

Montgomery County Community College
GLG 151
Physical Geology
4-3-3

COURSE DESCRIPTION:

Physical Geology is a survey of the physical character of the earth. Topics of surficial geology to be examined include weathering and mechanisms of erosion: mass movement, streams, wind, glaciers, and waves. The internal character of the earth will be explored by studying heat flow, seismology, volcanism and plutonism, metamorphism, crustal deformation and plate tectonics. Though this course and
GLG

- 1) Desert climatology
- 2) Desert geology
- g. Coastal Processes
- h. Marine Sedimentation
 - 1) Temperate shelf sedimentation
 - 2) Carbonate sedimentation
 - 3) Submarine fans
 - 4) Turbidites
 - 5) Pelagic sedimentation
- i. Sedimentary Rocks and Depositional Environment Interpretation
 - 1) Lithification
 - 2) Sedimentary rock classification
 - 3) Primary sedimentary features
- 3. Internal Processes
 - a. Introduction to Plate Tectonics
 - b. Heat Flow
 - c. Igneous Thermochemistry
 - d. Volcanic Processes and Volcanic Rocks
 - e. Plutonism
 - f. Metamorphism
 - 1) Contact
 - 2) Regional
 - 3) Hi Pressure
 - g. Magnetism
 - h. Isostasy
 - i. Rock Deformation
 - 1) Earthquakes and seismic profiling
 - 2) Brittle strain and faults
 - 3) Ductile strain and folds
 - j. Plate Tectonics
 - 1) Historical development of model
 - 2) Current justification of model
 - 3) Divergent plate margins
 - 4) Transform margins
 - 5) Convergent plate margins

LIST OF LABORATORIES–

7. Hydrology – porosity and permeability determinations
– ascertaining groundwater flow dynamics
8. Karst topography, subsidence hazards, and slope stability
9. Glacial Geology Maps
10. Coastline Maps
11. Igneous, Sedimentary, Metamorphic Rocks rocks
12. Geologic maps
13. Plate tectonics
14. Volcanoes – hazard determination from geologic maps
15. Earthquakes –determination of an epicenter
16. Radon testing and interpretation
17. Waves, currents and tides

FIELD TRIPS: Optional

Class-time trips:

1. Assessment of landslide potential
2. Towamencin Creek Field Project
3. Stream profiling
4. Local Triassic basin and paleo-environmental reconstruction

Saturday trips may include:

Optional Saturday field trips:

1. Traverse from Cape Henlopen to South Bethany, Delaware
– determination of natural erosional/depositional dynamics
– examination of development and associated disruption of coastal dynamics
2. The geology of coal – Southern and Western Middle Anthracite Fields, Pennsylvania
– strip mined properties: pre- and post-reclamation legislation extraction techniques

Learning Resource Center
Media Center
Learning Assistance Laboratory

Other learning materials may be required and made available directly to the student and/or via the College's Libraries and/or course management system.

COURSE APPROVAL:

Prepared by: Robert Kuhlman, Professor of Earth Science

Date: