

ERTH 3207 Metamorphic Petrology and Processes – Syllabus

Course description

ERTH 3207 Metamorphic Petrology and Processes [0.5 credit]

Genesis of metamorphic rocks as determined from field, petrographic and geochemical data.

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

Precludes additional credit for ERTH 3202 (no longer offered).

Prerequisite: ERTH 2102.

Learning outcome

1. Introduce the important methods of a metamorphic geologist.
2. Introduce known facts and recent hypotheses about the evolution of metamorphic rocks.
3. Introduce some of the important analytical methods used in modern metamorphic petrology.
4. Learn how metamorphic rocks are classified and named.
5. Identify common metamorphic minerals and rocks in hand specimen and thin section.
6. Reinforce some of the key thermodynamic variables and their relevance to metamorphic petrology.
7. Learn how to use metamorphic petrology to better understand the past tectonic behaviour of Earth's crust.

Times and locations

All lectures will be held in person (Herzberg Labs, room 3120) each Monday from 11:35 - 13:25, and the labs will be held in person (Herzberg Labs, room 2120) on Monday from 14:35 – 17:25. All students must follow lab protocols.

Teaching team

Instructor: Kimberly Trebus

Office hours: By appointment via email

Email: kimberlytrebus@cmail.carleton.ca

Teaching assistant: Karim El Ghawi

Office hours: TBA

Email: KarimElGhawi@cmail.carleton.ca

Textbooks

Yardley, B., Warren, C., 2021. An introduction to metamorphic petrology. Cambridge (ISBN: 9781108456487). This is a good introduction to metamorphic petrology. This textbook is **recommended** for the course. Cost: \$73.95.

Best, M. G., 2003. Igneous and metamorphic petrology. Blackwell (ISBN: 1405105887). This very good introductory book to both igneous and metamorphic petrology is **recommended** for the course. Cost: \$170.21.

Nesse WD (2012) Introduction to Optical Mineralogy. Oxford University Press (ISBN: 9780199846283). This is an excellent text on the optical properties of minerals, and you will need it in all your labs. Therefore, this text is **required** for this course. Cost: \$92.29-153.99.

- Ebook: <https://global.oup.com/ushe/product/introduction-to-optical-mineralogy-9780199846283?cc=ca&lang=en&>
- Paperback: <https://global.oup.com/academic/product/introduction-to-optical-mineralogy-9780199846283?cc=ca&lang=en>

Second-hand books or digital formats are welcome for this course. You can check the MacOdrum Library to borrow books for the term (<https://library.carleton.ca/>).

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.

Laboratory assignments will be made available before each lab, and you will need to read them carefully beforehand. Lecture notes will be posted on Brightspace after each lecture.

Use of Generative Artificial Intelligence (AI)

AI use in this course: Students may use AI tools for basic word processing functions, including grammar and spell checking (e.g. Grammarly, Microsoft Word Editor, Copilot).

Documenting AI use: It is not necessary to document the use of AI for the permitted purposes listed above. If you have questions about a specific use of AI that isn't listed above, please consult your instructor.

Why have I adopted this policy? This policy ensures that student voices and ideas are prioritized and authentically represented, maintaining the integrity of the work produced by students while allowing basic support to enhance clarity, correctness, layout and flow of ideas. The goal of adopting a limited use of AI is to help students develop foundational skills in writing and critical thinking by practicing substantive content creation without the support of AI.

Limitations: Students may use AI only to improve the presentation of their own work (e.g., spelling, grammar and formatting). AI may not be used to generate original content, ideas, analysis, arguments, explanations or answers to course activities. **Students may not use AI to answer assignments or examination questions.** AI glasses such as meta-AI glasses are not permitted.

Course requirements

It is recommended that students attend all lectures and laboratories. Arriving late to class is distracting to students, the instructor, and teaching assistants.

Students are encouraged to complete and hand in all their lab assignments (7) for feedback and consultation. However, only six comprehensive labs (Labs 2-7) must be completed and handed in at the end of the time allotted (1-2 weeks depending on lab assignments). These six labs will be part of the final grade (see below). Both, the lab component of the course and the final exam must be passed in order to pass the course.

There will be **two exams during the course**: (1) A two-hour lab exam, and (2) a final exam during the official examination period (to be scheduled by the registrar, 3 hours) that will primarily focus on lecture material.

Grading

07% Lab 2
12% Lab 3
07% Lab 4
07% Lab 5
07% Lab 6

10% Lab 7
25% Lab exam
25% Final exam

Academic Accommodations, Regulations, Plagiarism, Etc.

Carleton University is committed to providing academic accessibility for all individuals. You may need special arrangements to meet your academic obligations during the term. The accommodation request processes, including information about the Academic Consideration Policy for Students in Medical and Other Extenuating Circumstances, are outlined on the Academic Accommodations website (students.carleton.ca/course-outline/).

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. More information can be found at: <https://students.carleton.ca/course-outline/>.

University rules regarding registration, withdrawal, appealing marks, and most anything else you might need to know can be found on the university's website: <https://calendar.carleton.ca/undergrad/regulations/academicregulationsoftheuniversity/registration-evaluation-records/>.

Academic Accommodations for 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. For more details, visit the [Paul Menton Centre website](#).

Addressing Human Rights Concerns

The University and all members of the University community share responsibility for ensuring that the University's educational, work and living environments are free from discrimination and harassment. Should you have concerns about harassment or

discrimination relating to your age, ancestry, citizenship, colour, creed (religion), disability, ethnic origin, family status, gender expression, gender identity, marital status, place of origin, race, sex (including pregnancy), or sexual orientation, please contact the [Department of Equity and Inclusive Communities](#) at equity@carleton.ca.

Religious Obligations

Please contact me with 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, please review the [Student Guide to Academic Accommodation](#).

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 where 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: <https://carleton.ca/equity/focus/sexual-violence-prevention-survivor-support/>

Accommodations for Missed Work

Carleton recognizes that students may experience unexpected, temporary incapacitation (e.g., illness, injury, or extraordinary circumstances outside of a student's control). As a result, Carleton has put into place a protocol for students to apply for accommodations using a self-declaration form in the event of missed work. The form can be found at: <https://carleton.ca/registrar/academic-consideration-coursework-form/>

Note that these forms should be used for short-term concerns related to missed work; if you are experiencing chronic, ongoing challenges which necessitate a broader solution, I recommend reaching out to the Paul Menton Centre and/or the Care Support team.

For Pregnancy

Please contact me 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, please review the [Student Guide to Academic Accommodation](#).

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 me 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. For more details, see the [Senate Policy on Accommodation for Student Activities](#).

Academic Integrity

Academic Integrity is upholding the values of honesty, trust, respect, fairness, responsibility, and courage that are fundamental to the educational experience. Carleton University provides supports such as academic integrity workshops to ensure, as far as possible, that all students understand the norms and standards of academic integrity that we expect you to uphold. Your teaching team has a responsibility to ensure that their application of the [Academic Integrity Policy](#) upholds the university's collective commitments to fairness, equity, and integrity.

(Adapted from [Carleton University's Academic Integrity Policy, 2021](#)).

Examples of actions that do not adhere to Carleton's Academic Integrity Policy include:

- Plagiarism
- Accessing unauthorized sites for assignments or tests
- Unauthorized collaboration on assignments and exams
- Using artificial intelligence tools such as ChatGPT when your assessment instructions say that it is not permitted

Please review the [checklist linked](#) here to ensure you understand your responsibilities as a student with respect to academic integrity and this course.

Sanctions for Not Abiding by Carleton's Academic Integrity Policy

A student who has not upheld their responsibilities under Carleton's Academic Integrity Policy may be subject to one of several sanctions. Details about this process can be found on the [Faculty of Science Academic Integrity website](#). 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.

Student Rights & Responsibilities

Students are expected to act responsibly and engage respectfully with other students and members of the Carleton and the broader community. See the 7 Rights and Responsibilities Policy for details regarding the expectations of non-academic behaviour of students. Those who participate with another student in the commission of an infraction of this Policy will also be held liable for their actions.

Student Concerns

If a concern arises regarding this course, **your first point of contact is me**: Email or drop in during student hours, and I will do my best to address your concern. Note: You can also bring your concerns to [Ombuds services](#).

Assistance for Students

CU mental health resources: <https://wellness.carleton.ca/>

Paul Menton Centre: <https://carleton.ca/pmc/>

International Student Services: <https://carleton.ca/go-isso/>

Centre for Student Academic Support: <https://students.carleton.ca/departments/centre-for-student-academic-support/>

Carleton Career Services: <https://carleton.ca/career/>

Writing Services: <https://carleton.ca/csas/support/one-on-one-appointments/writing-consultation-sessions/>

Math Tutorial Centre: <https://carleton.ca/math/math-tutorial-centre/>

Science Student Success Centre: <https://sssc.carleton.ca/>