Geology I Syllabus

Department of Earth and Environmental Science

ERTH1080 - Winter 2026

Dalhousie University acknowledges that we are in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq People and pays respect to the Indigenous knowledges held by the Mi'kmaq People, and to the wisdom of their Elders past and present. The Mi'kmaq People signed Peace and Friendship Treaties with the Crown, and section 35 of the Constitution Act, 1982 recognizes and affirms Aboriginal and Treaty rights. We are all Treaty people.

Dalhousie University also acknowledges the histories, contributions, and legacies of African Nova Scotians, who have been here for over 400 years.

Course Instructor(s)

Name	Email	Office Hours
Mike Young	mike.young@dal.ca	By appointment (virtual) or in the lab times

Course Description

This course focuses on the solid earth (geosphere), how it was formed and how it evolved through time. It explores the materials constituting the geosphere and the natural processes driving their formation. Specifically, we will investigate (1) the physical processes that led to the formation of the planet Earth and its place in space and time within the Universe, (2) the structure of the Earth and its dynamic aspect (plate tectonics and consequences), (3) the different types of rocks and the way they form and are deformed, (4) the topography of continents and the formation of mountain ranges, (5) the mechanisms and examples of major geological hazards: volcanic eruptions, earthquakes, and tsunamis, and (6) how time is measured at geological timescales.

Course Prerequisites

This class meets the needs of students who require a science class with a lab component, is a required prerequisite class for all Earth Science majors and serves as an introduction for all those interested in Earth Sciences. No previous knowledge of geology is required.

Course Structure

Course Delivery

This course consists of in-person **lectures** that meet 2x per week. You are encouraged to attend the lectures to ask questions! There is also **a separate in-person lab** that meets 1x per week. Labs are hands-on applications of lecture material; therefore, it is expected that you will attend both.

The course is delivered in-person. The course is organized into 12 weeks (Wednesday Jan 7 to Thursday Apr 9), two 80-minute lectures each week, plus seven labs and two lab quizzes.

Lectures

Wednesday and Friday, 16:05 - 17:25, LSC-PSYCHOLOGY P5260

Laboratories

B01 – Monday 11:35 - 14:25, LSC-BIOL&EARTH B2055

B02 – Monday 14:35 - 17:25, LSC-BIOL&EARTH B2055

B03 – Thursday 11:35 - 14:25, LSC-BIOL&EARTH B2055

Course Materials

Suggested: Stephen Marshak, *Earth – portrait of a planet, 6thEdition*, W.W. Norton & Company, New York

Alternate: Panchuk, K. (2019). *Physical Geology - First University of Saskatchewan Edition*. University of Saskatchewan. https://open.umn.edu/opentextbooks/textbooks/physical-geology-first-university-of-saskatchewan-edition.

Optional Lab Manual: Laboratory Manual for Introductory Geology, Ludman and Marshak (5th Edition) is available at the bookstore as either E-book or in print.

Additional course material will be posted to Brightspace.

Labs are designed to help students further understand principles and applications of lecture material. Please bring **a pencil, a ruler, and an eraser to all labs**.

The goal of this course is to provide students with a firm grounding in geology, whether as part of a degree program or simply to help students see the world around you in a different way. I am committed to teaching – in class, by email, in marking assignments and exams; you can expect me to be fair and to want you to learn. I encourage questions and a safe and inclusive learning environment.

For your part, I hope respect will be mutual and that the next several weeks will be an enjoyable learning experience!

Learning Objectives

- Identify and classify common earth materials and the processes that form them, by interpreting the evidence within the rocks themselves
- Explain plate tectonic theory and begin to apply the principles in understanding earth materials and processes
- Describe the essential nature of planet earth in terms of physical and chemical composition, and the distribution of materials within and on earth
- Identify and explain the basic principles of spatial, temporal, and dynamic thinking about planet earth
- Begin to develop a questioning approach to interpreting information about the physical earth and "think like a geologist"

Brightspace Learning Management System (LMS):

Important course announcements are delivered through the Brightspace Learning Management System. Lecture PowerPoint slides will be posted, but lecture recordings will not.

Student Declaration of Absence:

This course has opted into the student declaration of absence in lieu of sick notes for the assignments and in-class test. This mechanism is meant to substitute for sick notes from a doctor related to short absences (less than three days) and does not provide an automatic exemption from any missed assessments. Accommodating the absence is at the discretion of the course instructor. Student Declarations of Absence are only necessary for the in-class test (more information can be found Student Declaration of Absence - Faculty of Computer Science - Dalhousie University). SDAs are not required for missed Lab or classes. Students are expected to use the Student Declaration of Absence form for late or missed requirements. The use of the form is restricted to 1 time for tests, and 1 time for assignments. For the labs, students should contact the lab instructor directly and prior to the lab to arrange additional time to complete the lab. In no circumstances will labs be accepted if that lab has been graded and returned to the class. In cases where the Student Declaration of Absence form is used outside of the conditions set above or the missed academic requirement is unjustified, the student will receive a null grade for that missed academic requirement.

Class expectation

You're expected to participate in the learning activities with your peers and you'll be required to integrate relevant information discussed into your assignments.

Students are expected to behave in an appropriate manner. Lively discussion and conflicting opinions are welcome and encouraged, but personal attacks, disrespectful comments, and gender or racial slurs **will not** be tolerated.

You can be more successful by:
- Familiarizing yourself with the syllabus and course schedule.
- Planning ahead and set aside time in your calendar to work on course assignments.
- Asking questions! If you're unsure about anything, ask an anonymous question in the
- Questions discussion board, send me an email, or make an appointment.

Assessment

Labs

Labs begin the week of January. All labs are scheduled to be in-person. Room 2055 Life Sciences Centre.

The labs are worth a total of 35% of the course grade. Seven lab exercises account for 17% and two in-lab rock and mineral identification quizzes account for 18%. Lab exercises will be completed in small groups and will be graded and returned at the beginning of the following lab period.

Labs will be introduced at the beginning of each lab period, a handout will be provided, and labs are designed to be completed in the 3-hour lab period. Most labs are completed as group exercises. If you require more time, labs will be accepted up to 24 hours after your assigned lab period, but you will need to coordinate with your lab partners. Beyond the 24-hour grace period, labs will be penalized 10%/day up until the following lab period when they will not be accepted.

Assignments and in-class activities

There will be two assignments to be completed outside of lecture and lab time. Late submissions of assignments will lose 10%/day and will not be accepted after graded submissions are returned. Late assignments require a Student Declaration of Absence (see above). Throughout the term there will be activities during class time. These are intended to aid your learning.

Midterm test

The midterm is an "in class" and "closed book" test. You will need to bring a pen or pencil. Any other requirements will be announced in class and on BrightSpace. There are no make-up tests; if you miss a test due to illness, family emergency, or other acceptable reason, the exam will have a higher value (50%). Missed tests require a Student Declaration of Absence.

Final Exam

The Faculty of Science requires all first-year science classes to have a formal exam (during the April Exam Period). **Do not make travel arrangements until after the exam schedule is posted**. Accommodations will not be made for students who leave before the scheduled exam. The final exam is cumulative. The exam will be in person and closed book. Required materials for the exam will be announced in class and on BrightSpace.

COMPONENT	WEIGHT (% of final grade)	DATE
Labs	35%	Labs due at the end of the lab period; a grace period of up to 24 hrs will be granted. 7 labs = 17%, 2 quizzes = 18%
Assignment 1	7.5%	Friday, February 13 (midnight)
Mid-Term Exam	20%	Friday, February 27 in class
Assignment 2	7.5%	Monday, April 6 (midnight)
Final Exam	30%	Scheduled by registrar (in person, duration 3 hours)

The final exam is scheduled by the registrar and will take place during the exam period.

Conversion of numerical grades to final letter grades follows the Dalhousie Grade Scale

A+ (90-100)	B+ (77-79)	C+ (65-69)	D (50-54)
A (85-89)	B (73-76)	C (60-64)	F (0-49)
A- (80-84)	B- (70-72)	C- (55-59)	

Course Policies on Missed or Late Academic Requirements

1) If you miss a lecture: Lecture notes will be posted on Brightspace.

2) If the mid-term exam is missed due to unforeseen circumstances, the final exam will count for 50%.

3) All labs are mandatory. You will be expected to catch up on missed materials. Labs and lab quizzes will count for 35% of the final grade (17% for the seven labs and 18% for two lab quizzes).

4) If you miss a lab: Email the instructor ASAP. Labs are due 24 hrs after your lab period. Late submissions on labs will lose 10% per day. But, extensions may be granted in extenuating circumstances. No submissions will be accepted after the graded labs are returned – generally one week after due date. If you know ahead of time that you will be missing a lab, please let us know early so we can arrange another lab section for you that week.

5) It is necessary to pass the lab component to pass ERTH 1080. All labs are counted toward the lab grade. Lab material may be included on the midterm and final exam.

6) The Final Exam will incorporate lecture and lab material. The exam date is scheduled by the registrar and cannot be changed (April 11 and 27). Do not make plans to return home until the exam schedule is posted in early February.

7) Attendance at departmental guest lectures is recommended.

Course Policies related to Academic Integrity

1) Too similar papers will be considered as plagiarism. This applies to assignments and labs.

2) Plagiarism software will be used in the course.

3) Generative AI (i.e., ChatGPT) may be very useful as a study tool! However, work turned in for assessment should not use generative AI for content.

3) Students are expected to use the Student Declaration of Absence form for late or missed requirements. The use of the form is restricted to 1 time for tests, and 1 time for assignments. For the labs, students should contact the lab instructor directly and prior to the lab to arrange additional time to complete the lab. In no circumstances will labs be accepted if that lab has been graded and returned to the class. In cases where the Student Declaration of Absence form is used outside of the conditions set above or the missed academic requirement is unjustified, the student will receive a null grade for that missed academic requirement.

4) No makeup exams, no makeup assignments, no makeup labs.

Course Content

Week of	Lectures (TR)	Textbook Chapter (Marshak)	Labs (M/R)
Jan 5-9	Introduction to Geology I; 1- Internal structure of the Earth	1, 2	No Labs
Jan 12-16	2- Internal structure of the Earth 3- Plate Tectonics I	2, Interlude D 4	No Labs
Jan 19-23	4- Plate Tectonics II 5- Mineral I	4 5	Lab 1 – Plate Tectonics
Jan 26-30	6- Minerals II 7- Rock Cycle	5 Interludes A, C	Lab 2 – Minerals Part 1
Feb 2-6	8- Igneous Rocks Munro Day, University Closed	6	Lab 3 – Minerals Part 2
Feb 9-13	9- Igneous Rocks 10- Igneous Rocks	6	Lab 4 – Igneous Rocks
Feb 16-20	**Study Break**		
Feb 23-27	11- Sedimentary Rocks **Midterm Test, Friday Feb 27 in class**	7	No Labs
Mar 2-6	12- Sedimentary Rocks 13- Depositional Environments	7 7, Interlude B	Lab Quiz 1 (Minerals)
Mar 9-13	14- Metamorphic Rocks 15- Metamorphic Rocks	8	Lab 5 – Sedimentary Rocks
Mar 16-20	16- Metamorphic Rocks 17- Rock Deformation	8 11	Lab 6 – Metamorphic Rocks
Mar 23-27	18- Rock Deformation 19- Geological Time	11 12	Lab 7 – Geol Time/Structure
Mar 30- Apr 3	20- Geological Time Good Friday, University Closed	12	Lab Quiz 2 (All Rocks)
Apr 6-10	21- Geological Time 22- Geology of Nova Scotia	12	No Labs
Apr 11-27	Final Exam: Date TBD		

***Lecture and lab dates are subject to change.**

University Policies and Statements

Recognition of Mi'kmaq Territory

Dalhousie University would like to acknowledge that the University is on Traditional Mi'kmaq Territory. The Elders in Residence program provides students with access to First Nations elders for guidance, counsel, and support. Visit or e-mail the Indigenous Student Centre at 1321 Edward St or elders@dal.ca. Additional information regarding the Indigenous Student Centre can be found at: https://www.dal.ca/campus_life/communities/indigenous.html

Internationalization

At Dalhousie, 'thinking and acting globally' enhances the quality and impact of education, supporting learning that is "interdisciplinary, cross-cultural, global in reach, and orientated toward solving problems that extend across national borders." Additional internationalization information can be found at: https://www.dal.ca/about-dal/internationalization.html

Academic Integrity

At Dalhousie University, we are guided in all our work by the values of academic integrity: honesty, trust, fairness, responsibility, and respect. As a student, you are required to demonstrate these values in all the work you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity. Additional academic integrity information can be found at: https://www.dal.ca/dept/university_secretariat/academic-integrity.html

Accessibility

The Student Accessibility Centre is Dalhousie's centre of expertise for matters related to student accessibility and accommodation. If there are aspects of the design, instruction, and/or experiences within this course (online or in-person) that result in barriers to your inclusion, please contact the Student Accessibility Centre (https://www.dal.ca/campus_life/academic-support/accessibility.html) for all courses offered by Dalhousie with the exception of Truro. For courses offered by the Faculty of Agriculture, please contact the Student Success Centre in Truro (https://www.dal.ca/about-dal/agricultural-campus/student-success-centre.html)

Conduct in the Classroom – Culture of Respect

Substantial and constructive dialogue on challenging issues is an important part of academic inquiry and exchange. It requires willingness to listen and tolerance of opposing points of view. Consideration of individual differences and alternative viewpoints is required of all class members, towards each other, towards instructors, and towards guest speakers. While expressions of differing perspectives are welcome and encouraged, the words and language used should remain within acceptable bounds of civility and respect.

Diversity and Inclusion – Culture of Respect

Every person at Dalhousie has a right to be respected and safe. We believe inclusiveness is fundamental to education. We stand for equality. Dalhousie is strengthened in our diversity. We are a respectful and inclusive community. We are committed to being a place where everyone feels welcome and supported, which is why our Strategic Direction prioritizes fostering a culture of diversity and inclusiveness (Strategic Priority 5.2). Additional diversity and inclusion information can be found at: http://www.dal.ca/cultureofrespect.html

Student Code of Conduct

Everyone at Dalhousie is expected to treat others with dignity and respect. The Code of Student Conduct allows Dalhousie to take disciplinary action if students don't follow this community expectation. When appropriate, violations of the code can be resolved in a reasonable and informal manner - perhaps through a restorative justice process. If an informal resolution can't be reached, or would be inappropriate, procedures exist for formal dispute resolution. The full Code of Student Conduct can be found at: https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html

Fair Dealing Policy

The Dalhousie University Fair Dealing Policy provides guidance for the limited use of copyright protected material without the risk of infringement and without having to seek the permission of copyright owners. It is intended to provide a balance between the rights of creators and the rights of users at Dalhousie. Additional information regarding the Fair Dealing Policy can be found at: https://www.dal.ca/dept/university_secretariat/policies/academic/fair-dealing-policy-.html

Originality Checking Software

The course instructor may use Dalhousie's approved originality checking software and Google to check the originality of any work submitted for credit, in accordance with the Student Submission of Assignments and Use of Originality Checking Software Policy. Students are free, without penalty of grade, to choose an alternative method of attesting to the authenticity of their work and must inform the instructor no later than the last day to add/drop classes of their intent to choose an alternate method. Additional information regarding Originality Checking Software can be found at:
https://www.dal.ca/dept/university_secretariat/policies/academic/student-submission-of-assignments-and-use-of-originality-checking-software-policy-.html

Student Use of Course Materials

Course materials are designed for use as part of this course at Dalhousie University and are the property of the instructor unless otherwise stated. Third party copyrighted materials (such as books, journal articles, music, videos, etc.) have either been licensed for use in this course or fall under an exception or limitation in Canadian Copyright law. Copying this course material for distribution (e.g. uploading to a commercial third-party website) may lead to a violation of Copyright law.

Student Resources and Support

University Policies and Programs

Important Dates in the Academic Year (including add/drop dates): http://www.dal.ca/academics/important_dates.html

Classroom Recording Protocol: https://www.dal.ca/dept/university_secretariat/policies/academic/classroom-recording-protocol.html

Dalhousie Grading Practices Policies: https://www.dal.ca/dept/university_secretariat/policies/academic/grading-practices-policy.html

Grade Appeal Process: https://www.dal.ca/campus_life/academic-support/grades-and-student-records/appealing-a-grade.html

Sexualized Violence Policy: https://www.dal.ca/dept/university_secretariat/policies/health-and-safety/sexualized-violence-policy.html

Scent-Free Program: https://www.dal.ca/dept/safety/programs-services/occupational-safety/scent-free.html

Learning and Support Resources

General Academic Support – Advising (Halifax): https://www.dal.ca/campus_life/academic-support/advising.html

General Academic Support – Advising (Truro): https://www.dal.ca/about-dal/agricultural-campus/ssc/academic-support/advising.html

Student Health & Wellness Centre: https://www.dal.ca/campus_life/health-and-wellness.html

On Track (helps you transition into university, and supports you through your first year at Dalhousie and beyond): https://www.dal.ca/campus_life/academic-support/On-track.html

Indigenous Student Centre: https://www.dal.ca/campus_life/communities/indigenous.html

Indigenous Connection: https://www.dal.ca/about-dal/indigenous-connection.html

Elders-in-Residence (The Elders in Residence program provides students with access to First Nations elders for guidance, counsel, and support. Visit the office in the Indigenous Student

Centre or contact the program at elders@dal.ca or 902-494-6803: https://cdn.dal.ca/content/dam/dalhousie/pdf/academics/UG/indigenous-studies/Elder-Protocol-July2018.pdf

Black Student Advising Centre: https://www.dal.ca/campus_life/communities/black-student-advising.html

International Centre: https://www.dal.ca/campus_life/international-centre.html

South House Sexual and Gender Resource Centre: https://southhousehalifax.ca/about/

LGBTQ2SIA+ Collaborative: https://www.dal.ca/dept/vpei/edia/education/community-specific-spaces/LGBTQ2SIA-collaborative.html

Dalhousie Libraries: http://libraries.dal.ca/

Copyright Office: https://libraries.dal.ca/services/copyright-office.html

Dalhousie Student Advocacy Services: https://www.dsu.ca/dsas?rq=student%20advocacy

Dalhousie Ombudsperson: https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html

Human Rights and Equity Services: https://www.dal.ca/dept/hres.html

Writing Centre: https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html

Study Skills/Tutoring: http://www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html

Faculty of Science Advising Support: https://www.dal.ca/faculty/science/current-students/undergrad-students/degree-planning.html

Safety

Biosafety: http://www.dal.ca/dept/safety/programs-services/biosafety.html

Chemical Safety: https://www.dal.ca/dept/safety/programs-services/chemical-safety.html

Radiation Safety: http://www.dal.ca/dept/safety/programs-services/radiation-safety.html

Laser Safety: https://www.dal.ca/dept/safety/programs-services/radiation-safety/laser-safety.html