ PM, SB-243)

Feb 27; Mar 6 and 13:	<i>Preview of the course</i> A. <u>What makes Earth the water planet?</u> B. <u>How are the ocean basins created?</u>	Chapters here refer to those in the Garrison Textbook) 1. Earth and its oceans (Chapter 1: Knowing the Ocean World, also latitudes and longitudes: Box 1.1 and Appendix III) 2. Earth, Venus and Mars 3. Earth Interior (Chapter 1) 4. Physiography of seafloor (Chapter 4) 5. Plate Tectonics (Chapter 3: Plate Tectonics) 6. Seafloor and continental margin sediments (Chapter 5)	Class-Test 1: Mar 20 (7-8PM)
Mar 20, 27; Apr 3 and 10:	C. <u>Why learn about ocean chemistry and physics?</u> D. <u>How do oceans modulate the climate?</u> E. <u>How are waves, tides and tsunamis created?</u>	7. Chemistry and the origin of water (Chapter 7) 8. Seawater physics and the ocean structure (Chapter 6) 9. Atmospheric circulation (also hurricanes, Global Warming) (Chapter 8) 10. Ocean circulation (also El Niño, Conveyor belt) (Chapter 9) 11. Wave dynamics and wind waves (Chapter 10) 12. Tides and tsunamis (Chapter 11)	Class-Test 2: Apr 24 (7-8PM)
Apr 24; May 1, 8 and 15:	F. <u>What happens at the land's end?</u> G. <u>How physical factors shape the marine habitat and life</u>	13. Coasts and the coastal processes (including the effects of construction and related human activity) (Chapter 12) 14. Life in the ocean (Chapter 13) 15. Marine primary producers or autotrophs (Chapter 14) 16. The marine animals (Chapter 15) 17. Marine communities (Chapter 16)	Class-Test 3: May 22 (7-8PM)
May 22, 29; June 5:	H. <u>How do the oceans affect our future?</u> <i>Overall review of the course</i>	18. Food resources (Chapter 17) 19. Mineral and energy resources (Chapter 17) 20. Oceans and the environmental issues (Chapter 18)	Final Exam. Jun 12 (7³⁰-10PM)

The Class and Grading Policies:

SI meetings (5³⁰-6³⁰ PM): on the days of class meetings

- DEADLINES: Mar 6 for ADD/DROP-WITHOUT-W, May 19 to DROP WITH AUTOMATIC 'W' (dropping after this means an automatic 'F') (DROPPING OUT OF THE COURSE, WITH OR WITHOUT A "W", IS THE STUDENT'S RESPONSIBILITY).
- This is a COLLEGE TRANSFER COURSE. Therefore, the class will rely heavily on discussions and analyses of the ongoing processes of oceanographic interest. YOUR SUCCESS WILL DEPEND ON THE NOTES YOU TAKE IN THE CLASS, YOUR READINGS BEFORE AND AFTER THE CLASS, AND ON YOUR PARTICIPATION IN THE DISCUSSIONS.
- **Note that (a) there will be no homework or assignments, (b) an attendance below 70% will invite an F, and (c) any suspicion of "cheating" and/or any other kind of disruptive and/or anti-social behavior will invite negative points and an F.**
- For final grading (A ≥ 90% > B ≥ 80% > C ≥ 70% > F), best 2 of the 3 Class-Tests will account for 60% of the overall grade, the comprehensive Final Examination for 30%, and presence and participation in the class, as may be measured through pop-quizzes and/or your questions, for the remaining 10%. Also, to secure the grade A, a student should have secured 90% marks in at least 2 of the 3 Class-Tests.
- **The Class-Tests will be scantron based, with two short notes, whereas the Final Exam. (a) will be comprehensive, (b) will need to be on the "blue book" and (c) will comprise an essay and two short notes.**
- Participation in the Collaborative Learning (SI) Workshop, available for this course is encouraged: apart from helping you learn the subject better, active participants can earn up to 2½ extra-credit points. PLEASE USE THE SI SESSIONS TO SHARPEN YOUR ESSAY WRITING SKILLS.
- **Videos: You may also wish to browse the corresponding episodes in OCEANUS videos available at the Learning Center.**
- Any "Extra Credit" work — an ORIGINAL essay or term paper or research paper, project or report — will be graded on a -5 to +5 scale. Such a grading will be done only in marginal cases and therefore at the time of the Final grading.