Western Science

Department of Earth Sciences

Earth Sciences 2265A Course Outline

1. Course Information

Course name and number: Earth Sciences 2265A, Paleobiology and Paleoecology
Academic term: 2025–26 fall term (September 1 – December 31, 2025)
Location and time:
Lectures: (see secure course site)
Laboratories: (see secure course site)

Prerequisites/corequisite: Earth Sciences 2200a/b (or by special permission)

Unless you have either the requisites for this course or written special permission from your Dean's Designate (Department/Program Undergraduate Chair or Science Academic Counselling) to enroll in it, you may be removed from the course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

2. Instructor Information

Instructors	Email	Office	Phone	Office Hours
Dr. Jisuo Jin				
TA: Sarah Kup				

- Students must use their Western (@uwo.ca) email addresses when contacting course instructor and TA.
- Office hours can be arranged either in-person or by Zoom.

3. Course Syllabus, Schedule, Delivery Mode

Key dates:
Classes begin: Thursday, September 4, 2025
NDTR: Tuesday, September 30, 2025.
Thanksgiving: Monday, October 13, 2025.
Fall Reading Week: November 3–9, 2025
Classes end: December 9, 2025
Exam period: December 11–22, 2025

Course Description: A survey of common fossils from bacteria, protists, calcareous algae, to invertebrate animals. Topics on each group of fossils include functional morphology, evolution, ancient living environments, contribution to sediment accumulation and reef-building, utility for dating and correlating rocks and for understanding long-term biodiversity change.

Learning Outcomes: Upon successful completion of this course, students will be able to:

- recognize the most common fossil groups in the geological record, predominantly megafossils that are visible as components of sedimentary rocks of various geological periods based on laboratory assignments;
- describe the most common rock-forming, including reef-building fossil groups and their importance in ancient ecosystems;
- explain the functional morphology of fossil organisms and interpret their adaptations to living environments in the geological past;
- use paleoecological information to interpret depositional environments, such as marine vs. fresh-water conditions, water depth, turbulence level, oxygen content, and substrate types.

Lectures (in-person classes; (see secure course site)

Week 1: Introduction to the principles of paleontology, fossils and the geological time scale, paleoenvironments and paleobiogeography, processes of fossilization, and classification of organisms.
Week 2: Bacteria. Origin and evolution of primitive life forms and their relationships to the early lithosphere, hydrosphere, and atmosphere. Bacteria contribution to ecosystems and deposits associated with black smokers, hot springs, microbial deposits.
Week 3: Protists. Calcareous and siliceous forms (such as coccoliths, foraminifers, diatoms, radiolarians) and their importance to the carbon dioxide and silica balance in the ecosystems.
Week 4–13: Major invertebrate fossil groups: zoological bauplan, functional morphology, evolution, and ecology/paleoecology; biostratigraphy, paleoenvironmental reconstruction, paleobiogeographic reconstruction, major trends of biotic radiation and mass extinctions.

Laboratory (in-person labs; (see secure course site)

- Three-hour labs on these aspects of fossils: taphonomy, classification, and functional morphology, mostly relevant to interpretation of paleoenvironment.

Lab 1. Fossilization
Lab 2. Bacteria and protists
Lab 3. The reef-builders: sponges, corals, and byozoans
Lab 4. The shelly benthos: brachiopods and molluscs
Lab 5. Arthropoda (trilobites and "sea scorpions")
Lab 6. The Deuterostomate invertebrates: echinoderms and hemichordates

Contingency plan
Although the intent is for this course to be delivered in person, should any university-declared emergency require some or all of the course to be delivered online, either synchronously or asynchronously, the course will adapt accordingly. The grading scheme will **not** change. Any assessments affected will be conducted online as determined by the course instructor.

4. Course Materials

Recommended text-book

1) Clarkson, E.N.K. 1998. Invertebrate Palaeontology and Evolution (4th edition). Blackwell Science.

Print or E-book version can be purchased at Western Bookstore:
https://bookstore.uwo.ca/textbook-search?campus=UWO&term=W2024A&courses%5B0%5D=001_UW/ESC2265A

Other course material

2) Jin, J. 2010. Earth Sciences 2265 Paleobiology and Paleoecology, Laboratory Manual. 110 pp.
(Free, available in PDF electronic version on OWL_Brightspace)

3) Jin, J. PowerPoint lectures.
(Free, available in PDF electronic version on OWL_Brightspace)

5. Methods of Evaluation

The overall course grade will be calculated as listed below:

Classroom mini-quizzes (random, during lectures)	30%
Lab assignments	30%
Final exam (Scheduled by Registrar)	40%

NOTE: Students must complete all lab assignments in order to get a final grade for the course.

6. Additional Statements

6.1 Religious Accommodation

When conflicts arise with a religious holiday that requires an absence from the University or prohibits certain activities, students should request an accommodation for their absence in writing to the course instructor and/or the Academic Advising office of their Faculty of Registration. This notice should be made as early as possible, but not later than two weeks prior to the writing of the examination (or one week prior to the writing of the test).

Please visit the Diversity Calendars posted on our university's EDID website for the recognized religious holidays - https://www.edi.uwo.ca

6.2 Academic Accommodation Policies

Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic Accommodation_disabilities.pdf.

6.3 General Academic Policies

The website for Registrar Services is https://www.registrar.uwo.ca/.

Use of @uwo.ca email: In accordance with policy, https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf, the centrally administered e-mail account provided to students will be considered the individual's official university email address. It is the responsibility of the account holder to ensure that emails received from the University at their official university address are attended to in a timely manner.

Requests for Relief (formally known as "appeals")

Policy on Request for Relief from Academic Decision:
https://uwo.ca/univsec//pdf/academic_policies/appeals/requests_for_relief_from_academic_decisions.pdf

Procedures on Request for Relief from Academic Decision (Undergraduate):
https://uwo.ca/univsec//pdf/academic_policies/appeals/undergrad_requests_for_relief_procedure.pdf

6.4 Scholastic Offences

Policy on Scholastic Offences:
https://uwo.ca/univsec//pdf/academic_policies/appeals/scholastic_offences.pdf

Procedures on Scholastic Offences (Undergraduate):
https://uwo.ca/univsec//pdf/academic_policies/appeals/undergrad_scholastic_offence_procedure.pdf

Use of Electronic Devices During Assessments

In courses offered by the Faculty of Science, the possession of unauthorized electronic devices during any in-person assessment (such as tests, midterms, and final examinations) is strictly prohibited. This includes, but is not limited to: mobile phones, smart watches, smart glasses, and wireless earbuds or headphones.

Unless explicitly stated otherwise in advance by the instructor, the presence of any such device at your desk, on your person, or within reach during an assessment will be treated as a *scholastic offence*, even if the device is not in use.

Only devices expressly permitted by the instructor (e.g., non-programmable calculators) may be brought into the assessment room. It is your responsibility to review and comply with these expectations.

Use of Generative AI Tools

Unless otherwise stated, the use of generative AI tools (e.g., ChatGPT, Microsoft Copilot, Google Gemini, or similar platforms) is **not permitted** in the completion of any course assessments, including but not limited to: assignments, lab reports, presentations, tests, and final examinations.

Using such tools for content generation, code writing, problem solving, translation, or summarization—when not explicitly allowed—will be treated as a **scholastic offence**.

If the use of generative AI is permitted for a particular assessment, the conditions of use will be specified by the instructor in advance. If no such permission is granted, students must assume that use is prohibited. It is your responsibility to seek clarification before using any AI tools in academic work.

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the

purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (http://www.turnitin.com).

6.5 Support Services

Please visit the Science & Basic Medical Sciences Academic Advising webpage for information on adding/dropping courses, academic considerations for absences, requests for relief, exam conflicts, and many other academic-related matters: https://www.uwo.ca/sci/counselling/.

Students who are in emotional/mental distress should refer to Mental Health@Western (https://uwo.ca/health/) for a complete list of options about how to obtain help.

Western is committed to reducing incidents of gender-based and sexual violence (GBSV) and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced GBSV (either recently or in the past), you will find information about support services for survivors, including emergency contacts at:

https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. If you have any questions regarding accommodations, you may also wish to contact Accessible Education at

http://academicsupport.uwo.ca/accessible_education/index.html

Learning-skills counsellors at Learning Development and Success (https://learning.uwo.ca) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Additional student-run support services are offered by the USC, https://westernusc.ca/services/.