

# ERTH 2312 for Winter 2026

## Paleontology

We, the people of the Faculty of Science at Carleton University, acknowledge that our campus is located on the traditional, unceded territories of the Algonquin Anishinabeg people. Miigwetch for your hospitality and stewardship of this territory and the teachings that come from it. We are grateful for this land, the air that we breathe, and the water that sustains us all as well as for the animals, plants and other living beings: these enable us to research, teach, mentor, support, study, and learn. We recognize our responsibility to our natural environment and to reconciliation with Indigenous peoples.

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**Course Instructor:** Conrad Wilson

**How to address me:** Conrad

**Gender Pronouns:** he/him

**Email:** [conradwilson@cunet.carleton.ca](mailto:conradwilson@cunet.carleton.ca)

**Best Ways to be in Touch:** in class, via email, or during student hours

**Student Hours:** Thursday, 1:00-2:00 PM

**Student Hours Location:** HP 2125  
(Herzberg Laboratories)

**Course Website:**

<https://brightspace.carleton.ca/d2l/home/365470>

**Class Location:** to be determined (check Carleton Central/Brightspace)

**Class Time:** Friday, 8:35-10:25 AM

**Prerequisites:** EARTH 1002 or GEOG 2013

**Preclusions:** EARTH 2316, GEOL 2301, and GEOL 2306

**Department/Unit:** Earth Sciences

**Lab Location:** HP 2130 (Herzberg Laboratories)

**Lab Times:**

Monday, 8:35-11:25 AM (Section A1)

Monday, 2:35-5:25 PM (Section A3)

Wednesday, 8:35-11:25 AM (Section A2)

**Course TAs:**

Logan Micucci

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Evita Akiki

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## Topics Covered and Learning Outcomes

This table summarizes the course schedule and the recommended readings. It may be subject to change, so check your e-mail or Brightspace for updates!

		Lecture Topics	Lab Topics	Reading	Quiz
1	Jan 9	Introduction What is Paleontology	<i>No Lab</i>	Ch. 1	<i>No Quiz</i>
2	Jan 16	The Fossil Record Taphonomy	Lab 1: Fossil ID, Taphonomy & Trace Fossils	Ch. 5, 20	Quiz 1 (due 11:59 PM Jan 15)
3	Jan 23	Evolution Systematics	Lab 2: Cladistics & Taxonomy	Ch. 7	Quiz 2 (due 11:59 PM Jan 22)
4	Jan 30	The Origin of Life Diversity & Extinction	Lab 3: Micropaleontology	Ch. 8, 9, and 10	Quiz 3 (due 11:59 PM Jan 29)
	Feb 5	<b>Final Project Proposal Due</b>			
5	Feb 6	Brachiopoda & Bryozoa* Mollusca*	Lab 4: Porifera & Cnidaria	Ch. 13, 14	Quiz 4 (due 11:59 PM Feb 5)
6	Feb 13	<b>Midterm (in-class) covers weeks 1-4</b>	Lab 5: Brachiopoda & Bryozoa		Quiz 5 (due 11:59 PM Feb 12)
7	Feb 20	<i>Winter/Reading Break</i>	<i>Break</i>	<i>Break</i>	<i>Break</i>
8	Feb 27	Paleoecology Limiting Factors	Lab 6: Mollusca	Ch. 4	Quiz 6 (due 11:59 PM Feb 26)
9	Mar 6	Porifera & Cnidaria Reef Structure	Lab 7: Arthropoda	Ch. 11, 12	Quiz 7 (due 11:59 PM Mar 5)
10	Mar 13	Arthropods Phanerozoic Reefs	Lab 8: Echinodermata	Ch. 15	Quiz 8 (due 11:59 PM Mar 12)
11	Mar 20	Echinodermata Chordata	Review lab	Ch. 16	Quiz 9 (due 11:59 PM Mar 19)
	Mar 20	<b>Final Project Due</b>			
12	Mar 27	<b>Final Project Discussion</b>	<b>Lab Exam (Cumulative)</b>	----	Quiz 10 (due 11:59 PM Mar 26)
13	Apr 3	<i>Statutory Holiday</i>	<i>No Lab</i>		

**\*Guest lecture by Caelan Libke**

Other important dates and deadlines can be found here:

<https://carleton.ca/registrar/registration/dates/academic-dates/>, including class suspension for fall, winter breaks, and statutory holidays.

## Introduction

Paleontology is a unique field because it stands astride core concepts in the geological and biological sciences. Fossils (and the fossil record they collectively form) are made by the interaction of geological and biological processes. And the fossil record in turn informs our understanding of geology and biology.

### Course level learning outcomes:

- Understand how the history of paleontology resulted in the development of its core concepts and the methods it uses to reconstruct and interpret Earth's history.
- Identify major macro- and micro-fossil groups. Recognize their distinguishing features and understand their function. Comprehend the place of these groups in the history of life.
- Understand how fossils are made and major biases in how fossils make their way into the fossil record.
- Understand how fossils can provide information on past climate and environment, and how the organisms represented by fossils would have interacted with their environment.
- Learn the theory of evolution and its history.
- Comprehend the historical patterns of diversity in the fossil record and understand how evolution contributed to them.
- Learn how to research primary sources and develop a project proposal.
- Learn how to write a short scientific paper.

## Assessments

### Grade Breakdown

COMPONENT	GRADE VALUE	DATE
LABS	24 %	
LAB EXAM	10 %	March 27 & 28, 2025
PROJECT	16 %	March 21, 2025
MIDTERM EXAM	16 %	February 13 (In Class)
FINAL EXAM	25 %	TBA (final exam period)
QUIZZES	9 %	

*Lab:* For more detailed description of Lab activities, evaluations, policies, and procedures please see the **Lab Outline/Syllabus on the course Brightspace page**. Questions regarding lab assignments, lab exam, or requests for accommodation for missed labs can be made directly to the course TAs.

*Lab Exam:* The Lab exam is closed book and sample based. It will take place during your regular lab section on **Monday, March 23<sup>rd</sup>** or **Wednesday, March 25<sup>th</sup>**. The lab exam is worth 10% of the final course grade.

*Term Project:* The term project consists of developing a 1500 to 2000-word essay on a topic in paleontology. The objective is to practice key parts of the scientific process: developing a question, researching the literature on it, and presenting what you learned.

Overall, the term project is worth 16% of the course grade. 4% of this is for the project proposal, due at 11:59 PM on February 5<sup>th</sup>. This will be a short paragraph outlining what you intend to write your term project essay on.

The essay will be worth 10% of the course grade, due on March 20<sup>th</sup>.

The final 2% is for participation in our student discussion. Students will be assigned peer essays to read and learn about the topic and ask questions and discuss the topic with the authors. Questions and discussion will be collegial, positive, and dedicated to learning more about the topic.

We have chosen to format the term project as an essay because of the high enrolment in the class and our statutory holiday-limited schedule. However, we would welcome alternative forms of expression for the term project, such as a video or in-person presentation. Please contact the instructor to discuss this at or before the project proposal stage!

All portions of the assignment will be submitted online through their respective Brightspace assignment portals.

*For more detailed project information and instructions refer to the **Project Outline** and **Project Rubrics** posted on Brightspace.*

*Lecture Exams:* The midterm exam will be held in-person on **February 13, 2025**, during class time and is closed book. The midterm will cover material from weeks 1-4. The final exam will cover material from weeks 5 onward. The final lecture exam will be closed book and will be held in-person during the final exam period with date and time TBA.

*Quizzes:* Weekly quizzes are in place to encourage you to review the posted slides and your notes. The quizzes are open book and the questions are designed to be straightforward. We are using quizzes in place of a participation grade to ensure students have flexibility to participate in learning opportunities if they have a reason to miss lecture. Additionally, the lowest quiz grade of the semester will be dropped in calculating the overall grade.

## **Late and Missed Work Policies**

### **Absences from Lecture or Lab**

*Short-term (5 days or less):*

*Lecture:* Regular lecture attendance is strongly encouraged as it is necessary for success in the course. However, if you will miss a lecture there is no need to let me know ahead of time! All lecture slides will be posted to the course Brightspace page. I am happy to address any questions or help you catch up with the missed lecture material via email, appointment, or during student hours.

*Lab:* Please contact your TAs as soon as possible when you know that you will be absent for lab. We will work with you to schedule completion during the alternate lab section, ideally before the next lab occurs. Additionally, we will host a “review lab” at the end of the semester where missed labs can be completed.

*Long-term (> 5 days):* If you will be absent for more than 5 days (excluding those students registered for the Bahamas field course) and will miss more than 2 lectures or 2 labs please contact the course instructor to request [longer-term accommodation](#).

### **Late Work**

If you i) know you will miss a deadline or ii) miss a deadline, contact the course instructor as soon as possible ([conradwilson@cunet.carleton.ca](mailto:conradwilson@cunet.carleton.ca)). The standard extension for quizzes is seven days from the original deadline, and 24 hours for deadlines related to the final project. Students requesting accommodation more than 24 hours after a deadline may have their request granted in exceptional circumstances at the discretion of the course instructor.

Late course work (where the student has not received accommodation or has submitted work after the extended deadline) will receive 5% deduction per day for up to 7 days, after which the work will not be accepted. Students **do not** need to submit the [academic considerations form](#) to request accommodation, but can if they so desire.

### **Missed Exams**

Lab exams are bell-ringer style and thus not repeatable, but we may have limited ability to accommodate a missed lab exam in an alternate section. If you miss the lab exam, you must provide appropriate documentation within 5 days of the date of the exam. If deemed acceptable, your missed exam will be re-scheduled or, if re-scheduling is impossible, your mark will be combined with the final lecture exam.

A missed midterm exam will be available for deferral if appropriate reason is provided within 5 days of the missed exam. If deemed acceptable, a re-write will be scheduled. The same policy applies to a missed re-write exam. Any further deferral for acceptable reasons will result in the midterm exam mark being combined with the final lecture exam.

The formally scheduled final exam will take place during the exam period. A deferred final exam is subject to the university's approval. Instructors cannot grant final exam deferrals.

## Learning Material(s) and Other Course/Lab-Related Resources

We want students to be able to access this course for minimal cost. The textbook is a valuable resource; if you want to do well in this course you will probably want to do the suggested readings. However, it is not required. There are multiple ways of accessing the textbook beyond the purchase options outlined below. A copy is available for 4hr hold at MacOdrum Library, and I will make a copy available during student hours.

Learning material	Approximate cost and purchase options
<b>Textbook:</b> Introduction to Palaeobiology and the Fossil Record, <b>2<sup>nd</sup> Edition</b> by Benton & Harper (2020)	\$111.00 – Bookstore (new) \$83.25 – Bookstore (used) \$86.02-106.95 – Amazon (new)
<b>Ruler</b> <b>General stationary (pencils, erasers, etc.)</b>	<\$5 – Bookstore, other retailers <\$5 – Bookstore, other retailers

Note: the textbook is the 2<sup>nd</sup> edition (published in 2020) and there were significant revisions following the first version.

Lab materials will be provided free to download on the course Brightspace page, and printed copies will be provided during Lab.

### Technology Checklist:

- Access to an internet-enabled computer (laptop/desktop), tablet, or smartphone with reliable internet.

## Academic Accommodations and Regulations

### Statement on Chat GPT/Generative AI usage

Students may use AI tools for non-creative functions, including:

- Grammar and spell checking (e.g., Grammarly, Microsoft Word Editor)
- Basic formatting and design suggestions (e.g., Microsoft Word's formatting tools, PowerPoint Design editor)
- Researching and discovering sources of primary literature (e.g., Perplexity AI)

**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 is designed to allow AI to aid student work without detracting from student-led creativity and research. You may ask AI questions you come up with and follow-up on its answers, or use AI to give suggestions to improve something you already made. But you may not use AI to deprive yourself of the experience of participating in this course.

**Limitations:** Students may not use AI for the following tasks: generating pitches, summaries, outlines, or scripts for the term project; generating text for the final project; completing quizzes; generating questions for the term project or term project discussion.

As our understanding of the uses of AI and its relationship to student work and academic integrity continue to evolve, students are required to discuss their use of AI in any circumstance not described here with the course instructor to ensure it supports the learning goals for the course.

### **Statement on Academic Integrity**

Students are expected to uphold the values of academic integrity, which include fairness, honesty, trust, and responsibility. Examples of actions that compromise these values include but are not limited to plagiarism, accessing unauthorized sites for assignments or tests, unauthorized collaboration on assignments or exams, and using artificial intelligence tools such as ChatGPT when your assessment instructions say it is not permitted.

Misconduct in scholarly activity will not be tolerated and will result in consequences as outlined in Carleton University's Academic Integrity Policy. A list of standard sanctions in the Faculty of 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 abide by Carleton University's Academic Integrity Policy.

### **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.

Also see <https://carleton.ca/online/online-learning-resources/netiquette/> for information about expectations regarding conduct online.

### **Student Concerns**

If a concern arises regarding this course, **your first point of contact is me.**

Email me or drop in during student hours and I will do my best to address your concern.

You can also bring your concerns to Ombuds services.

### **Accommodations**

Carleton 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](https://students.carleton.ca/course-outline)).

**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](https://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](https://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](mailto: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](https://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 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](https://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](https://students.carleton.ca/course-outline)