

GEL 111 INTRODUCTORY GEOLOGY

COURSE DESCRIPTION:

Prerequisites: ENG 090, RED 090, and MAT 070 or satisfactory score on placement test

Corequisites: None

This course introduces basic landforms and geological processes. Topics include rocks, minerals, volcanoes, fluvial processes, geological history, plate tectonics, glaciers, and coastal dynamics. Upon completion, students should be able to describe basic geological processes that shape the earth. *This course has been approved to satisfy the Comprehensive Articulation general education core requirement in natural sciences/mathematics.* Course Hours Per Week: Class, 3. Lab, 2. Semester Hours Credit, 4.

LEARNING OUTCOMES:

Upon completion of this course, the student will be able to:

- a. Demonstrate knowledge of the basic geological processes that shape the earth.
- b. Demonstrate the use of geo-physical principles through lab experiments.

OUTLINE OF INSTRUCTION:

- I. Geology: The Earth's Origin and History
 - A. The Earth's layers
 - B. The Solid Earth
 - C. Earth History and Geologic Time
 - D. The Earth's Origin and the Formation of the Universe
 - E. Formation of the Solar system and the Earth
 - F. The Structure of the Modern Earth
 - G. Earthquake. Volcanoes, Plate Tectonics
- II. Minerals
 - A. What is a mineral?
 - B. The Chemical composition of minerals
 - C. The crystalline nature of mineral
 - D. Physical properties of minerals
 - E. Mineral classification
 - F. The rock forming minerals
 - G. Other important minerals
- III. Rocks
 - A. Type of rocks and the rock cycle
 - B. Igneous rocks
 - C. Sedimentary rocks
 - D. Metamorphic rocks
- IV. Plate Tectonics
- V. Earthquakes and the Earth's Structure

- VI. Volcanoes and Plutons
- VII. The Geology of the Ocean Floor
 - A. Studying the ocean floor
 - B. The Mid- Oceanic Ridge
 - C. Sediment and Rocks of the Deep-Sea floor
 - D. Continental Margins
 - E. Island Arcs
 - F. Seamounts, Oceanic Islands and Aseismic Ridges
- VIII. Mountains and Geologic Structures
 - A. Mountains and Mountain Ranges
 - B. Plate Tectonics and Mountain Building
 - C. Folds, Faults and Joints
- IX. Weathering, Soil and Erosion
- X. Streams
- XI. Ground Water
- XII. Glaciers
- XIII. Deserts
- XIV. Coastlines
- XV. Time and Geology
 - A. Early Interpreters of Geologic Time
 - B. Correlation
 - C. The Standard Geologic Time Scale
 - D. Quantitative Geologic Time Scale

REQUIRED TEXTBOOKS:

Lutgens, F. and Tarbuck, E. Essentials of Geology, 10th ed., Pearson Education, Inc., publishing as Prentice Hall, 2009.

STATEMENT OF STUDENTS WITH DISABILITIES:

Students who require academic accommodations due to any physical, psychological, or learning disability are encouraged to request assistance from a disability services counselor within the first two weeks of class. Likewise, students who potentially require emergency medical attention due to any chronic health condition are encouraged to disclose this information to a disability services counselor within the first two weeks of class. Counselors can be contacted by calling 536-7207, ext 1418 or by visiting the Student Development Office in the Phail Wynn Jr. Student Services Center, room 1309.