Elementary Oceanography: Syllabus

GEOL 3030 (40-359) Univ. of Georgia Spring Semester, 2006
1:25-2:15 pm MWF Room 200A GG

Professor: Dr. L. Bruce Railsback
Phone: 542-3453 Office: 133 GG / 201 GG email: rlsbk@gly.uga.edu

Office Hours: Anytime LBR is in his office, which is most of the time, except for 12:00-2:20 MWF. Feel free to call or email to set up a meeting time.

Teaching assistant (grader of exercises): C.J. Jackson (21 GG; cwjjr@uga.edu)

Textbook: Thurman, H.V. and Trujillo, A.P., 2004, *Introductory Oceanography,* 10th edn, (Upper Saddle River, NJ, Pearson Prentice Hall), 608 p. (Or newer edition)
Copies of lecture illustrations are on reserve in the Science Library as SPC R152il.

Web Page: This syllabus, including the attached schedule, is subject to change as posted on the course web site on the World-Wide-Web at
http://www.gly.uga.edu/railsback_GEOL3030base.html
Many essential course materials will be posted on the course web site.

Course Objectives: To acquaint students with the fundamentals of marine geology, of physical, biological, and chemical oceanography, of paleoceanography, and of the environmental aspects of oceanography, and to improve their skills in problem-solving and in written communication.

By the end of the course, students should recognize the oceans as an interactive system in which chemical, physical, and biological factors are inter-related, and for which budgets of water, chemical substances, sediments, and even organisms can be constructed. Throughout their lives students will enter systems or organizations and have to discern patterns and relationships in those systems, whether they be universities, corporations, countries, or families. Students will do the same here by organizing what at first seems like a vast bowl of water into an intelligible inter-related framework.

Course Requirements and Grading:

Requirement	Time/Date Due	Proportion of course grade
Exam 1	Monday, February 20, 2006 1:25-2:15 pm	21%
Exam 2	Monday, April 17, 2006 1:25-2:15 pm	24%
Final Exam	Noon - 3:00 pm Friday May 5, 2006	30%
Six (±) Exercises	As appropriate	25%

Students who have other commitments so that they cannot take exams on these days at these times should not take the class.

Grading:

Divisions between letter grades at 90, 80, 70, and 60% or lower are used. The dividing points are often lowered to allow a reasonable distribution of letter grades. There is always at least one "A", and there are usually several. Previous grade distributions are available from the course web page.

Attendance:

Records of attendance will not be kept, and attendance is not a factor in the grading scheme. However, previous experience has shown that students who do not attend class regularly will not be able to do well in the course.

Exams:

Copies of last year's exams are available on the course web page. Mid-term exams will consist of short-answer questions, matching questions, and multiple choice questions. Make-up exams are usually essay exams, because essay exams can be much more easily prepared on short notice. Exams can be made up in the documented event of illness or death in family.

The first part of the final exam will resemble the mid-term exams and will deal with material covered after the second mid-term. The second part of the exam will be an essay question over any part of the course. The possible essay questions will be available before the exam via the course Web page; one question will be selected for the exam at the time of the exam by means of a random process.

Withdrawal: The instructor reserves the right to submit statements of withdrawal for students who do not take the first mid-term examination. Students withdrawing before the midterm withdrawal deadline will be given grades of W.

Classroom etiquette: Class meetings are intended for lecture on and discussion of the subject matter, and for students to ask questions about that material. Students are strongly encouraged to ask questions and to remember that there are no stupid questions.

To allow the students to hear all the lectures and participate in all the discussions for which they are paying, no private personal conversations can take place during class. Failure to adhere to this basic maxim of civilized behavior, or repeated disruption of the class by some other means, will result in removal from the class.

Closing notebooks, putting on coats, and talking while the lecture or discussion ends are rude behaviors. Many students will still be trying to follow the lecture or discussion that they have paid to attend.

Pagers and cellular telephones should be deactivated during class time to avoid disturbing students who are trying to listen to class activities.

Seating: Movable seats in the aisles along the walls, and the fixed seats next to those aisles, are not to be used by students in GEOL 3030.

Accommodations for students with learning disabilities: Students with learning disabilities must inform the professor of measures needed to account for those disabilities by the end of the third class meeting. Students for whom the University provides a note-taker are reminded that note-takers are required to not deliver notes for any lecture that the disabled student does not attend with an excuse of illness or death in family.

Student Athletes: Students wishing that their course grades be released to advisors in the UGA athletics program must give the professor a signed dated letter indicating that wish and indicating the name and address of the person to whom the grades should be sent. The course web page has a sample letter or template.

Expectations: The professor assumes only a high-school level of knowledge of science, so that students from all majors can take the course and do well. The professor also assumes that the students want to learn and are willing to work in order to learn. Learning at the college level requires focused reading, daily review of lecture notes, and assimilation of the material covered. Students who want to learn and are willing to work will do well in the course.

UGA required text: All academic work must meet the standards contained in "A Culture of Honesty." Students are responsible for informing themselves about those standards before performing any academic work. The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.

Schedule and Reading Assignments:

Topic	Readings in Thurman & Burton.	Tentative Dates
Introduction	Syllabus; pp. 1-7; Ch. 1	Jan 9-11
Geography & Geology of the Oceans	Ch. 3 & 4	Jan 13-23
Physical Oceanography: Ocean Circulation	Ch. 6; pp. 164-177, 183-191; Ch. 7 & 8	Jan 23-February 15
Exam 1		February 20, 2006
Physical Oceanography: Waves & Tides	Ch. 9 & 10	Feb 16-March 3
Biological Oceanography	Ch. 13 to 16	March 3-April 12
Exam 2		April 17, 2006
Deep-sea sediments	Ch. 5	April 12-14
Chemical Oceanography	pp. 177-183	April 19-24
Paleoceanography	No readings	April 24-May 1
Final Examination		Noon Friday May 5, 2006 in 200A GG

Textbooks and useful reference books

Berner, E.K., and Berner, R.A., 1987, The Global Water Cycle: Geochemistry and Environment: Prentice-Hall, 397 p.

Broecker, W.S., 1974, Chemical Oceanography: Harcourt Brace Javonovich, 214 p.

Chester, R., 1990, Marine Geochemistry: Unwin Hyman, 720 p.

Dietrich, G., Kalle, K., Krauss, W., and Siedler, G., 1980, General Oceanography (transl. of second edn.): John Wiley & Sons, 626 p. (A general but rigorous text.)

Fairbridge, R.W., 1966, Encyclopedia of Oceanography: Van Nostrand Reinhold,1021 p.

Fincham, A.A., 1984, Basic Marine Biology: Cambridge Univ. Press, 157 p.

Gross, M.G., 1982, Oceanography: Englewood Cliffs, N.J., Prentice-Hall, 497 p.

Siedler, G., et al., 2001, Ocean circulation and climate: observing and modelling the global ocean: San Diego, Academic Press, 715 p.

Holland, H.D., 1978, The Chemistry of the Atmosphere and Oceans: John Wiley & Sons, 351 p.

Holland, H.D., 1984, The Chemical Evolution of the Atmosphere and Oceans: Princeton Univ. Press, 582 p.

Kennett, J., 1982, Marine Geology: Prentice-Hall.

Knauss, J.A., 1978, Introduction to Physical Oceanography: Prentice-Hall, 338 p.

Millero, F.J., 1996, Chemical Oceanography: Boca Raton, CRC Press, 469 p.

Neumann, G., & Pierson, W.J., 1966, Principles of Physical Oceanography: Prentice Hall, 543 p.

Schopf, T.J.M., 1980, Paleoceanography: Harvard University Press, 341 p.

Seibold, E., and Berger, W.H., 1982, The Sea Floor, Springer-Verlag.

Sverdrup, H.U., Johnson, M.W., and Fleming, R.H., 1942, The Oceans: their Physics, Chemistry, and General Biology: Prentice-Hall, 1087 p. (A classic from which many texts still steal).

Thorpe, S.A., and Turekian, K.K., eds., 2001, Encyclopedia of Ocean Sciences: Academic Press, 6 vols., ca. 3400 p.

Thurman, H.V., and Webber, H.H., 1984, Marine Biology: Chas. E. Merrill, 446 p.

Von Arx, W.S., 1962, Introduction to Physical Oceanography: Addison-Wesley Pub. Co., 422 p.

Important Journals and Series:

Journal of Geophysical Research
Deep Sea Research
Marine Geology
Journal of Physical Oceanography
Paleoceanography
Chemical Oceanography
Limnology and Oceanography
Journal of Marine Research
Oceanology
Progress in Oceanography
Intial Reports of the Deep Sea Drilling Project
Tellus
The Sea
Nature
Science