

ERTH 2102 Mineralogy to Petrology - Syllabus

Course description

ERTH 2102 Mineralogy to Petrology [0.5 credit]

Chemical, optical and crystallographic properties of common rock-forming minerals, with introduction to common mineral assemblages of igneous, sedimentary, and metamorphic rocks.

Lectures two hours a week and laboratory three hours a week.

Precludes additional credit for ERTH 3202.

Prerequisite(s): ERTH 1001 (no longer offered) or ERTH 1006 and (ERTH 1009 or GEOG 2013) and CHEM 1002 or CHEM 1006.

Course objectives

1. Introduce crystallography, crystal chemistry, and systematic mineralogy.
2. Relate the physical properties of minerals to their crystal structures.
3. Introduce analytical methods used in modern mineralogy and petrology, especially polarized light microscopy and X-ray fluorescence analysis.
4. Learn how minerals and rocks are classified and named.
5. Identify minerals and rocks in hand specimen and thin section.
6. Appreciate the influence of crystal chemistry on mineral assemblages in rocks and mineral weathering.
7. Develop the ability to research and learn mineralogical and petrological topics individually and in groups.

Times and locations

Lectures will be held Mondays from 14:35 - 16:25 in 3120 HP, and the lab sections will be held Tuesdays and Thursdays from 14:35 - 17:25 in 2120 HP.

People

Instructor: Fred Gaidies

Office hours: Mondays 16:30 - 17:30 or by appointment via email

Email: fred.gaidies@carleton.ca

Teaching assistant: TBA

Office hours: TBA

Email: TBA

Teaching assistant: TBA

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Textbooks

Dyar MD, Gunter M, Tasa D (2008) Mineralogy and optical mineralogy. Mineralogical Society of America, Chantilly, VA. This text has an excellent coverage of mineralogical topics, and together with its superb DVD serves as a **required reference** for this course. We will use the text extensively - bring it to the lecture and (especially the DVD) to the lab.

Nesse W (2012) Introduction to optical mineralogy. Oxford University Press. This is an excellent text on the optical properties of minerals. It is a **recommended reference** for this course.

Note: Both books are on reserve in the library, and Dyar et al. may be obtained from the Mineralogical Society of America website: <https://msa.minsocam.org/publications.html>.

Online resources

This document is available on cuLearn as are many others relevant to the course. Frequently, visit the homepage of this course for updates with respect to the course plan. The course plan contains information on lecture and laboratory topics, reading assignments, homework, and pre-lecture as well as pre-lab preparations. Note that this course plan may alter during the term.

The course website contains most of the laboratory assignments and homework, and you will have to print and read them carefully before the respective labs and lectures. Lecture notes will be made available after each lecture.

Course requirements

You are expected to attend all lectures and laboratories. Arriving late to class is distracting to students, professor, and teaching assistants and will be counted as an absence. A written medical excuse must be submitted if you cannot attend class due to illness. Attendance is part of your grade (see below).

The lab component of the course must be passed in order to pass the course. Labs 1 - 4 and 6 must be completed and handed in at the end of each respective lab session (no exceptions). Labs 5 and 7 - 9 have to be submitted by the beginning of the first lab after the session in which they have been assigned (see course plan). You are required to obtain a hand lens (10x magnification is best) before the first lab. Reasonably priced ones are available at the Carleton University Science Stores (Room 118, Steacie Building).

Reading assignments, homework, pre-lecture and pre-lab preparations are mandatory. It is the student's responsibility to come to lectures and labs prepared.

There will be three examinations during the course: (1) A combined lecture and laboratory midterm exam (Oct 30, 15:00 - 17:00 and Nov 1, 15:00 - 17:00 in 2130 HP) that will cover everything up to and including Lecture #6 and Lab #5; (2) A final lab exam (Dec 4, 15:00 - 17:00 and Dec 6, 15:00 - 17:00 in 2120 HP) to test your understanding of fundamental concepts of crystal chemistry, crystallography, optical mineralogy, and petrography; (3) A final exam during the official examination period (to be scheduled by the registrar, 2 hours, room TBA) that will primarily focus on lecture material.

Grading

- 03% Attendance
- 15% Laboratory exercises
- 15% Midterm exam
- 30% Laboratory exam
- 37% Final exam

Academic Integrity

It is your responsibility to review Carleton's policy on Academic Integrity - Section 14 of the Calendar:

<http://calendar.carleton.ca/undergrad/regulations/academicregulationsoftheuniversity/acadregsuni-v14/>

Plagiarism

The instructor is required to report all incidents (or suspected incidents) of plagiarism to the Dean. All work handed in must be your own work. Plagiarism and cheating are viewed as being particularly serious and the sanctions imposed are accordingly severe. Students are expected to familiarize themselves with and follow the Carleton University Student Academic Integrity Policy. The Policy is strictly enforced and is binding on all students. Plagiarism and cheating – presenting another's ideas, arguments, words or images as your own, using unauthorized material, misrepresentation, fabricating or misrepresenting research data, unauthorized co-operation or collaboration or completing work for another student – weaken the quality of the graduate degree. Academic dishonesty in any form will not be tolerated. Students who infringe the Policy may be subject to one of several penalties including: expulsion; suspension from all studies at Carleton; suspension from full-time studies; a refusal of permission to continue or to register in a specific degree program; academic probation; or a grade of Failure in the course.

Academic Accommodations

You may need special arrangements to meet your academic obligations during the term. For an accommodation request, the processes are as follows:

Students with Disabilities

If you have a documented disability requiring academic accommodations in this course, please contact the Paul Menton Centre for Students with Disabilities (PMC) at 613-520-6608 or pmc@carleton.ca for a formal evaluation or contact your PMC coordinator to send your instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with your instructor as soon as possible to ensure accommodation arrangements are made. carleton.ca/pmc

Religious Obligation

Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf

Pregnancy Obligation

Please contact your instructor with any requests for academic accommodation during the first two

weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf

Survivors of Sexual Violence

As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and its survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit: carleton.ca/sexual-violence-support

Accommodation for Student Activities

Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. <https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf>

For more information on academic accommodation, please contact the departmental administrator or visit: students.carleton.ca/course-outline