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.

Learning outcomes
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
All lectures will be held in-person (Herzberg Labs, room 3120 HP) each Monday from 2:35 - 4:25 pm, and the lab sessions will be held in-person (Herzberg Labs, room 2120 HP) Thursdays from 8:35 - 11:25 am and Fridays from 11:35 am to 2:25 pm, depending on the lab section. Students cannot attend a different lab time/day/section but must attend the section that they have registered in. All students must follow lab protocols.

Teaching team
Instructor: Fred Gaidies
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Textbooks
Dyar MD, Gunter M, Tasa D (2019, or the 2008 B&W version). Mineralogy and optical mineralogy. Mineralogical Society of America, Chantilly, VA. This text has an excellent coverage of mineralogical topics, and together with its superb Mineral Database serves as a **required reference** for this course. We will use the text and the database extensively - it can be obtained here: http://www.minsocam.org/msa/DGTtxt/.

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.

Online resources
This document is available on Brightspace 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 be altered during the term.

The course website contains most of the laboratory assignments and homework, and you will have to 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.

The lab component of the course must be passed in order to pass the course. All labs must be completed and handed in at the end of each respective lab session (unless exceptions are announced by the teaching team).

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 (two hours, likely during lab sections) that will cover everything up to and including Lecture #6 and Lab #5; (2) A final lab exam (two hours, likely during lab sections) 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, two hours) that will primarily focus on lecture material.

Grading
15% Laboratory exercises
15% Midterm exam
30% Laboratory exam
40% Final exam

Academic Integrity
It is your responsibility to review Carleton's policy on Academic Integrity - Section 10.1 of the Calendar: https://calendar.carleton.ca/undergrad/regulations/academicregulationsoftheuniversity/academic-integrity-and-offenses-of-conduct/#academic-integrity-policy

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 necessary processes are described here: https://students.carleton.ca/course-outline/. Carleton has temporarily suspended the need for doctor's notes or medical certificates for accommodation requests related to COVID-19. Students may complete the self-declaration form available here: https://carleton.ca/registrar/wp-content/uploads/self-declaration.pdf. Students should connect directly with the teaching team to discuss required accommodations arising from the COVID-19 situation.

Special Information for Pandemic Measures
If you feel ill or exhibit COVID-19 symptoms while in class, please leave campus immediately, self-isolate, and complete the symptom reporting tool. No food or drinks are permitted in any classrooms or labs.

For the most recent information about Carleton's COVID-19 response and required measures, please see the University's COVID-19 webpage and review the Frequently Asked Questions (FAQs). Should you have additional questions after reviewing, please contact covidinfo@carleton.ca

Please note that failure to comply with University policies and mandatory public health requirements, and endangering the safety of others are considered misconduct under the Student Rights and Responsibilities Policy.