GEOL 2101-001
Physical Geology
Michael Hozik
MWF 11:20AM–12:35
GEOL 2105
Physical Geology Lab
001 T 8:30AM-11:15AM
002 T 11:25AM-2:10PM (Davis, L) Lab

Spring 2006

COURSE CONTENT: The course is designed to study the earth and the physical processes which continually modify it. The course is divided into five major parts.

Part I: TIME AND THE ROCK RECORD: Time and the Changing Earth, Geologic Time

Part II: EARTH MATERIALS: Minerals & Crystals Glaciation, Igneous Activity & Igneous Rocks, Weathering & Soils, Sediments & Sedimentary Rocks, Metamorphism & Metamorphic Rocks,

Part III: STRUCTURE & GEOPHYSICS: Deformation, Folds & Faults, Earthquakes & the Earth's Interior, The Earth's Gravity, Earth magnetism, Continents, Oceans, & Plate Tectonics,

Part IV. SURFICIAL PROCESSES: Mass Movement of slope material, Rivers, Ground water, Deserts and Wind, Shorelines

Part V: ENERGY RESOURCES: Petroleum, Natural Gas, Coal, Geothermal, Nuclear, Hydroelectric, Alternatives

CLASS FORMAT: 3 lectures per week. 1 laboratory period per week, 2 optional, one day field trips during the semester.

LABORATORY/FIELD EXPERIENCE: Lab is a required part of the course. Topics covered in lab include minerals, rocks, topographic maps, geologic structures, geologic maps, streams, shorelines, seismology, and glaciers. There is a lab practical half way through the semester, and a lab final. Two sections of 25 students are taught.

Two all day field trips are optional. All field trips are offered on a Saturday.1. Atlantic Coastal Plain, NJ-DE and Crystalline Rocks near Philadelphia., 2. Mesozic and Poliozoic rocks of Western NJ, and Eastern, PA.

EVALUATION: Unannounced quizzes, 3 hour exams, 1 comprehensive lecture final, lab practical, 9 lab exercises, 2 field exercises and 2 optional field trips.
COURSE DESCRIPTION: This course retells the history of the earth from its origin to the present time. This includes 1.) the development and reconfiguration of the oceans and continents for the last 4.6 billion years, 2.) climate formation and change, 3.) development of the earth's major biomes (e.g., forests, wetlands, reefs, coasts) and 4.) the history of life. This history will lean heavily on the concept of the Wilson Cycle for the discussion of plate tectonics as well as theories for periodic and episodic climate change will be covered. Times of and causes of mass extinction will also be discussed along with the evolution of life. This course will also lean heavily of aspects of paleontology, geochronology, sedimentology, and stratigraphy as the sources of evidence used in the reconstruction of earth history.

TEXT: *Evolution of the Earth* by Dott & Prothero

LABORATORIES: Laboratories for this course are in GEOL 2106 Historical Geology Laboratory. These laboratories will deal with use of fossil adaptive anatomy and post-mortem history; sediments as environmental indicators, rocks as environmental indicator, sedimentary structures as environmental indicators, fossils as indicators of time, and geological map and cross section analysis.

FIELD TRIPS: Two field trips will be taken during the term. One will deal with modern environments and their preservation in the stratigraphic record while the second will deal with the geological history of New Jersey as seen in the rocks of the state.

GRADING: Grades will be based primarily on two week-long, take-home examinations and to a lesser degree by in class participation.
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OBJECTIVES: The observation, description, identification, and interpretation of rocks and their origins.

COURSE CONTENT: The study of rocks and their origins.

PREREQUISITES: GEOL 2101-Physical Geology, GEOL 3211-Mineralogy

CLASS FORMAT: Lecture, demonstration.

LABORATORY/FIELD EXPERIENCE: Lab is required.

READINGS: From book and reserve readings.

PAPERS/PROJECTS: Papers, projects.

EVALUATION: Tests, labs, papers, projects, oral reports.