



Faculty of Earth Sciences



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



The Geological Society
Accredited degree courses

GEOCHEMISTRY OF MINERAL DEPOSITS

Course Name	Course ID	Prerequisite
<i>GEOCHEMISTRY OF MINERAL DEPOSITS</i>	<i>EMR 442</i>	<i>EMR 332</i>

Course Description

Geochemical factors affecting the distribution and concentration of elements of economic importance in the various rocks. Geochemistry of mineralizing fluids and their reactions with surrounding rocks. Geochemical conditions favorable for deposition of minerals of economic importance. Study of the various geochemical environments and their properties in formation of mineral deposits.

Course Objectives

1. The main objective of the course is supplying students with the different aspects of geochemistry of mineral deposits.
2. The students are supposed to be informed with a collective idea about the aspects of ore fluid composition and its role in ore genesis.
3. The course also demonstrates the main tasks of geochemists in the laboratories in great enterprises that work in the field of ore mining and extraction.
4. Provide the students with the modern analytical techniques that are used for the analyses of ore minerals, either for the ore concentrate or the spot analyses.
5. As an output, the course is intended to give students expertise in handling the problems connected to the geochemical composition of mineral deposits. Accordingly, the students would be able to use the materials of the course in their future career, especially for those who will work in geochemistry laboratories in mining companies and authorities.

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

Students in this course can read from:

1. *Geochemistry of Hydrothermal Ore Deposits, 3rd Edition*, by Barnes H.L., 1997. John Wiley & Sons, New York.
2. *Geochemistry of Sedimentary Ore Deposits*, by Maynard, J.B., 1983. Springer-Verlag, New York Inc., USA.
3. *Geochemistry of Skarn and Ore Formation in Dolomites*, by Aleksandrov, S.M., 1998. (VSP, Utrecht). G. Springer.
4. *Geochemistry of Stratabound Deposits in China*, by Guanghzi, T., 1996. J. C. Leiden, The Netherlands.
5. *Magmatic Sulphide Deposits: Geology, Geochemistry and Exploration*, by Naldrett, A.J., 2004. Springer-Verlag, USA-Canada.

List of URLs for this Course

- http://gsc.nrcan.gc.ca/mindep/method/geochem/index_e.php
- <http://crustal.usgs.gov/projects/gem/index.html>

Course Outcome

By the end of this course, the students are expected to know the present day geochemical characters as well as the geochemical parameters controlling the formation of mineral deposits. Students will also learn the following:

1. Student can know the geochemical factors of the different ore-forming-processes.
2. Student can know the role of the physico-chemical parameters in the formation of mineral ore deposits.
3. Student can know the geochemical characters of the different ore types.
4. Student can know the importance of the geochemical characters and the conditions of formation in mineral exploration.