

ERTH 3206

Sedimentary Depositional Systems



Peritidal dolostone (brown) with quartz arenite forming interlaminae and filling syndepositional fractures. Tidal and syntectonic influences, Middle Ordovician (Providence Island Formation), eastern Ontario.

*Lecture / Lab / Seminar Course by Remote Learning,
Fall 2020*

Instructor
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What is EARTH 3206 all about?

The course introduces the concept of sedimentary depositional systems and the relationship to oceanographic conditions through study of carbonate and siliciclastic facies. We will investigate field expression of a wide range of sedimentary facies exposed in the Ottawa region. This is another layer of your growing database related to the origin, deposition, classification, and (sequence) stratigraphic architecture of sediments and rocks that you first learned in EARTH 2314. Neither course stands alone, you **MUST** incorporate what you learned previously, including topics from other 2nd year courses (e.g., paleontology, mineralogy), in order to develop greater maturity in confidently resolving sedimentary geological problem/questions.

Prerequisite Knowledge Base: everything from EARTH 2314

The course format is in-person (class and outdoor) single day each week (0835 – 1400 hrs) in order to allow you to focus entirely on this subject material.

Covid-19 Guidelines

Covid-19 Requirements

Carleton University will be requiring **mandatory vaccination** against COVID-19 for all students, teaching assistants and instructors participating in an in-person university activities as per the new Carleton university guidelines.

Individuals **must attest to receiving their first dose of vaccine by September 8, 2021, with a second dose no later than October 15, 2021.** For more information, visit: <https://carleton.ca/covid19/health-and-safety/covid-19-vaccines/>

General Safety Measures

All members of the Carleton community are required to follow general COVID-19 prevention measures and all mandatory Ontario Public Health requirements, since the course is in-person. This includes wearing a well-fitted mask that covers the nose, mouth and chin at all times, physical distancing; bring your own hand sanitizer; practise proper hand hygiene, respiratory and cough etiquette; mandatory self-screening prior to coming to campus daily; and using the QR codes when entering/exiting the class. When in class or standing outside in front of an outcrop, students **must** maintain a minimum of 2-metre distance apart. A hand must be raised to signify the need for help. We will especially emphasize that students should not come to campus if they feel unwell.

In the case of classes or meetings being held on-campus in our teaching labs, you must follow the COVID-19 screening protocols established by the University: use CuScreen to request access to campus and self-declare your health status, wash hands upon entering the Herzberg Building, and scan QR Codes in your path as you progress towards your lab room. For details, please review the return to campus Teaching Labs and COVID-19 Guidelines form and a lab video at: <https://earthsci.carleton.ca/return-to-campus-2021/>

For more information on Covid-19 protocols, visit: <https://carleton.ca/covid19/policies-and-protocols/>

***WHAT'S EXPECTED OF YOU? . . . HOW TO APPROACH THE COURSE? . . .
WHAT TO WRITE DOWN? . . . HOW WILL YOU BE ASSESSED?***

LEARNING OUTCOMES

1. Recognize the range of sedimentary (physical, chemical, biological) attributes associated with a variety of sedimentary depositional systems.
2. Develop understanding of the dynamics of sedimentary systems in response to change in tectonics, climate, and oceanography.
3. Synthesize the range and any signature feature of sedimentary attributes for a given environment to enable critical comparison among depositional systems.
4. Work in a team to reinforce the ability to critically assess geological field data and published (literature) information.
5. Reinforce presentation (written, oral) skills.

There is reading: please prepare for each week by reading ahead of time

This is your primary reference source, and active learning is essential; this means, reading the required sources of information in a timely manner so that you are prepared for the field each week.

This course is not about competitions for marks.

You are part of a group that, collectively, needs to gain understanding about depositional systems and reinforcement in sedimentary facies analysis. Support each other, talk to each other remotely. Offer guidance where needed or asked for. As the group improves, so do you.

FINAL GRADE ASSESSMENT

Your assessment is based on

- (1) quality of participation in the field and class discussions
 - this reflects your contribution to observations and discussion on the outcrop and from the literature; there is no absolute % applied to this; instead I use your participation to move your final mark across any significant boundary (e.g., B+ to A-) if you are close to such a boundary.
- (2) lab assignments.
- (3) sketchbook note submissions
 - if we were in the field, I would expect that you would summarize your observations in series of notes and sketches that illustrate the critical features of a stratigraphic succession and attributes of the depositional environments represented in the field.

(4) seminar

- participation in presenting a seminar to the class involving a PPTx presentation to the class

(5) term project (due Dec 01, 1400 hrs): *Summary of Depositional Environments*

Produce a table that summarizes the key attributes of depositional systems examined in this course:

Depositional System	Lithology (or range)	Sediment Texture/Fabric	Sedimentary Structures	Interpreted Processes	Stratigraphic Geometry	Other notes
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This is but *one* example, and you are encouraged to develop your own design and column types; for example, you might think that it is very important to incorporate tectonic (trailing, foreland) setting. Although there are many environmental settings defined in the field guide, you should try to group them as subsets under more general environmental headings, if appropriate.

Late submissions are not accepted

Course Evaluation: total % of final mark

1. Lab assignments 20
2. Sketchbook notes 10
3. Seminar 20 (same mark is given to a group)
4. Term project 50 (individual submission)

ERTH 3206 Lecture / Lab Itinerary

Sept 14	Course Overview, Re-introduction of Sedimentary Facies
Sept 21	Aeolian Systems
Sept 28	Marine Transgressive Systems
	<i>Sept 30 is final date for selection of seminar topic</i>
Oct 05	Fluvial and Glacial Systems
Oct 12	Estuarine Systems
Oct 19	Depositional Cycles (shelf, outer platform)
Nov 02	Bioturbation; Wave and Storm Influenced Systems
Nov 09	Seminars topics will have been selected by end of Sept
Nov 16	Seminars (cont.)
Dec 01	due date for Term Project

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:

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

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

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. carleton.ca/pmc

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 is 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