

ERTH 4305: Carbonate Sedimentology (0.5 credit) – Spring 2024

Course Description: Carbonate minerals play a pivotal role in the carbon cycle and they are also important archives of information about Earth's past. This course will explore the why, when, where, and how carbonates form, how they are utilized for numerous proxies and how their properties can be utilized to reconstruct past environments.

(The origin, composition and diagenesis of carbonate rocks. Study of modern and ancient platform systems; development of facies models; petrographic and geochemical analysis of limestones and dolostones).

Prerequisite(s): ERTH 3203 or 3206 (In person)

Course fees: None

Instructor: Dr. Peter Crockford, PeterCrockford@cunet.carleton.ca

Lecture Class: Mon, Wed 4:35-5:55 pm, HP 3120

Laboratory: Mon, 8:35-11:25 am, HP 2120

Office Hours: by appointment Mon-Wed, office location: 2203 HP

Readings: Academic papers will be assigned throughout the course. Recommended: James and Jones (2015) 'Origin of Carbonate Sedimentary Rocks' (Available online through library)

Assessment: Assessment for this course will be as follows:

- **10%** Participation: 5% attendance, 5% participation
- **40%** Labs (Jan 15, 22, 29, Feb 5, 12, 26, Mar 4, 11, 18, 25)
- **25%** Midterm(s) (March 20)
- **25%** Final Project (Due Apr 8)

Learning Goals:

- 1) Students will gain an understanding of why carbonates form, where carbonates form, and how understanding them can be leveraged for a wide range of applications.
- 2) Students will gain exposure to critically evaluating publications.
- 3) Students will have the opportunity to write and present on an aspect of carbonate sedimentology.
- 4) Students will gain exposure to carbonate petrography.
- 5) Students will participate in laboratories that emphasize experiential learning.

Course Behavior/Expectations:

This course will involve a large amount of engagement and offering constructive criticism to your peers written and oral presentations. I expect your course behavior to always reflect respect for all members of the course, this includes both offering critiques of one another's works or presentations AND in receiving these critiques. You should be prepared to participate in classroom activities, ask questions and answer questions in class and lab. Personal electronic devices should not be distracting you or your classmates

during lectures or discussions. Outside of scheduled lecture and lab times, you are expected to spend at least 5-6 hours per week on your assignments.

Late Assignments: This course will consist of labs, a midterm and a project/presentation. While the workload is staggered, I understand that unforeseen circumstances can make deadlines difficult to make. However, as these tasks are the core of the course, I ask that students communicate as early in advance as possible if deadlines will not be able to be achieved. Moreover, self-declaration forms will not be accepted in the place of handing in completed materials and no accommodations will be granted for requests to submit material past the end of term.

Disputes over marking:

Mistakes can happen in grading. However, this can happen both to award marks incorrectly as well as to deduct them. Since it is not fair to other students to only address mistaken deductions and not marks mistakenly awarded, in the case of a marking dispute the following protocol will occur. Students may meet to discuss their mid-term with either their instructor or TA. If both parties agree that a question was mis-marked, the entire test will be re-marked and the new score will be final.

Deferred Mid-term:

Due to the mid-term taking up a whole class, it is difficult to defer the mid-term. Deferring the mid-term is not impossible, however, a deferred exam will (likely) be held at 7am on a day prior to the following class to overcome room-booking challenges.

Mental Health

If you are struggling, please do not hesitate to reach out. I am happy to listen, and/or direct you to resources that might help. In terms of class, if you need extra help or missed a lesson, don't stress! Email me and we will set a time to meet. I'll work with you, I promise. Remember that Carleton also offers an array of mental health and well-being resources, which can be found [here](#).

University Policies

In accordance with the Carleton University Undergraduate Calendar Regulations, the letter grades assigned in this course will have the following percentage equivalents:

A+ = 90-100	B+ = 77-79	C+ = 67-69	D+ = 57-59
A = 85-89	B = 73-76	C = 63-66	D = 53-56
A- = 80-84	B- = 70-72	C- = 60-62	D- = 50-52
F = <50			
WDN = Withdrawn from the course			
DEF = Deferred			

Academic Accommodations, Regulations, Plagiarism, Etc.

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. 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, here:

<https://calendar.carleton.ca/undergrad/regulations/academicregulationsoftheuniversity/>

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 \(PDF, 2.1 MB\)](#).

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/sexual-violence-support/>

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 \(PDF, 2.1 MB\)](#).

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 to exist. For more details, see the [Senate Policy on Accommodation for Student Activities \(PDF, 25KB\)](#).

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 assignment 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. A list of standard sanctions in science can be found [here](#).

Additional 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. If I am unable to address your concern, the next points of contact are (in this order):



Note: You can also bring your concerns to [Ombuds services](#).

Assistance for Students

Academic and Career Development Services: <http://carleton.ca/sacds/>

Writing Services: <http://www.carleton.ca/csas/writing-services/>

Peer Assisted Study Sessions (PASS): <https://carleton.ca/csas/group-support/pass/>

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

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