EARTH SCIENCE (110) SYLLABUS

INTRODUCTORY GEOLOGY

FALL, 2010

Richard A. Jackson, Ph.D.

COURSE DESCRIPTION: Earth processes and their effects on materials, structure, and morphology of Earth's crust. Laboratory includes fieldwork, computer simulations, study of minerals, rocks, photographs, and maps.

TEXTS: *Earth: Portrait of a Planet*; Stephen Marshak, 3rd Ed.; Norton Publishing; 2008 (Internet web site: http://wwnorton.com/studyspace)

Lab Manual: *Exercises in Physical Geology*; W.K. Hamblin and J.D. Howard; 12th ed.; Prentice Hall; 2005.

Note: It is mandatory that the textbook and the lab manual be purchased for this course. The course textbook MUST be brought to each lecture. The lab manual MUST be brought to lab every week unless so directed.

COURSE OBJECTIVES: Students will understand the following:

- Composition and properties of the important rocks and rock-forming minerals.
- The unifying theory of plate tectonics and how it applies to the geology of the local region.
- Methods by which geologic materials, structures, and landforms are measured, portrayed, analyzed and predicted.
- Forces that affect earth materials on the surface and within the earth.
- Dynamics of earth processes on various spatial and temporal scales.
- The earth as a system of separate but interacting parts.
- Effects of geologic processes on humans and vice-versa.
- Application of appropriate fundamental scientific principles to complex natural systems.
- The local area is a manifestation of the processes and products of former and current geological activity.

OFFICE HOURS: T, Th 3:30-4:30, or by appointment.

ASSESSMENT:

3 One Hour Lecture Tests	(100 points each)	75%
Laboratory Exams:		
Mid-Term	50 points	12.5%
Final	50 points	12.5%

ATTENDANCE POLICY: Attendance will be taken in each class and laboratory period. Unexcused absences from lecture and lab will be reflected in the final grade. Students have the responsibility to secure and present evidence of the nature of any legitimate excused absence.

CELL PHONES: Cell phones MUST be turned off or put on "vibrate only" during class or lab. No texting or other use of cell phones will be tolerated during class.

LECTURE SCHEDULE: Please note that changes and alterations of topics and dates are inevitable so please remain flexible.

TOPIC/CHAPTER	**WEEK OF:**
Introduction/Cosmology/Earth Systems (Preface, Chap. 1, 2)	Aug. 31
Minerals (Chap. 5)	Sept. 7
Rock Groups/Igneous Rocks/Volcanism (Interlude B, Chap. 6, 9)	Sept. 14
Sedimentary Rocks/Metamorphic Rocks/Rock Cycle (Interlude C, (Chap. 7, 8)	Sept. 21
LECTURE TEST #1	**SEPT. 30**
Plate Tectonics (Interlude A, Chap. 3, 4, 9, 10)	Oct. 5
Plate Tectonics (Interlude D, Chap. 11)	Oct. 12
Historical Geology (Interlude E, Chap. 12, 13)	Oct. 19
Hydrologic Cycle/Mass Movement (Interlude F, Chap. 16)	Oct. 26

Runoff: Streams/Groundwater (Chap. 17, 19) Nov. 2

LECTURE TEST #2 NOV. 11

Oceans and Coastal Processes (Chap. 18) Nov. 16

Deserts/Glaciers/Ice Ages (Chap. 21, 22) Nov. 23

Earth Atmosphere and Climates/Global Changes (Chap. 20, 23) Nov. 30

Earth Resources (Hydrocarbons)/Mineral Exploration (Chap. 14, 15) Dec. 7

Review

LECTURE TEST #3 SEE FINAL EXAM SCHEDULE

LABORATORY SCHEDULE: Please note that there will be at least two field trips that will be announced during the semester. Consequently, the following labs scheduled will be changed accordingly.

LAB TOPIC/LAB MANUAL	**WEEK OF:**
Introduction (Earth Overview – to be handed out)	Aug. 31
Minerals (Exercise 1, 2)	Sept. 7
Igneous Rocks (Exercise 3)	Sept. 14
Sedimentary and Metamorphic Rocks (Exercise 4, 5)	Sept. 21
Plate Tectonics/Seismology (Exercise 17, 18, 19, 20, 21)	Sept. 28
LAB MID TERM	**WEEK OF OCT. 5**
Topographic Maps/Aerial Photos (Exercise 7, 8)	Oct. 12
Geological Time/Structural Geology (Exercise 6, 16)	Oct. 19
Streams/Groundwater (Exercise 9, 11)	Oct. 26
Eolian Processes/Coastal Processes (Exercise 15, 16)	Nov. 2
Glaciation (Exercise 12, 13)	Nov. 7
LAB FINAL	**WEEK OF NOV. 30**