OCES5001/ENVR6050 Introduction to Oceanography

Time: Mon. 19:00-21:50
Venue:
Instructor: Jianping Gan; Tel. x7421, rm 34851, email: magan@ust.hk
TA: Weicong Cheng, wc.cheng@connect.ust.hk
Text Book: Essentials of Oceanography, 8th ed., by Tom Garrison, Thomson Brooks/Cole. (Please reserve your text book in UST bookstore)
Reference: Oceanography: A View of Earth, by M. Grant Gross and E. Gross, Prentice Hall

Course Description Earth Is an Ocean World with 71% of its surface covered by ocean. The oceanography is the story and the processes of unifying principles in the ocean. It integrates the disciplines of *geology (Geological Oceanography)* that focuses on earth structure related to earthquake prediction and distribution of valuable resources, *physics (Physical Oceanography)* that studies ocean currents, waves, and air-sea interaction, long-term climate change, *biology (Biological Oceanography)* that works with the nature and distribution of marine organisms, marine species and fisheries, *chemistry (Chemical Oceanography)* that investigates ocean's dissolved solids and gases and their relationship to geology and biology of the ocean and *engineering (Ocean Engineering)* that designs and builds oil platforms, ships and harbors. These topics are directly associated with marine resources and pollution of our great concerns. This course covers the inter-disciplinary topics in oceanography that introduces process of science and astonishing story of global ocean as well as the ocean around us in the Southeast Asia.

Grading: Class participation: 10%
Mid-term (Oct. 19) Exam: 35%
Final Exam: 55%

Syllabus:

1. Introduction
2. Earth structure and plate tectonics
3. Seawater physical and chemical properties
4. Circulation of atmosphere
5. Ocean circulation, El Nino and climate
6. Oceanic life and ecosystem
7. Sediments
8. Plankton in surface water
9. Essentials of physical-biogeochemical balances in the ocean
10. Shelf, coastal and estuarine circulation
11. Tides, waves and mixing in the ocean
12. Coastal circulation and biological responses
13. Marine resources and pollution