

GC - 114 Geology Cr. Hrs. 3(2+1)

BS Geography 4 Years Programme, University of the Punjab, Lahore

Objectives and Learning Outcomes:

This course is designed to impart basic knowledge of geology. This will help the students to understand various types of rocks and minerals and to learn about sedimentary and structural features and the processes operative within and on the surface of the earth.

Course Contents:

Introduction and scope of geology; importance and relationship with other sciences; history and philosophy of geology; Earth as a member of the solar system; its origin, age, composition and internal structure; introduction to plate tectonics, Isostasy; mountain building processes; earthquakes and volcanoes; weathering and erosion; introduction, identification and classification of rocks; sedimentary, igneous and metamorphic structures; physical properties of mineral; introduction to fossils in sedimentary rocks; introduction to folds, faults, joints, cleavage, foliation, lineation; Geological Time Scale; Concept and techniques of geological dating, relative and absolute dating;; Use of Brunton Compass and GPS, etc.

Labs:

Concept of scale and maps, topographic maps, geological time scale and evolution of life, major geological events, sense of relief and physiographic features with the help of models and topographic maps, contouring. Simple geological maps and drawing of cross-sections. Use of field instruments viz, Brunton compass/clinometer, Identification of basic rock types and minerals.

Recommended Books:

1. Physical Geology (15 th Edition) by Charles Plummer, Diane Carlson, Lisa Hammersley, 2015, McGraw-Hill
2. Laboratory Manual in Physical Geology (9th Edition), Richard M. Busch, 2011, American Geological Institute, Pearson Education

3. Physical Geology, By Plummer, (14th Edition), Charles (Carlos) Plummer, Diane Carlson, Lisa Hammersley, 2012 McGraw-Hill
4. Principles of Physical Geology by Holmes, A., 1978, Nelson.
5. Foundation of Structural Geology by Park, R. G., 1983, Blackie.
6. Elementary Exercises upon Geological Maps by Platt, J. I., 1961, Thomas Murby and Co.
7. An Introduction of Geological Structures and Maps by Bennison, G.M., 22 1997, Edward Arnold.
8. Physical Geology by Plummer, McGeay and Carlson, 2005.
9. Lab Manual for Physical Geology by Jones, Norris. W., Johns and Charles E., 2005, McGraw-Hill.
10. How Does Earth Work: Physical Geology and Process of Science by Smith, G. and Pun, A., 2006, Prentice Hall.
11. The Mapping of Geological Structures by McClay, K.R., 1987, Open University Press.