

## Evolution of the Earth ERTH 1011

**Course objectives:** After completing this course, you'll understand how the earth works as a system. Understand why the earth and life are as they are today. You'll understand and be able to discuss current, major hypotheses about the origin of the universe, earth and life. You'll realize co-evolution and interaction of earth and life. You'll understand biological evolution, diversity of life and extinction. Know chronology of major events in the history of life.

We will describe:

First, the components of the system,  
Describe some interactions of the components, and  
Finally, reconstruct the history of Earth

### Learning outcomes:

By the end of this course:

- You will be able to understand and interpret evidence for the origin of the Universe, Earth, Life.
- You will be able to describe various Earth processes.
- You will be able to integrate the evolution of Earth and Life.
- You will be able to implement observations and infer past environments.
- You will be able to recall major events in the history of Earth and Life.

Lecture 1A & B – Introduction & Origin of the Solar system, Earth and moon

Lecture 2A & B – Plate tectonics & Earth materials

Lecture 3A & B – Rock cycle and sedimentary facies & Atmosphere and hydrosphere

Lecture 4A & B – Dating, time sequences & Origin of Life and fossils

Lecture 5A & B – Classification and Systematics & Diversity

Lecture 6A & B – Evolution & Extinction

Lecture 7A & B – Life environments & Biogeochemical processes

Lecture 8A & B – Hadean and Archean & Proterozoic

Lecture 9A & B – Cambrian explosion & Paleozoic oceans

Lecture 10A & B – Paleozoic land & P-T Extinction

Lecture 11A & B – Triassic recovery & Cretaceous

Lecture 12A & B – KT Extinction, Cenozoic & Ice Age and the end

### Mark breakdown

Midterm – 20%

Online quizzes – 50% (5 worth 10% each)

Final lecture exam – 30%

\*\*\* All questions for the midterm, final exam, and online quizzes will be multiple choice

**Midterm date:** May 28, will cover lectures 1A through 6B

**Final exam date:** TBD, but will cover all lectures

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### **Quiz schedule**

Quiz 1 – Open from May 7 to 13 – Covers lectures 1A, 1B, 2A, 2B

Quiz 2 – Open from May 14 to 20 – Covers lectures 3A, 3B, 4A, 4B

Quiz 3 – Open from May 21 to 27 – Covers lectures 5A, 5B, 6A, 6B

May 28 to June 3 – Midterm Break

Quiz 4 – Open from June 4 to June 10 – Covers lectures 7A, 7B, 8A, 8B, 9A, 9B

Quiz 5 – Open from June 11 to 16 – Covers lectures 10A, 10B, 11A, 11B, 12A, 12B

### **People**

1011 Quiz Coordinator: Bradley McFeeters, [BradleyMcFeeters@cmail.carleton.ca](mailto:BradleyMcFeeters@cmail.carleton.ca)

The quiz coordinator will manage the receipt of quizzes through the cuLearn website. Contact Brad for anything related to the quizzes.

### **Textbook (recommended)**

“Earth System History” by S. M. Stanley & J. A. Luczaj – highly recommended as much of the course content is covered in this textbook. This is also a good resource for the quizzes.

### **Policies**

Missed quizzes & midterm: If you miss a quiz or the midterm, please email me within 48 hours to make alternative arrangements. If you do not make alternative arrangements, you will receive a mark of zero for the quiz or midterm you missed.

Missed final exam: The University’s exam services handles all requests for deferred final exams and missed final exams. That office should be contacted for anything to do with missing the formally scheduled final exam.

### **Academic Integrity**

Academic integrity is taken very seriously in the Department of Earth Sciences, and Carleton University in general. Refer to the following document for policies and explanations of activities included with academic integrity: <https://carleton.ca/registrar/academic-integrity/>

Some examples of violations that will not be tolerated include:

*Plagiarism*: submitting work written in part or whole by someone else, failing to acknowledge sources through proper use of citations.

*Resubmission*: resubmitting work from another or the same course (if repeated).

*Test/exam behaviour*: attempting to read another student’s paper, speaking to another student, using material not authorized by examiner.

*Improper/unauthorized dissemination*: providing access or receiving access to confidential materials (e.g. exam questions), and distribution of course materials.

Violations will be taken very seriously and may involve the Department Chair, and/or the Dean. Sanctions for such violations may include grade of zero, decreased course grade, remediation, withdrawal from the course, or more.

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## **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: <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: <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. <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: <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: <https://students.carleton.ca/course-outline/>