

OCE 1001 Elementary Oceanography Honors

T, TR 11:00 – 12:15

Room 327 OSB

Course Syllabus, Spring Semester, 2002

Instructor:

Professor Doron Nof, 419 OSB
OFFICE HOURS T/TR 1:00 – 2:00

Dept Ph 644-6700; Direct Ph 644-2736

Course Description:

Oceanography combines various aspects of physical, chemical, biological and geological sciences in the studies of ocean processes. For example, the ocean and atmosphere are coupled together as a large heat engine which controls global climate. The structure of the sea floor and the physical properties of the overlying water affect the growth and distribution of organisms on the ocean bottom and in the ocean water column.

By the end of the semester you will hopefully appreciate the fact that there is more to the study of the ocean than marine biology (i.e., dolphins, sharks and turtles). It should be added here, however, that the instructor is a physical oceanographer and, therefore, there will inevitably be more emphasis on physical oceanography than on other aspects of the field. Unfortunately, there is no good text for physical oceanography. To compensate for this, detailed printed reviews of the lectures will be distributed to all students well before the exams. With these review packets the absence of a textbook will be of little consequence.

Lecture and Course Outline:

1. Fractal structure of the coastline
2. Effects of pressure
3. Effects of wind on water
4. Crossing of the Red Sea
5. Coriolis force
6. Circulation of the upper ocean
7. Abyssal circulation
8. Gulf Stream rings
9. El Niño
10. Microstructure of the ocean
11. Waves and tides
12. The ocean environment
13. Global change

Course Objectives:

This course is designed for lower-division, undergraduate non-science majors. It may be used to fulfill a portion of the Natural Science requirements of the Division of Undergraduate Studies. Specific course objectives are:

1. Gain an understanding of the water masses and currents in the different ocean basins.
2. Gain a basic understanding of global warming and sea level rise.
3. Gain an understanding of the scientific method as it is applied to oceanography.

Class Attendance:

We expect that you will attend scheduled classes, since much of the material presented in class is not contained in the textbooks. Attendance will be taken during each class period. Testing will cover lecture material, homework assignments and field trip material. You are expected to stay for the entire class period (i.e., until the instructor announces its termination)

unless you have to leave because of an emergency. Most of the presentations will include demonstrations where what is happening in the ocean will be demonstrated to you using gadgets especially designed for this purpose.

There will be a day field trip (using the "Seminole" anchored in Turkey Point Marine Lab) on either March 23rd or March 30th (depending on the weather). This is a whole day trip and, even though we will make only one trip, you should be planning on being available from 8:00 AM to 6:00 PM on both days. Note that attending the trip will count for 20% of your final grade.

Course Evaluation:

1. There will be two mid-term examinations.
2. Homework exercises will be given periodically.
3. It is required that you participate in a project where the class is divided into two groups, one arguing for an immediate dramatic reduction in the production of CO₂ and the other arguing against it. This will take place instead of at least four class periods.
4. A final examination will be given during finals week.
5. As just mentioned, attending the field trip will count for 20% of your grade.

Students are required to deliver homework exercises at class time on the date homework is due and to take all examinations. The homework exercises and field trip report will be graded and returned. At the end of the semester, the cumulative homework score will be treated as equivalent to one examination score. If it is greater than the lowest examination score, the cumulative homework score and field trip report will be substituted for the lowest examination score. Make-up examinations will not be given. The homework score will be substituted for a zero-valued examination score, however.

Final grades will be assigned using a modified "curve" method based on the statistics of normal distributions of scores for the regular 1001 class. This means that honors students are not "penalized" for taking an honors only class. There are no previously defined quotas for any grade, and we hope you all attain high scores. After examinations have been scored, grades will be posted using social security numbers (in numerical order). If you do not want your grade posted in this fashion, please inform the instructor and an alternate arrangement will be made.

Help:

The TA is Mr. John Perry, Room 315. His office hours are 4:00 – 5:00 T/TR. His telephone number is 644-6753.

Exams

1st mid-term Tu Feb 11

2nd mid-term Tu Mar 18

Final Friday Dec 17 3:00 – 5:00