

GEOL SCI-206 “Introductory Oceanography”

Instructor: Dr. Andréa G. Grottoli, Assistant Professor

Contact: 329 Mendenhall

Required Lab Manual:

Introductory Oceanography Laboratory Exercises (V1.3). By A Grottoli (available at UniPrint at the corner of Tuttle Park Place and Woodruff)

Recommended Textbooks:

Essentials of Oceanography. By Tom Garrison (any edition is fine). Brooks/Cole (most recent edition available at the OSU main Bookstore).

OVERALL COURSE GOAL

This course is designed to provide a general overview of oceanography. It is constructed such that all students (irrespective of their major area of study) can learn about the oceans. The course will cover brief overviews of the four major areas of oceanography: marine geology (plate tectonics, sediments, and coastal geology), physical oceanography (ocean and atmospheric circulation, and waves), marine chemistry (seawater chemistry and some aspects of biological oceanography), and marine biology. The goal of the course is to provide students with a basic understanding of the oceans so that they can understand and evaluate current ocean topics in the media, have a foundation for future study in oceanography, and gain an appreciation for the complexity and beauty of the oceans.

This course will have two components: 1- two weekly lectures and 2- a lab once a week. The weekly lectures will be multi-media presentations of the various topics. Video clips, power point slides, and overheads will be used. The major graphs and figures (as power point files or .pdf files) will be posted for each lecture on Carmen (<http://telr.osu.edu/carmen/>) following each lecture. I will also periodically upload additional readings on the Carmen site, as well as post messages, important calendar dates, and reminders. The lab is a weekly session designed to introduce some quantitative techniques and give some hands-on experience in oceanography. The lab material will usually compliment materials presented in class. Weekly homework will be assigned at each lab.

GRADING

Best Exam	50%
Worst Exam	20%
Lab Attendance	5%
Lab Assignments	25%
Bonus Points	TBA

Your final grade will automatically be calculated to optimize your grade by giving your best exam the strongest percent weighting and your worst exam the lowest percent weighting.

Course pre-requisites and expectations: This is an undergraduate GEC course. Geol Sci 100 is technically a pre-requisite, but this requirement can be waived with permission of the instructor. This course is designed as a science course for all majors and also fulfills the natural science sequence requirement.

Geol Sci-206 General Class Schedule

Week	Day 1	Day 2
1	L1: History of Oceanography (Ch 2)	L2: Earth's Structure (Ch 3) and Plate Tectonics (Ch 3)
2	L3: Ocean Basins (Ch 4)	L4: Sediments and paleoclimate (Ch 5)
3	L5: Seawater: properties, chemistry (Ch 6)	L6: Seawater: composition, residence time (Ch 6)
4	L7: Atmospheric Circulation (Ch 7)	L8: Ocean Circulation and Deep-Water Formation (Ch 8)
5	L9: Waves, Tsunamis (Ch 9)	L10: Storms, Monsoons/Hurricanes and Weather (Ch 7)
6	Midterm	L11: Carbon Cycle and Global Warming p. 313-315, Articles by Karl & Trenberth (2003) and by Chow et al (2003)
7	L12: Ocean-Atmosphere Circulation: ENSO and PDO	L13: Tides and Estuaries(Ch 10)
8	L14: Life in the Oceans: food chain (Ch 12)	L15: Life in the Oceans: physical factors and marine life (Ch 12)
9	L16: Pelagic Communities: plankton and nekton (Ch 13)	L17: Benthic and Reef communities (Ch14)
10	Memorial Day No classes	L18: Uses and Abuses in the Ocean (Ch15)

Week	Lab Assignments
1	#1: Latitude, longitude and navigation
2	#2: Tectonics
3	#3: Sediment
4	#4: Seawater Chemistry
5	#5: Ocean Circulation
6	#6: Global Warming: CO ₂ Data Exercise
7	#7: Tides and Estuaries
8	#8: Readings and Discussion: Global Change
9	#9: Living in the ocean and productivity
10	#10: Marine Organisms