

SYLLABUS-PHSC 4011  
Earth Science LAB  
Fall 2007

Instructors        Dr. Cleo L. Bentley, Jr.  
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TEXT:             Handouts

COURSE PURPOSE

The purpose of this course is to give the student a hands-on exposure to earth science laws and instrumentation which are introduced in the earth science lecture course so that he, or she, will be challenged to know basic lab apparatus, sharpen skills of lab approaches and safety procedures, and be evaluated for understanding.

COURSE CONTENT

This is a basic laboratory course in earth science for the general student body. The objective of the course is to familiarize the student from a laboratory perspective with many physical science concepts already introduced from the textbook, and to expose him/her to typical lab techniques, measuring instruments and lab equipment. The system of evaluation is to reflect the effort, as well as cleverness, that is produced by the student. Each lab submitted on time is worth up to 10 points, unless one participates in demonstrating the lab procedure for which an extra point per lab may be given. The format of the course will be so that the class will do one physical science-level lab which will be setup, carried-out, put back, written up, and submitted all in the same day. Twelve labs will be taken from the following list found below.

LAB LIST

Lab 1 -- Density measurement using buoyancy concept and the graduated cylinder.  
Lab 2 -- Measurement II - using the meter stick, Vernier caliper and micrometer  
Lab 3 -- Measuring "g" - air track  
Lab 4 -- Force table - vector addition  
Lab 5 -- Using a terrestrial telescope  
Lab 6 -- Coefficient of static and kinetic friction  
Lab 7 -- Concave and convex lenses  
Lab 8 -- Projectile motion  
Lab 9 -- Centripetal and centrifugal force  
Lab 10 -- Torque  
Lab 11 -- Spring harmonic motion, simple pendulum  
Lab 12 -- Meteorology measurements  
Lab 13 -- Centripetal and centrifugal force  
Lab 14 -- Mineral studies  
Lab 15 -- Identification of igneous rocks  
Lab 16 -- Identification of sedimentary rocks  
Lab 17 -- Identification of Metamorphic rocks  
Lab 18 -- Rock hounding and collecting  
Lab 19 -- Topographical maps  
Lab 20 -- Astronomical sightings and data collecting  
Lab 21 -- Diffraction grating using He-Ne laser

Important Remarks:

a. Attendance should be maintained. Particularly, there is no way to make-up a lab.

b. Remember: "To hear is to forget, to see is to know, to do is to understand."

c. Your final grade will be based on the total accumulation of points from the labs: A--from 90 to 100%; B--from 80 to 89%; C--from 70 to 79%; D--from 60 to 69%; F--under.

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OUTCOMES FOR STUDENTS

Upon completing this course the student will compare favorably in his lab exposure and experience with earth science and astronomy students nationally who complete a similar course.

\* Student Academic Appeals Process (undergraduate catalog, 1998-2001, pp. 88-91)