



Faculty of Earth Sciences



Department of Mineral Resources & Rocks 3rd & 4th Years Program



The Geological Society
Accredited degree courses

GEOLOGY OF THE KINGDOM

Course Name	Course ID	Prerequisite
Geology of the Kingdom	EMR 431	ESR 301, EMR 304

Course Description

Groups and rock formations of the Arabian Shield and the sedimentary cover and basis of their classification.

Chemical composition and isotopic age of rock units of the shield.

The implication of the different orogenic cycles and geologic events on the rocks of the shield and the sedimentary cover such as regional metamorphism, deformation, faulting and igneous plutonic activity accompanying them.

Different theory related to the formation and evolution of the Arabian-Nubian shield.

In consideration with the scientific content of both Arabian Shield and the sedimentary cover; two credit hours are assigned for the Arabian shield and one for the Phanerozoic cover. A two-day field trip is paid to an area that comprises both Precambrian Shield rocks and the Phanerozoic cover.

Course Objectives

1-Study the Tectonic Framework of the Arabian Peninsula.

2- Understand the classification and stratigraphy of the layered rocks of the Arabian Shield as well as the plutonic rocks and their relations to the tectonic evolution of the Arabian Shield.

3- Understand the stratigraphy of the sedimentary cover rocks and their depositional environments.

General References for the Course: (Books/Journals...etc.)

1. Course Notes (in class handouts)

2- Greenwood, W.R., Hadley, D.G., Anderson, R.E., Fleck, R.J., and Schmidt, D.L., (1976). Late Proterozoic cratonization in the southwestern Saudi Arabia, Proterozoic Transactions of the Royal Society of London, A. 208: 517-527.

3-Brown G. F., Schmidt and Huffman A. C. JR. (1989) Geology of the Arabian Peninsula: Shield area of western Saudi Arabia. U.S.G.S., Prof. paper 560-A. P.163-188.

4- Al Shanti, A.M., (2002). Geology of the Arabian Shield. King Adulaziz Research Council 1996.

List of URLs for this Course

1- <http://www.sgs.org.sa/>

2- Moshrif R. J.(1980) Middle East: Stratigraphy evolution and oil habitat: Am.Assoc. Petrol.Geol. Bull. 64, No. 5, P 597-610.

3-Al-Laboun A. A. (1982) The subsurface stratigraphy of Pre Khuff Formations in Central and Northwestern Arabia: Ph.D. Dissertation King Abdul Aziz University, Jeddah, Arabia, 102 P.

4- Delfour, J. (1982). Geology and Mineralization of the northern Arabian Shield, DMMR. Open File Report. BRGM-OF-02-30.

5-Al-Husseini M. I. (2000) Origin of the Arabian Plate structures: Amar Collision and Najd Rift, GeoArabia, v. 5, no. 4, p. 527-542

6-Basyoni M. B. (2003) Diagenetic aspects of the carbonate rocks of the Upper Jurassic Jubaila Formation, central Saudi Arabia. J. Fac. Sci. KSU, v. 15, p.11-36.

Course Outcome

The student is able to know the group and rock formations of the Arabian Shield and sedimentary cover and basics of their classification. The student will also learn the following:

1. Student can distinguish the Lithostratigraphic classification of the shield and the sedimentary cover.
2. Student can know the Chemical composition and isotopic ages of the rock units of the shield.
3. Student can know the Different theories related to the evolution of the shield.
4. Student can know the surface and subsurface stratigraphy of the sedimentary cover.
5. Student can edimentary environment of the sedimentary formations.