

EARTH SCIENCES 3370A, Metallogeny I, Ore Petrology 0.5 Course

2 lecture hours, Monday and Wednesday 11:30 to 12:30, WSC-240

3 laboratory hours, Wednesday 2:30 to 5:30 or 6:00 to 9:00, Room 1065 B&GS

Prerequisites: ES 2200a/b and 2206a/b, or written permission from the instructor

Instructor: Dr. Nigel Blamey; nblamey2@uwo.ca

DESCRIPTION: An introductory course to the broad field of mineral deposit geology and the importance of mineral resources. Several ore deposit types are examined within the context of global theories of ore genesis. Various methods, including 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 is expected.

Principal Objectives of this course:

To provide an introduction to the understanding of ore deposits, how they form, and their context within the framework of tectonics and metallogeny. The student will be introduced to several ore deposit styles. In addition, a suite of important ore minerals (oxides and sulphides) will be examined in reflected light.

Learning Outcomes:

Upon successful completion of this course students will be able to:

- Identify a number of important ore minerals in reflected light thereby aiding in the exploration and characterization of ore deposits
- Recognize the key factors controlling several ore deposits so that deposits may be characterized and linked to existing ore deposit models
- Apply their knowledge to link these ore deposits within a metallogenic framework and thereby enhance exploration strategies

SYLLABUS:

Introduction and objectives

Terms and definitions

The concept of metallogenic provinces and epochs

Hydrothermal alteration

Ore deposits within the context of their characterization, tectonic setting, structural control, alteration and ore mineralogy: Laterites (Al and Ni); Sedimentary Iron and Manganese' Red-bed copper; Uranium Unconformity; SEDEX and VMS (volcanogenic massive sulphides); Epithermal; MVTs (Mississippi Valley

type); Porphyry Cu and Mo; Carlin gold; Magmatic – Bushveld Igneous Complex, Sudbury; additional topics may be added for completeness.

Presentation: Each student will be required to give one presentation on a topic within the theme of ore deposits; no presentation may be on the same deposit. The subject matter should be discussed with me prior to preparation. The presentation should be in Powerpoint format and last approximately 12 minutes with 3 minutes for questions. I will announce once the list is posted on my door and students are requested to sign up for a time slot and state their topic.

Laboratory Exercises:

Hand specimen identification

The reflected-light microscope

Minerals in reflected light: oxides, common sulphides, rarer sulphides and oddities

Test on minerals in reflected light

Grading: Mineral test 10% due before mid-term break; labs 35%
Presentation 20%; mid-term test 10%; final exam 25%

Important Dates:

Mid-term test – to be announced

Last day to withdraw without academic penalty – 12th November 2018

RESOURCES:

There is no formal text. Notes will be posted on the OWL website. There are several useful mineral deposits textbooks in the library. These include:

Moon, C.J., Whateley, M.K.G. and Evans, A.M., 2006, Introduction to mineral exploration.

Robb, L.J., 2005, Introduction to ore-forming processes

Ridley, J., 2013, Ore Deposit Geology (may be purchased on Amazon; bookstore has ordered a few copies)

The USGS also has a number of mineral deposit models on their website
<http://minerals.usgs.gov/products/depmod.html>

Accessibility:

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 ext. 82147 if you have questions regarding accommodation.

Support Services

Learning-skills counsellors at the Student Development Centre (<http://www.sdc.uwo.ca>) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Students who are in emotional/mental distress should refer to Mental Health@Western (http://www.health.uwo.ca/mental_health) for a complete list of options about how to obtain help.

Additional student-run support services are offered by the USC, <http://westernusc.ca/services>.

The website for Registrarial Services is <http://www.registrar.uwo.ca>.

Course Website

Students should check OWL (<http://owl.uwo.ca>) on a regular basis for news and updates. This is the primary method by which information will be disseminated to all students in the class. Students are responsible for checking OWL on a regular basis. Additional information on the course will be disseminated through email. The uwo email address will be used by default, if students use other email addresses they must ensure that uwo mail is automatically forwarded. For any concerns, including setting up an appointment, student should contact Nigel Blamey directly at nblamey2@uwo.ca.

Plagiarism:

Plagiarism will not be accepted and a grade of zero will be assigned if plagiarism is identified.

Food in Labs:

No food consumption is allowed in room 1065.

**Scholastic Offences (Web Site:www.uwo.ca/univsec/handbook/appeals/scholoff.pdf)
Academic Handbook, Appeals, Medical Accommodations Page 1 Issued: 2008 05**

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

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.