

T. M. Cullen
thomascullen@cunet.carleton.ca

Evolution of the Earth ERTH 1011

Objectives: Understand how the earth works as a system. Understand why the earth and life are as they are today. Understand and discuss current, major hypotheses about the origin of the universe, earth and life. Realize co-evolution and interaction of earth and life. 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 ways in which components interact, 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 quizzes worth 10% each)

Final lecture exam – 30%

Midterm date: Week of May 24th – 28th (most likely May 25th), will cover **lectures 1A-6B**

Final exam date: Week of June 21st – 27th (TBD), will cover **all** lectures

T. M. Cullen
thomascullen@cunet.carleton.ca

****Procedure this year****

Due to continued closure of the University, we will be conducting our course remotely this year. As well, as this is a summer course, the schedule is compressed compared to a normal course. As such, each week two lecture videos will be released. These lecture videos will remain available to you throughout the term. It is highly recommended that you keep up with the lectures, as weekly quizzes draw from content in the lectures. The exceptions to this release schedule are the week of the midterm, in which there will only be a single lecture video to watch (covering post-midterm content), and the week prior to the final exam, in which there will also only be a single lecture video to watch (to give you additional time to study for the final exam the following week).

IMPORTANT - the lecture videos/slides are pre-recorded by Dr. Hillary Maddin, and any dates for assignments, quizzes, etc mentioned within them will correspond to those from a previous Winter semester offering of this course. So you do not become confused, please make sure to refer to the Announcements page on the Brightspace module for this course for the proper dates for this summer semester version.

Each quiz will be released to coincide with the related topics that are covered in the lectures. The quizzes must be done within the time period allotted (approximately 1 work week for each). Make sure to confirm the due dates on each quiz assignment when you access it to ensure you deliver them on time.

Our midterm will be held during the week of May 24th – 28th, currently planned for May 25th (this is considered tentative at present, as it still needs to be confirmed, but is the planned midterm date). This year the midterm will be completed entirely online during the scheduled time. No extensions (unless prescribed by the PMC) or changes to the time will be permitted without extenuating reasons.

The final exam is scheduled by the University. It will also be an online exam during the formal exam period (June 21st – 27th). Changes to the scheduled date must be pursued through the University.

People

Instructor: Dr. Thomas Cullen (thomascullen@cunet.carleton.ca)

TA: Rafael Bacha (rafaelbacha@cmail.carleton.ca)

Thomas will be overseeing the overall administration of the course. Rafael will be managing the receipt of quizzes, and should be your primary contact for any quiz-related questions. Questions related to lecture content or overall course concerns should be directed to Thomas.

Textbook (recommended)

“Earth System History” by Stanley – highly recommended as much course content is covered in this textbook. This is also a good resource for the lab activities.

T. M. Cullen
thomascullen@cunet.carleton.ca

Schedule of Events:

Lecture Schedule:

Lecture 1A&B – posted on May 6
Lecture 2A&B – posted on May 6
Lecture 3A&B – posted on May 10
Lecture 4A&B – posted on May 10
Lecture 5A&B – posted on May 17
Lecture 6A&B – posted on May 17
MIDTERM WEEK – May 24-28 [covers lectures 1A-6B]
Lecture 7A&B – posted on May 26
Lecture 8A&B – posted on May 31
Lecture 9A&B – posted on May 31
Lecture 10A&B – posted on June 7
Lecture 11A&B – posted on June 7
Lecture 12A&B – posted on June 14
FINAL EXAM WEEK – June 21-27 [covers all lectures]

Quiz Schedule:

Quiz 1 – open from May 6-9 [covers lectures 1A, 1B, 2A, 2B]
Quiz 2 – open from May 10-14 [covers lectures 3A, 3B, 4A, 4B]
Quiz 3 – open from May 17-21 [covers lectures 5A, 5B, 6A, 6B]
MIDTERM WEEK (no quiz) – May 24-28
Quiz 4 – open from May 31-June 4 [covers lectures 7A, 7B, 8A, 8B, 9A, 9B]
Quiz 5 – open from June 14-18 [covers lectures 10A, 10B, 11A, 11B, 12A, 12B]

Policies

Missed activities: A missed quiz will receive a mark of zero. Any missed quiz should be discussed with Dr. Cullen within 48 hrs of the due date. Missed quizzes will not be permitted for retaking. Missed quizzes cannot be reopened. If you miss the quiz, you will miss the opportunity to view the questions in the future.

Missed midterm: An email alerting to the instructor should be sent as soon as possible if the midterm will be missed (either due to scheduling conflict or illness the day of). A deferred midterm may be available to individuals with appropriate reasons.

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.

T. M. Cullen
thomascullen@cunet.carleton.ca

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 behavior: attempting to read another student's paper, speaking/messaging with another student during the exam, 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.

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

T. M. Cullen
thomascullen@cunet.carleton.ca

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

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