

University of Toronto-Scarborough
Department of Physical and Environmental Sciences

EESB15H3 Earth History - Fall 2015

Instructor: Dr. Heidi Daxberger, EV 466, phone: 416-208-5136, heidi.daxberger@utoronto.ca

Office hours: Wednesday 1.30 pm to 2.30 pm, and by appointment

Teaching Assistant: Shane Sookhan (PhD candidate)

Lectures: Mondays, 12 pm – 3 pm (Room BV264)

In-class exercise is the last 1 hour (2 – 3 pm) of the lecture!

Overview:

In this course you will learn about Earth's 4.56 billion years long history, the building blocks of our planet and the most important geological processes and concepts to better understand the evolution of Earth through time. A special focus will be given to the evolution of and the processes happening on the North American Continent during these 4.56 billion years.

Igneous, sedimentary and metamorphic rocks are not only the building blocks of our planet, but also represent a detailed record of how Earth evolved during the past 4.56 billion years. After plate tectonics started in the early age of Earth, they reshaped our planet's surface constantly. The fossil and rock records help us to delineate plate tectonic movement and therewith the evolution of Earth's continental masses we live on today. However, the long ongoing investigation of past and current geological processes does not only provide us with information of the past, but also allows us a glimpse into the future and to model future continent configurations.

The accumulated knowledge of short- and long-term geological processes, as well as rock and sediment properties, becomes more and more important as the human population grows. With population growth, more natural resources are required and more damage, for example in form of soil contamination, is done to our environment. Therefore we need to understand processes which lead to certain geological structures, formation of ore deposits, fresh water storage, and the development of today's environment to efficiently use and protect all resource components and most importantly the environment for future generations.

This course also aims to introduce and develop the following geoscientific and soft skills:

- Identification of important minerals, rocks types and fossils, as well as drawing conclusions about their implications.
- Visualization and retrieving information about geological features in 2D and 3D by using geological maps and cross-sections.
- Visualizing and development of a better understanding of interpretation of temporal and spatial data (e.g. development of continents through time using stratigraphic columns and geological maps)
- Problem solving skills during hands-on exercises
- Real world application of geological concepts and methods during in-class exercises and the field trip.

- Developing of teamwork skills during the in-class exercises and a field trip.
- Development of peer and self-assessment skills during teamwork.
- Oral and visual presentation skills during short team presentation of findings derived during in-class exercises and the field trip.

Literature:

Mainly: H. Levin, The Earth Through Time, 10th edition, Wiley

Also used: St. M. Stanley & J.A. Luczaj, Earth System History, 4th edition, Freeman

R. Wicander & J.S. Monroe, Historical Geology, 7th edition, Brooks/Cole – Cengage Learning

Eyles, Ontario Rocks, 2002, Fitzhenry & Whiteside

Lecture Schedule - Subject to change:

Week	Date	Lecture	In-class exercises	Notes
1	Sept. 7	Labour Day – University closed		
2	Sept. 14	1 st class: Introduction Building Material of Earth & Minerals	E 1: Mineral ID	
3	Sept. 21	Igneous & Sedimentary Rocks	E 2: Igneous Rocks	
4	Sept. 28	Sedimentary Rocks & Field trip Preparations	E 3: Sedimentary Rocks & Basic Fossils ID	Oct. 2, 3, 4 for 1-Day Field trip
5	Oct. 5	Metamorphic rock & Earth Processes	E 4: Metamorphic Rocks	Quiz 1
6	Oct. 12	Thanksgiving – Reading Week		
7	Oct. 19	Earth Processes	E 5: Fossils	
8	Oct. 26	Midterm		
9	Nov. 2	Hadean & Archean	E 6: Differentiation of rock types	
10	Nov. 9	Proterozoic	E 7: Plate tectonics & Deformation	
11	Nov. 16	Paleozoic	E 8: Plate tectonics & Deformation	Quiz 2
12	Nov. 23	Mesozoic	E 9: Relative Age Dating	
13	Nov. 30	Cenozoic		
14	Dec. 3 (Thursday)	Human Evolution		Quiz 3
15	Dec. 4 - 7	Study Break		
	Dec. 8 - 22	Final Exams		Final Exam
	Dec. 23	Christmas Break Starts		

Marking Scheme:

9 in-class exercises (each 4%)	36%
3 Online Quizzes (each 2%)	6%
Field trip	10%
Midterm (in class)	18%
<u>Final Exam (date to be announced)</u>	<u>30%</u>
Total	100%

Lectures and in-class exercises:

ALL students are expected to attend ALL lectures, which include graded in-class exercises.

It is the responsibility of the student to ensure that notes are obtained for any classes missed.

1-Day Field Trip – Albion Falls (Hamilton):

This field trip is mandatory for all students. A fee for transportation will arise, which we will keep as low as possible. Furthermore, we are outdoors and therefore some preparations are needed:

- Be prepared for any kind of weather (sun vs. rain: rain jacket, sun screen, hat)
- Sturdy footwear (at least running shoes, preferably hiking boots) -> **NO open-toed shoes, sandals, or heels!!!**
- Adequate clothing (long pants, layers, rain cloth)
- Safety goggles or light tinted sun glasses
- Daypack with an adequate amount of water and lunch (+ smaller snack)
- If possible small camera, field book (e.g. small notebook), pencil & pen

Additional safety equipment (e.g. hard hats, additional safety goggles) required for the trip will be supplied by the department.

Study Questions

I will post a set of study questions on each course topic, which should help you to identify the important course information, study for the quizzes and exams, prepare you for the field trip and to keep on top of the material.

Missed academic work:

If you know that you will miss a deadline then please let me know in advance, as we might be able to work something out. Should you miss a deadline for any term work you will be automatically penalized **10% per day (including weekends)** if you do not follow the following procedure and receive consideration. Within **one week** of the missed deadline you must submit a completed **University of Toronto medical certificate** (available on BB in

Course Documents) as well as a **letter from you** describing when you fell ill, how it prevented you from making the deadline and when you returned to school as well as your name and student number and the course code. Submit the certificate and the letter to the secretary in EV-Building (new room number: TBA); Mon-Fri 9-5 (lunch 1-2) jterakita@utsc.utoronto.ca. Joanne Terakita collects these, but will not make a decision on the cases. Carefully following this process will allow us to properly consider you for consideration regarding your late/missed work for EESB15.

Final Examination:

The final examination will be 3 hours, is cumulative (1/3 before midterm, 2/3 after midterm) and will be scheduled by the University and held during the December examination period. The exam will contain multiple choice, true and false and short answer questions. Figures, movies and animations are examinable, as are in-class participation/lab type exercises. The exam will be more heavily focused on post-midterm material. The assigned readings are examinable, the material covered in lecture is weighted more heavily than the readings.

Library Services:

Research Help: University of Toronto Scarborough Library

Staff at the UTSC Library will be happy to help you find the resources you need for your assignments, and learn the research skills you will need for success at university.

Research help is available by phone, e-mail, chat, or in-person in the Library.

For more information, please see the Library's Help Guide for UTSC

Students: http://guides.library.utoronto.ca/utsc_help

Need in-depth or department specific assistance? Contact Sarah Forbes, Liaison Librarian for Physical and Environmental Sciences: <http://uoft.me/smforbes>

Blackboard:

Lecture and lab material will be posted on and Online Quizzes will be done through blackboard. Please check daily for updates.

Blackboard: <https://portal.utoronto.ca>

Academic Integrity Statement:

Academic integrity is one of the cornerstones of the University of Toronto. It is critically and important both to maintain our community which honours the values of honesty, trust, respect, fairness and responsibility and to protect you, the students within this community, and the value of the degree towards which you are all working so diligently. According to Section B of the University of Toronto's Code of Behaviour on Academic Matters which all students are expected to know and respect, it is an offence for students:

- To use someone else's **ideas or words** in their own work without acknowledging that those ideas/words are not their own with a citation and quotation marks, i.e. to commit plagiarism.

- To include false, misleading or concocted **citations** in their work.
- To obtain **unauthorized assistance** on any assignment.
- To provide **unauthorized assistance** to another student. This includes showing another student completed work.
- To submit their own work for credit in **more than one course** without the permission of the instructor.
- To falsify or alter any **documentation** required by the University. This includes, but is not limited to, doctor's notes.
- To use or possess an **unauthorized aid** in any test or exam.

There are other offences covered under the Code, but these are by far the most common. Please respect these rules and the values which they protect. It is your responsibility to ensure that your work maintains academic integrity. If you have any concerns please see the instructor before a potential problem arises. Please familiarize yourself with the Code (<http://www.governingcouncil.utoronto.ca/policies/behaveac.htm>) and also with the handout "How not to plagiarize", available in the Course Documents section on BB. At the University of Toronto academic dishonesty can result in a *mark of zero, a reduction in final grades, denial of privileges, a monetary fine, failure in the course, suspension, permanent record, a recalling of degrees/diplomas and certificates, or expulsion.*

Accessibility Needs:

The University of Toronto is committed to accessibility. If you require accommodations for a disability, or have any accessibility concerns about the course, the classroom or course materials, please contact Accessibility Services as soon as possible: UTSC campus AccessAbility <http://www.utsc.utoronto.ca/~ability/> or St. George Campus DisAbility disability.services@utoronto.ca or <http://studentlife.utoronto.ca/accessibility>.