

Geology 205: Oceanography Spring 2009

Instructor:

Dr. Kira Lawrence
102 Van Wickle Hall
lawrenck@lafayette.edu
610-330-5194

Office Hours:

2:30-3:30 pm on Tuesday and Thursday or by appointment

Teaching Assistant:

Nancy Parker
parkerne@lafayette.edu

Lectures: Tu,Th 9:30 to 10:45am 105 Van Wickle Hall

Laboratory:

Three **MANDATORY** weekend field trips (details below).

Course Materials:

- *Essentials of Oceanography (9th edition)* by Alan P. Trujillo and Harold V. Thurman, Pearson Prentice Hall (2008).
- Supplementary reading will be made available by the instructor.

Course Description:

Exploration of the physical, chemical, and biological systems of the oceans, and the human impacts on these systems. Topics include marine geology, seawater composition, waves, tides, coastal and open ocean processes, marine ecosystems, and ocean pollution. Weekend field trips explore barrier island environments and erosion along the New Jersey coast and provide hands-on opportunities to learn oceanographic sampling techniques and examine the impacts of humans on marine environments along the mid-Atlantic and New England coastlines.

Exams:

There will be two mid-term exams scheduled during the semester. Each mid-term will be taken during class time. Exams will consist of multiple choice, short-answer or essay questions. Some questions will require sketching of graphs and/or diagrams, or calculations. I expect you to think critically and actively about the course material. On exams you will be required to demonstrate your reasoning as well as your recall of facts.

Field Trips (Laboratories):

The lab portion of the course will involve three weekend field trips. These trips will provide an opportunity for you to learn techniques commonly employed in studying marine systems, as well as observe and better understand the physical, chemical, and biological processes of the ocean. In addition, we will explore the affects of human activity on marine environments. Each trip will provide you with hands-on experiences that will illustrate the concepts and ideas discussed in lecture. A lab report will be associated with each field trip. Detailed information about each lab report will be provided prior the trip. ***Attendance at and completion of all field trips and associated lab reports is mandatory to receive course credit.***

All field trips will be held rain or shine. So, be prepared for inclement weather. You will need notebooks, pens and pencils on all field trips. Transportation, lodging (shared rooms), admissions fees, and boat costs will be covered by the college. You will be responsible for food and any other extra costs.

Field Trip # 1 Northern New Jersey Shore (February 28th) (March 28th alternate date in the case of extreme weather on February 28th) (leave Saturday morning, return Saturday evening) *Beach processes and shore erosion along the New Jersey coast:* This field trip will focus on modern beach processes, examining erosional and depositional processes in the near shore marine environment.

Field Trip #2 Mystic, CT (April 3rd-5th) (leave Friday afternoon, return Sunday evening) *An introduction to studying marine systems:* This field trip will focus on different techniques used to monitor marine systems as well as examine the characteristics of coastal marine environments.

Field Trip #3 Chesapeake Bay, MD (May 1st-3rd) (leave Friday afternoon, return Sunday afternoon) *Oceanography of the Chesapeake Bay and human impacts on this coastal marine system:* This field trip will focus on the physical, chemical and biological characteristics of the Chesapeake Bay with particular attention paid to the impacts of human activity on the bay.

Exercises / In-Class Activities/ Participation:

Course exercises, activities, and discussions are designed to solidify your understanding of oceanographic concepts. Although most of these activities will be done collaboratively, any submitted assignment should reflect your own interpretation and understanding of the material. ***There will be no make-up in-class activities.***

Final Project (Poster Presentation / Final Paper):

Humans have had a significant impact on marine systems. For your final project you are to select a topic that explores one way in which humans have impacted the open ocean or coastal environment. This is a research paper, which means that you will draw

upon the knowledge you have acquired through taking this course as well as additional information you obtain through your own literature search. You will be required to make a poster to present your topic and the results of your investigation to your peers. Poster presentations will take place during our scheduled exam period. In addition, you will be required to submit a final paper on your topic. Final papers are to be no less than 10 and no more than 12 pages double-spaced. Final papers will be due during exam period. ***Your chosen topic must be approved by the instructor.***

Course Grading:

First Exam	12.5%
Second Exam	12.5%
Field Trips (Labs)	25%
Exercises / In-Class Activities/ Participation	20%
Final Poster Presentation / Final Paper	30%

Grading and Lateness:

Assignments not turned in by the due date will be penalized by 10% of the score for each day they are late. I am willing to accommodate for truly extenuating circumstances, yet I need to know in advance why a deadline will not be met. Any requests for assignment extensions that occur after an assignment deadline, including extensions requested because of illness, must be accompanied by a Dean's excuse.

Academic Honesty:

In the preparation of work for this course, students are expected to conduct themselves in accordance with the Lafayette College's guidelines and rules for academic honesty (see your student handbook for details).

Please make sure your cell phones, iPods, and other electronic devices are turned off before the start of class!

**Geology 205: Oceanography
Tentative Schedule
Spring 2009**

T&T = Trujillo and Thurman

Week	Dates	Topics & Assignments	Reading
1	Jan 27th, 29th	Course Introduction Introduction to Oceanography Plate Tectonics	T&T Chps 1 & 2
2	Feb 3rd, 5th	Plate Tectonics Ocean Provinces Ex1: Plate Tectonics	T&T Chps 2 & 3
3	Feb 10th, 12th	Marine Sediments Ex2: Marine Sediments	T&T Chp4
4	Feb 17th, 19th	Water & Seawater Ex 3: Water Column Properties	T&T Chp 5
5	Feb 24th, 26th	Air-Sea Interactions Surface Ocean Circulation Field Trip 1 Prelude: Coastal & Shoreline Processes	T&T Chp 6 p.162-176 T&T Chp 10
February 28th Field Trip 1: Sandy Hook, NJ			
6	March 3rd, 5th	Surface Ocean Circulation Deep Ocean Circulation Field Trip 1 Report Due	T&T Chp 7
7	March 10th, 12th	ENSO First Mid-Term Exam	Supplemental Articles TBA
March 16-20th SPRING BREAK			
8	March 24th, 26th	Waves Tides Ex 4: Ocean Circulation	T&T Chps 8&9
March 28th Alternative Field Trip 1: Sandy Hook, NJ			
9	Mar 31st, Apr 2nd	Coastal Environments Field Trip 2 Prelude: Coastal Environments	T&T Chp 11 p.328-336 T&T Chp 15
April 3rd-5th Field Trip 2: Mystic, CT			
10	Apr 7th, 9th	Human Impacts on the Oceans Final Project Library Research Field Trip 2 Proposal Due	T&T Chp 11 p.336-359 Supplemental Articles TBA
11	Apr 14th, 16th	Ocean Productivity Final Project Proposal Due	T&T Chp 13
12	Apr 21st, 23rd	Ex5: Fisheries Exercise Climate Change & Oceans Field Trip 2 Report Due	T&T Chp 6 p.177-201 Supplemental Articles TBA
13	Apr 28th, 30th	Second Mid-Term Exam Human Impacts on Oceans Case Studies Field Trip 3 Prelude: Chesapeake Bay	Supplemental Articles TBA
May 1st-3rd Field Trip 3: Chesapeake Bay, MD			
14	May 5th, 7th	Work on Final Projects Adobe Illustrator Tutorial - J. Wilson Field Trip 3 Report Due	
FINAL POSTER PRESENTATIONS/PAPERS DUE DURING FINAL EXAM WEEK			