Course Guide, Fall 2011
INTRODUCTORY OCEANOGRAPHY

Geosciences 103 (section 2)

MWF 1:25-2:30
DuBois Library TBL Classroom
4 credits General Education PS

The ocean covers more than 70% of our home planet. Although there are many aspects of the ocean that remain unknown, we have learned a great deal through scientific study about how it keeps the Earth in a liveable state.

INSTRUCTORS

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Mon, Thurs. 3:00 – 4:00
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Tues., Wed. 11:00- 12:00
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REQUIRED BOOKS:
Leckie, R.M., & Yuretich, R., 2011, *Investigating the Ocean: Illustrated Concepts and Classroom Inquiry,* 305 pp. ***You must bring this book to class!***

Course Goals -- During the coming semester we will explore many different aspects of the ocean environment, with the following goals in mind:

- Determine how the ocean influences the environment of the entire planet;
- Decide upon effective management of marine and coastal resources;
- Discover how scientific study leads to deeper knowledge of the ocean system;
- Develop visual and quantitative learning skills by interpreting charts, maps, and graphs as part of the investigative process;
- Work collaboratively to solve problems related to the ocean

Team-Based Learning and Blended Course -- This course meets for three hours per week, but is worth four credits, which is achieved through additional assignments and learning modules that are completed on-line via the UMass SPARK learning management system. You should anticipate that the time you spend on the on-line portion of this course will be equivalent to an additional class meeting plus reading and studying time.

Regular class meetings will be non-traditional. There will be very few lectures. You will become part of a learning team with three or four of your classmates. You will be expected to read the assigned pages in the textbook and complete a Readiness Assurance Test (RAT) in class on the topic, which will help insure that all team members can contribute to investigations and discussions on the topic. Much of the time in class will be spent doing investigations with your team.

Text and Readings -- You will have to read the assigned pages in the textbook in order to succeed in this course. ***You must bring this book to every class!*** In addition, there will be additional summary information on SPARK to help you in your class preparations.

Attendance -- is mandatory so you can complete the investigations with the rest of your team. During class we will not be simply reviewing the text, but emphasizing specific applications of the topic, discussing current events and discoveries, and clarifying questions you may have. Over the years there has always been an excellent correlation between class attendance and grades.

Readiness Assurance -- **Five** Readiness Assurance Tests will be given during the semester. These tests will be done in three stages. You will take the test individually in the traditional manner during the first part of the class. Then, you will take it a second time as a team effort. Each part of the test will be graded separately and your score will be a composite of the individual and team tests (60% solo; 40% team). The third part of the test is the "appeal," which will allow you to review your notes and readings to challenge the results of the team test.

The highest four grades from the RATs will be counted in your final average. In other words, you can miss an exam with no penalty and no questions asked, and *make-up exams will not be administered if you miss one RAT!* If you miss two RATs because of reasons beyond your control, we will allow you to make up one of them.

The final exam will be scheduled by the Registrar during finals week. Everyone must take this exam, which will have both individual and team components.

Grades -- Grades will be calculated on the following basis:

Readiness AssuranceTests	25%
Team Investigations	30%
SPARK Assignments	20%
Final Exam:	25%

Peer Evaluation: At the end of the course, each student will evaluate the contributions of his or her team members to the communal tasks. This evaluation will yield a multiplier that will be be applied to the team portion of the grades (RAT, Team Investigations, Final Exam). You will be able to see your grades on exams and assignments by logging on to the SPARK site.

This is the first time that the course is using TBL. It is anticipated that there is no curve or scale for this class, but this is subject to reconsideration later in the semester. Your letter grade will be based on your numerical score as follows:

92 and above	=	A
88-91	=	A-
85-87	=	B+
82-84	=	B
79-81	=	B-
76-78	=	C+
73-75	=	C
70-72	=	C-
67-69	=	D+
64-66	=	D
Below 64	=	F

To summarize: what you can expect

A. You will get an introduction to the science of oceanography: the scientific principles upon which it is based, and the importance of the ocean in our daily lives.

B. Class meetings will be interactive, focused on team-based investigations.

C. On-line SPARK assignments will constitute a significant part of the course, substituting for additional class time to give the course four credit-hours.

Accommodations -- The University of Massachusetts Amherst is committed to providing an equal educational opportunity for all students. If you have a documented physical, psychological, or learning disability on file with Disability Services (DS), Learning Disabilities Support Services (LDSS), or Psychological Disabilities Services (PDS), you may be eligible for reasonable academic accommodations to help you succeed in this course. If you have a documented disability that requires an accommodation, please notify me within the first two weeks of the semester in order to make appropriate arrangements.

Academic Honesty -- The integrity of the academic enterprise of any institution of higher education requires honesty in scholarship and research. Academic honesty is therefore required of all students at the University of Massachusetts Amherst. Academic dishonesty (cheating, fabrication, plagiarism, facilitating dishonesty) is prohibited in all programs of the University.

Geosciences 103

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Fall, 2011

Richard F. Yuretich
Lisa Kanner

PROJECTED SCHEDULE

Date	Planned Topic	Readings
PART 1: Introducing the Ocean		***p. 1-25***
Sept. 7	Introducing Team-Based Learning	
Sept. 9	Preview: The Ocean System	
Sept. 12	*Readiness Assurance Test #1*	
Sept. 14	Latitude and Longitude	29-30
Sept. 16	Navigation Methods	31-34
Sept. 19	Echo Sounding and Ocean Bathymetry	35-38
Sept. 21	Recap: Finding your way	SPARK Assignment # 1 Due
PART 2: Geology and the Ocean		***p. 41-83***
Sept. 23	Preview: The Ocean Basin	
Sept. 26	*Readiness Assurance Test #2*	
Sept. 28	Measuring Time	85-89
Sept. 30	Continents and Ocean Basins	89-90
Oct. 3	Earthquakes and Volcanoes	97-98
Oct. 5	Sea-floor Spreading, Plate Tectonics	99-102
Oct. 7	Ocean Sediments	105-106
Oct. 11	Geological Resources	72-75
Oct. 12	Recap: Dynamic Planet	SPARK Assignment # 2 Due
PART 3: Water and The Ocean-Climate System		***p. 107-148***
Oct. 14	Preview: The Liveable Ocean	
Oct. 17	*Readiness Assurance Test #3*	
Oct. 19	Special Properties of Water	149-152
Oct. 21	Salinity and Seawater Chemistry	153-156

Date	Planned Topic	Readings
Oct. 24	Residence Time	157-158
Oct. 26	Wind Belts and the Coriolis Effect	167-170
Oct. 28	Ocean Circulation	171-174
Oct. 30	Recap: The Global Conveyor	SPARK Assignment # 3 Due
PART 4 : Life in the Sea		***p. 175-208***
Nov. 2	Preview: The Living Ocean	
Nov. 4	*Readiness Assurance Test #4*	
Nov. 7	Marine Organisms	209-210
Nov. 9	Measuring Productivity	213-214
Nov. 14	Marine Food Chains	215-216
Nov. 16	Coastal Ecology	217-222
Nov. 18	Marine Mammals	227-228
Nov. 21	Recap: Ocean Life and People	SPARK Assignment # 4 Due
PART 5: Waves, Tides, and the Coastal Environment		***p.229-262***
Nov. 23	Preview: Living on the Coast	
Nov. 28	*Readiness Assurance Test #5*	
Nov. 30	Waves	263-264
Dec. 2	Tides	265-266
Dec. 5	Beaches and Coastal Erosion	267-274
Dec. 7	Marine Pollution	279-280
Dec. 9	Recap: Climate Change and the Ocean	SPARK Assignment # 5 Due

FINAL EXAM DURING FINALS WEEK (TO BE SCHEDULED)