

Effective Date: Fall 2007

Course Description:

Prerequisites: A grade of "C" or better in each of the following: MATH 1021, GEOL 1001, GEOL 1002, and GEOL 1003. Geology of the ocean floor, continental margins, and sea coasts. Emphasis on tectonics and geology of the Gulf of Mexico, as well as Gulf Coast processes.

Rationale:

This course is a class designed for students who have taken introductory geology classes and understand basic geologic processes and plate tectonics. MATH 1021 is a prerequisite because of the introduction of geophysical principles used in studying the ocean floor and ocean crust. PHSC 1001, PHYS 1001, or PHYS 2001 would be helpful in understanding physical processes and techniques taught in this course. This course will be particularly interesting and useful to students who live by, or are affected by, coastal processes.

Course Objectives

Students will:

1. Understand marine geologic processes that produce oceanic crustal material.
2. Become familiar with plate tectonics processes and how they affect the sea floor.
3. Understand coastal processes and the interaction between continental margins and the sea.

Procedures to Evaluate these Objectives

1. In-class problems after concept presentation
2. In-class exams
3. Cumulative final exam
4. Research project/paper/presentation.

Use of Results of Evaluation to Improve the Course

1. Student responses from in-class problems will be used to provide immediate feedback to students on concept misunderstanding.
2. In-class exams will be graded and returned with written evaluations to provide improved understanding of student difficulties in understanding.
3. The cumulative final exam will be graded and examined to determine areas of teaching which could use improvement.
4. All evaluation methods will be constantly monitored to determine if there is a more effective method of presenting the material.

Detailed Topical Outline

1. History and Development of Marine Geology
2. Maps and Navigation on the oceans
3. Tools and Techniques for examining the sea floor.
4. The Shape and Structure of Ocean Basins
5. Basin Resources
6. Pelagic Sediments
7. Sediments Deposited by Currents
8. Paleoclimate and Paleooceanography
9. Ocean Crust and Lithosphere
10. The World Ridge/Rift system
11. Islands, Seamounts, and Plateaus.
12. Active Continental margins and island Arcs
13. Passive Continental Margins
14. Coastal Processes