COURSE OUTLINE

GEOL-115

Regional Geology

4 Credits

HOWARD COMMUNITY COLLEGE

Description

Regional Geology is a course which examines the major geological provinces of North America with regard to their topographic features and major rock structures. Basic concepts of physical and/or historical geology will be further developed to provide students with better understanding of geological processes in their present day expression. An emphasis will be placed on the local provinces of Maryland, Pennsylvania and Virginia. Four field trips are planned to study the geological features of the local provinces. Prerequisite: GEOL-107.
(3 hours lecture, 3 hours lab)

Overall Course Objectives

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

1. Identify a rock hand-sample as either igneous, sedimentary or metamorphic.
2. Describe each of the major physiographic provinces in Maryland as to rock type/structure and topography.
3. Describe and relate the geologic history of each province in Maryland as to rock type/structure and topography.
4. Identify the majority of rock types found in each geologic province in Maryland.
5. Interpret geologic maps to determine basic rock structure.
6. Relate the rock types and mineral resources of each geologic province in Maryland to the growth and development of the state.
7. Identify the major physiographic provinces of the contiguous United States, Alaska, Hawaii and the Caribbean basin.
8. Identify external and internal forces/processes which have resulted in the present topographic expression for each major province.
9. Describe tectonic processes that relate to the development of the major physiographic provinces.
10. Apply principles of geology to rock types and structure for each province in Maryland.
11. Interpret geologic and topographic maps from various provinces.
12. Construct cross-sectional profiles for a given region or province based on interpretations made of geologic and topographic maps.
13. Interpret tectonic models related to the formation of the provinces in Maryland and Virginia.
14. Describe the geologic history for the State of Maryland.

Major Topics

I. Introduction
   A. Geologic Time
   B. Petrologic Cycle
II. Plate Tectonics
   A. Basic Plate Tectonics
   B. Sea-Floor Spreading
   C. Crustal Deformation
III. Eastern United States
   A. Atlantic-Gulf Coastal Plain
   B. Piedmont Plateau
   C. Blue Ridge
   D. Valley and Ridge
   E. Appalachian Plateau
   F. Origin of the Appalachian Mountains
   G. New England
   H. Adirondack-Superior Uplands
IV. Interior Lowlands
   A. Interior Low Plateaus
   B. Ozark Plateaus
   C. Central Lowlands
   D. Great Plains
   E. Quachita Province
V. Rocky Mountains
   A. Southern Rocky Mountains
   B. Central Rocky Mountains
   C. Northern Rocky Mountains
   D. Wyoming Basin
VI. Pacific Coast and Southwest
   A. Colorado Plateau
   B. Columbia Plateau
   C. Basin and Range
   D. Sierra-Cascade Province
   E. Pacific Border Province
VII. Other Provinces
   A. Alaska
   B. Hawaii
   C. Caribbean
VIII. External Processes
   A. Climates
   B. Vegetation
   C. Soils
   D. Streams
   E. Glaciers

Course Requirements

Grading/exams: Grading procedures will be determined by the individual faculty member but will be calculated on the basis of field trip reports, laboratory reports, quizzes, lab practical, exams and a final exam.

Writing: Individual written lab reports.

Other Course Information

This course is a Science elective and an Arts and Sciences elective.