GEOL 2503: INTRODUCTION TO OCEANOGRAPHY
Syllabus

Instructor: Dr. David Bush, Callaway Building, Room 206, phone 678-839-4057
Textbook: A textbook is not required.

Oceans comprise almost three quarters of the earth’s surface, yet we know less about some parts of the ocean than we do about distant planets. Oceanography is not a separate science, but the application of all sciences to the study of the oceans. We often think of oceanography as having four main branches: Geological Oceanography (size and shape of ocean basins, how did the ocean basins form, composition of the ocean crust, and the sediments covering the sea bottom), Chemical Oceanography (chemical properties of water and the materials dissolved in it), Physical Oceanography (movement of ocean water-- waves, tides, currents), and Biological Oceanography (environmental zones of the ocean and the plants and animals that fill them). Environmental science, ecology, engineering, and meteorology are also branches of study often applied to oceans. During this course we will take a look at these different aspects of ocean study and how they often relate to one another. We will also gain an appreciation for ocean resources and the linkage between the global ocean and Earth’s atmosphere.

LEARNING OBJECTIVES: By the end of the course, you should be able to
- Define the four main branches of oceanography and other subordinate branches
- Identify the major sea floor topographic features
- Describe the three oceans and their main features, chemistry, and geologic history
- Recognize the unique properties of water including dissolving properties
- Define and describe physical aspects of oceans including waves, tides, and ocean currents
- Identify environmental zones in the oceans and the diverse types of oceanic life occupying them
- Use a computer effectively, emphasizing use for CourseDen communication and testing

CLASS STRUCTURE: This course is 100% on line. The material is spread over 24 topics. For each topic you will be expected to look through the slide show and lecture notes. There may also be additional readings or exercises available for each topic. There is a discussion site on which you may post questions or comments.

PRE-TEST: Please take the pre-test immediately at the beginning of the term. The scores from the pre-test will help measure how much you learned during the course. The pre-test does not count toward your final grade, but you will earn two points extra credit for taking it. The Pre-Test will be accessible only for the first three days of the semester.

FOR EACH TOPIC:
1. Look through the lecture slide show pdf and corresponding notes
2. Review any additional resources listed
3. Take the quiz associated with the topic
DUE DATE: All assessments (24 quizzes, final exam) will open on the fourth day of the semester, and will remain open until 10 AM on the Monday of the last week of the semester (referred to as “final instruction/examinations week”).

CourseDen will be used for delivery of all course material including testing, posting of grades, and communicating. Please use the CourseDen mail function, not my personal university email, to contact me about class matters. This will help me give you better and quicker responses to your questions by allowing me to keep organized within the class web site. In an emergency if you can’t access the CourseDen site for some reason you may use my personal university email at dbush@westga.edu.

GRADING:
There are 24 quizzes, one at the end of each topic, plus a comprehensive final exam. The quizzes and the final exam are available beginning on the fourth day of the semester. They are all available under the “Quizzes” link on the CourseDen class web page.

Quizzes: Quizzes are worth a varying number of points depending on the number of questions each quiz contains. Each question is worth one point, and in total there are 280 questions spread over the 24 quizzes. You will be allowed two attempts on each quiz. The higher score will count. Your average on the quizzes is worth 80% of your grade.

Final exam: There are 120 questions on the comprehensive final exam. You will be allowed a single attempt on the final exam. The final is worth 20% of your grade.

Grades will be based on the standard 10-point scale for A/B/C/D/F.

If you have a technical problem with your computer, contact me as soon as possible. I can reset your quiz or final exam so you can retake it. Don’t wait until the last minute because everything will close at the end of the availability period.

Each quiz and the final exam will be timed and you will be allowed one minute per question. Questions will be delivered all at once, and you will be allowed to revisit questions.

Important Note about Grades: The grading scheme will be strictly followed; there is no rounding up. That is, an 89.9 is a B, not an A. And 89.95 is also a B. Some of you will score very close to a grade cutoff and will be disappointed when grades are assigned. Be aware that the grading scheme will not be altered at the end of the course--begin working now to achieve the best grade that you can.

EXTRA CREDIT: You will earn a gift 2 points added to your final class average for completing the Pre-Test. Otherwise, it is better to spend your time on the material at hand than to try to find extra time to do extra work. Don't even bother asking for additional extra credit.
A FEW ADDITIONAL RESOURCES:
(see also “On-Line Oceanography Resources” module in course content)

Annenberg Media on-line videos:
There are several excellent videos available free for online viewing on the Annenberg Media website, at www.learner.org. Follow links from their home page through "Free Video on demand" and "Select a Program" or go directly to http://www.learner.org/resources/browse.html. There are two programs of interest, "Earth Revealed” and "Planet Earth.” Viewing is free, but you must register.

In the “Earth Revealed” series:
2. The Restless Plane (ties into topics 1, 2, 3, 4, 5)
3. Earth's Interior (ties into topics 2, 4, 5)
4. The Sea Floor (ties into topics 4, 5, 6)
5. The Birth of a Theory (ties into topic 4, 5, 6)
6. Plate Dynamics (ties into topics 4, 5, 6)
9. Earthquakes (ties into topics 4, 5, 6)
24. Waves, Beaches and Coasts (ties into topics 16, 18, 19)

In the “Planet Earth” series:
1. The Living Machine (ties into topics 4, 5, 6)
2. The Blue Planet (ties into almost all topics)

PBS on-line videos:
Several episodes of the popular series, Nova, are available for viewing online. Shows are organized by subject. Some programs may be listed under more than one subject. Visit http://www.pbs.org/wgbh/nova/programs/

Disasters
Hurricane Katrina (Oct. 2005)
Hurricanes (Jan. 2005)
Storm That Drowned a City (Nov. 2005)

Earth
Fastest Glacier (Jul. 2005)
Stronger Hurricanes (Jan. 2006)

Physics & Math
Origins: Back to the Beginning (Sep. 2004)
Useful Ocean-Related Web Sites: See the link on the class home page.

CLASS POLICIES
-There will not be any written assignments to turn in. The only evaluation devices will be the quizzes and the final exam.
-This is not an easy course. Most of you are non-science majors. Much of what we will cover will be new and quite different. If you come to class every day, take good notes, review your notes, do the suggested reading, and ask questions as they arise, you should do well in the course.

-Remember to check CourseDen often for calendar and email updates.

**LECTURE TOPICS**

*Topic number corresponds to quiz number*

- Introduction
  1. History of Oceanography
  2. Origins—The Universe, Solar System, Earth
  3. The Water Planet
  4. Plate Tectonics—Plate Theory
  5. Plate Tectonics—Plate Dynamics
  6. The Seafloor
  7. Ocean Sediments
  8. Properties of Water
  9. Salt Water
  10. Ice and Fog
  11. Global Atmospheric Circulation
  12. El Niño
  13. Hurricanes
  14. Density Driven Currents
  12. Wind Driven Currents
  16. Waves
  17. Tides
  18. Coasts, Beaches, and Estuaries
  19. Shoreline Engineering and The Beaches are Moving video
  20. Ocean Environments
  21. Productivity
  22. Plankton
  23. Nekton
  24. Benthos