

Earth Sciences 3370A, Metallogeny I: Ore Petrology 0.5 Course

2 lecture hours, Tuesday and Thursday 12:30 to 1:30 Room 9 CHB

3 laboratory hours, Tuesday 2:30 to 5:30, 6:00-9:00 Room 1065 B&G

Prerequisites: Earth Sciences 2200a/b and 2206a/b, or Written Permission from the Dean

Instructor: Dr. Robert L. Carpenter,

Description: A survey course introducing the broad field of mineral deposit geology and the importance of mineral resources. Deposit classification is considered within the context of global theories of ore genesis. Various methods of ore petrology are related to specific ore types. Laboratory work focuses on reflected light microscopy in the practical study of ore suites. Regular attendance and timely completion of assignments expected.

Syllabus: Lecture Topics

- 1) Course objectives and logistics
- 2) Terms and definitions
- 3) Role of research in Industry
- 4) Opaque mineral microscopy
- 5) Metallogenic cycles, epochs, provinces
- 6) Tectonic classification of mineral deposits
- Mantle Plume/Cratonic Rift Settings**
- 7) Magmatic fractionation and sulphide melts
- 8) Layered Mafic Complexes – Muskox and Bushveld
- 9) Genetic model for Ni-Cu-PGE deposits
- 10) Flood basalt and komatiite Nickel
- 11) The Sudbury Igneous Complex

Continental Shelf/Seafloor Ophiolite and Island Arc Settings

- 12) VHMS concepts
- 13) Archean VHMS of the Superior Province
- 14) Gold-rich VHMS deposits
- 15) Bathurst-type massive sulphide deposits
- 16) Algoman type iron formations
- 17) Superior, rapitan and oolitic iron formations
- 18) SEDEX deposits

Collisional Orogenic Settings

- 19) Archean lode gold deposits - 1
- 20) Archean lode gold deposits – 2
- 21) Distribution of lode gold in the Superior Province
- 22) Lode gold deposits hosted in Algoman iron formations
- 23) Relative and absolute timing of gold emplacement (case study)
- 24) Precambrian metallogeny of the Superior Province
- 25) Geochemical techniques applied to ore deposits
- 26) Summation of initial, early, and middle stages of the Metallogenic Cycle

Laboratory Exercises

- Mineral economics* (Sept. 11)
- Hand specimen mineral ID
- The ore microscope
- Mineral Paragenesis

-Test on Ore Mineral ID

- Magmatic oxides*
- Magmatic sulphides*
- Cu-Zn sulphides*
- Pb-Zn-Ag sulphides*

- Mississippi Valley Pb-Zn*
- Banded iron formations*

-Lode gold deposits*

Course Materials: Reading/Laboratory materials provided at cost (25\$)

Evaluation: Laboratory- mineral test 10% due early October, 8 labs* 40%

Theory- assignment 10% due late November, final exam 40%

Scholastic Offences (Web Site:www.uwo.ca/univsec/handbook/appeals/scholoff.pdf)

Accommodation for Medical Illness - Undergraduate Students

See also the Attendance Policies in the Examinations Section.

POLICY ON ACCOMMODATION FOR MEDICAL ILLNESS - UNDERGRADUATE STUDENTS

(S.08-#) This policy replaces the Policy on Medical Excuse Slips (see below), effective September 1, 2008.

The University recognizes that a student's ability to meet his/her academic responsibilities may, on occasion, be impaired by medical illness. Illness may be acute (short term), or it may be chronic (long term), or chronic with acute episodes. The University further recognizes that medical situations are deeply personal and respects the need for privacy and confidentiality in these matters. However, in order to ensure fairness and consistency for all students, academic accommodation for work representing 10% or more of the student's overall grade in the course shall be granted only in those cases where there is documentation indicating that the student was seriously affected by illness and could not reasonably be expected to meet his/her academic responsibilities.

Documentation shall be submitted, as soon as possible, to the appropriate Dean's office (the Office of the Dean of the student's Faculty of registration/home Faculty) together with a request for relief specifying the nature of the accommodation being requested. These documents will be retained in the student's file, and will be held in confidence in accordance with the University's Official Student Record Information Privacy Policy [<http://www.uwo.ca/univsec/handbook/general/privacy.pdf>]. Once the petition and supporting documents have been received and assessed, appropriate academic accommodation shall be determined by the Dean's Office in consultation with the student's instructor(s). Academic accommodation may include extension of deadlines, waiver of attendance requirements for classes/labs/tutorials, arranging Special Exams or Incompletes, re-weighting course requirements, or granting late withdrawals without academic penalty. Academic accommodation shall be granted only where the documentation indicates that the onset, duration and severity of the illness are such that the student could not reasonably be expected to complete his/her academic responsibilities. (Note – it will not be sufficient to provide documentation indicating simply that the student “was seen for a medical reason” or “was ill.”)

Whenever possible, students who require academic accommodation should provide notification and documentation in advance of due dates, examinations, etc. Students must follow up with their professors and their Academic Counselling office in a timely manner.

Documentation from Family Physicians and Walk-In Clinics

A UWO Student Medical Certificate (SMC) is required where a student is seeking academic accommodation. This documentation should be obtained at the time of the initial consultation with the physician or walk-in clinic. An SMC can be downloaded at: [website to be determined](#). Hard copies are available from Academic Counselling in the Faculties.

Documentation from Student Health Services

Academic Handbook, Appeals, Medical Accommodations Page 1 Issued: 2008 05

Students obtaining documentation from Student Health Services should sign a “release of information.” This form authorizes Student Health Services to provide information to the student's home Faculty. Release of information forms are available from, and can be arranged through, the student's home Faculty Academic Counselling service.