

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 EARTH 3202.

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

Learning 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 Tuesdays from 9:35 - 11:35 in 3120 HP

Lab sections will be held Tuesdays from 14:30 - 17:30 and Fridays from 8:35 - 11:25 in 2120 HP

Weekly topics to be posted on CULearn no later than the Sunday before lecture or laboratory exercises.

People

Instructor: Chris Rogers

Office hours: Tuesdays 13:30 - 14:30 or by appointment via email

Email: chris.rogers@carleton.ca

Teaching assistants: TBA

Textbooks

Dyar, Gunter, and Tasa. *Mineralogy and Optical Mineralogy*, 2nd edition (2020) (print) Mineralogical Society of America, Chantilly, VA. An electronic version is available on the MSA Website (<http://www.minpubs.org/>). This text has an excellent coverage of mineralogical topics, and together with its superb DVD serves as a required reference for this course. The DVD material is also available online at: http://www.minsocam.org/msa/DGT_Figures/ 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 and earlier versions are also acceptable. 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

All laboratory exercises are due at the end of the session. You are required to obtain a hand lens (10x magnification is best) before the first lab. Reasonably priced hand-lenses 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

05% Attendance

15% Laboratory exercises

15% Midterm exam

30% Laboratory exam

35% Final exam

Academic Integrity at Carleton

Carleton University demands academic integrity from all its members. It is your responsibility to review Carleton's policy on Academic Integrity. The Academic Integrity Policy (<http://carleton.ca/secretariat/wp-content/uploads/Academic-Integrity-Policy.pdf>) governs the academic behaviour of students. Academic Integrity is defined as:

“A commitment even in the face of adversity to five fundamental values: honesty, trust, fairness, respect, and responsibility.” – Centre for Academic Integrity (1999)

Academic dishonesty, in whatever form, is destructive to the values of the university, and risks harming the university's reputation as place of learning and innovation. Furthermore, it is unfair and discouraging to those students who pursue their studies honestly.

Process

The Academic Integrity Policy is implemented at the faculty level across the university. Appeals of the Academic Integrity Policy are administered by the Director, Student Affairs.

Step 1: Instructor believes misconduct has occurred

Step 2: Faculty Dean reviews documentation

Step 3: Student is contacted by email and letter

Step 4: Meeting with student, Dean and Advisor

Step 5: Dean informs student of decision

Appeal: Student has the right to appeal the decision

Examples of Violations

The following list includes, but is not limited to, examples of violations under the Academic Integrity policy. Please refer to the full Academic Integrity Policy (PDF) for more information.

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. The Policy is strictly enforced and is binding on all students.

Examples include:

- Submitting work written in whole or in part by someone else

- Failing to acknowledge sources through the use of proper citations when using another's work
- Test and Exam Rules:
- Attempting to read another student's exam paper
- Speaking to another student (even if subject matter is irrelevant to text)
- Using material not authorized by the examiner

Other Violations:

- Improper access to confidential information such as exams or test questions
- Disruption of classroom activities or periods of instruction
- Misrepresentation of facts for any academic purpose

Examples of Sanctions

The following list includes, but is not limited to, a few examples of sanctions that may be used independently or in combination, depending on the details of the academic integrity violation. Repeat or multiple violations will increase the sanction. Refer to the Academic Integrity Policy (PDF) for more information.

- A grade of zero, a failure or a reduced grade for the piece of academic work
- Reduction of final grade in the course
- Completion of a remediation process
- Resubmission of academic work
- Withdrawal from course(s)
- Suspension from a program of study
- A letter of reprimand

Academic Accommodations

Carleton University is committed to providing access to the educational experience in order to promote academic accessibility for all individuals.

Academic accommodation refers to educational practices, systems and support mechanisms designed to accommodate diversity and difference. The purpose of accommodation is to enable students to perform the essential requirements of their academic programs. At no time does academic accommodation undermine or compromise the learning objectives that are established by the academic authorities of the University.

Requests for Academic Accommodation

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

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

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