

Earth System Through Time
ERTH 1009

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 interactions of the components through time, 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 1 – Introduction

Lecture 2 – Origin of the Solar system, Earth and moon

Lecture 3 – Plate tectonics

Lecture 4 – Earth materials

Lecture 5 – Rock cycle and sedimentary facies

Lecture 6 – Atmosphere and hydrosphere

Lecture 7 – Dating, time sequences

Lecture 8 – Origin of Life and fossils

Lecture 9 – Classification and Systematics

Lecture 10 – Diversity

Lecture 11 – Evolution

Lecture 12 – Extinction

Lecture 13 – Life environments

Lecture 14 – Biogeochemical processes

Lecture 15 – Hadean and Archean

Lecture 16 – Proterozoic

Lecture 17 – Cambrian explosion

Lecture 18 – Paleozoic oceans

Lecture 19 – Paleozoic land

Lecture 20 – P-T Extinction

Lecture 21 – Triassic recovery

Lecture 22 – Cretaceous

Lecture 23 – KT Extinction, Cenozoic

Lecture 24 – Ice Age and the end

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Mark breakdown

Midterm – 20%

Labs – 40% (30% labs, 10% test)

Final lecture exam – 40%

- Questions will be definitions, multiple choice, short answer and fill in the blank

People

1009 Lab Coordinator: Dr. Geoff Pignotta: geoffrey.pignotta@carleton.ca

The lab coordinator will oversee all issues concerning the completion of the labs.

Policies

Missed labs and late lab assignments: Missed labs may be considered for 'make-up' if a doctor's note accompanies the request. Requests for making-up a lab are subject to availability in another lab section in the same lab week as the missed lab. A lab cannot be made up in weeks subsequent to the original week. Approval to do a make-up lab in another section **must** be granted by Geoff.

Lab assignments are handed in at the end of each lab session. If a lab is missed, a doctor's note is needed for the missed lab assignment to be accepted by Geoff or your TA after the original date of the missed lab. The missed lab assignment must be handed in as soon as possible along with the doctor's note, and by the latest at the beginning of the next week's lab session to avoid penalty. Lab assignments will not be accepted later than 1 week of the original lab date. If a lab assignment is not completed, and a doctor's note is provided, the remaining labs values will be adjusted to make up the 30% of the total lab value. Late assignments without doctor's notes will be penalized by 5% per day until it is received by Geoff or your TA, no later than 1 week after original due date. If no doctor's note is provided a mark of zero will be given to that lab.

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). Documentation proving the scheduling conflict must be provided as soon as possible. A doctor's note is required within 7 days of the missed midterm exam in the event of illness. A deferred midterm will be available to individuals with the appropriate documentation for the date of the missed midterm. A mark of zero will be given if no documentation is received within 7 days of the midterm date.

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.

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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 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