

GEOL 4210
MARINE GEOLOGY
FALL 2006

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Class meets Monday, Wednesday, and Friday from 11:00 to 11:50, room 208.

Course Objectives: This course is designed to introduce the fundamentals of marine geology. The oceans cover over 70% of the Earth's surface, contain 97% of its water, and constitute the world's largest natural resource. This course will examine the explore the processes that shape the ocean floors, with attention to the structure, evolution, and stratigraphy of the ocean basins and continental margins.

Textbook: The class will draw material from a combination of three texts, on reserve in the Geology Library

An affordable textbook, nicely uip-to-date:

The Ocean Basins: Their Structure and Evolution published by the Open University

The following two textbooks have not been revised in a while but are more comprehensive, and still excellent references:

Marine Geology Jim Kennett (Prentic Hall).

The Sea-floor: An Introduction to Marine Geology, E. Seibold and W.H. Berger, (Springer.)

Course Assessment:

20%: Mid-term

30%: Term paper (due December 8).

10%: 15 minute presentation on same topic as term paper.

10%: Homework (half-page to one-page write-up on a few papers to be discussed in class).

30%: Final exam, "take-home". Final week is December 11-15. The take-home exam will be handed out the previous week and will consist of several essay questions.

I will be away for a conference during final week. According to university rules, the exam must be returned in person during final week in the office of the Geology department.

Tentative schedule:

August 21,23, and 25:	Introduction & field methods in marine geology.
August 28 & 30, and September 1:	Physiography of the oceans & plate tectonics
September 4:	Labor day
September 6 & 8:	Plate tectonics
September 11, 13, & 15:	Margins (active, passive, borderlands)
September 18, 20, & 22:	Nearshore processes (estuaries, barrier islands, deltas, shelves)
September 25, 27, & 29:	Carbonates, ocean circulation
October 2, 4, & 6:	Ocean circulation, sediments, hydrocarbons
October 9, 11, & 13:	Sea level, paleoceanography
October 16, 18, & 20:	Midterm, paleoceanography, topic paper
October 23, 25, & 27:	Paleoceanography, Nankai, topic paper
October 30, and November 1 & 3	Cold seeps, carbon cycle, topic paper
November 6, 8, & 10	Natural hazards (EQ, volc, mass wasting);
November 13, 15, & 17	Two topic papers: plumes & NanTroSEIZE
November 20, 22, & 24:	Three topic papers: climate change, Irish Sea, and ridge propagation.
November 27 & 29, December 1	Thanksgiving recess
December 4 & 6	Environmental issues about the seafloor
December 8	Biogenic processes at the seafloor
December 15	Frontiers of marine geology: the challenge of monitoring active geological processes
	Two presentations each day on term papers.
	Take-home exam handed-out on Dec. 6.
	Review, questions. Term paper due.
	Take home final exam due.