

# Environmental Issues in Earth Sciences

## Department of Earth and Environmental Sciences

### ERTH/ENVS 2410 Fall 2023

*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.*

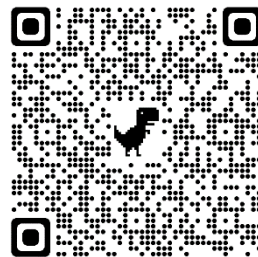
*Dalhousie University also acknowledges the histories, contributions, and legacies of African Nova Scotians, who have been here for over 400 years.*

#### **Course Instructor:**

Dr. Lexie Arnott ([Lexie@dal.ca](mailto:Lexie@dal.ca))

Office: LSC 3606 (3<sup>rd</sup> Floor Oceanography)

Office hours: By appointment through Bookings



#### **Course Description**

Geology underlies many of the environmental problems facing humanity today. Topics include environmental aspects of energy and mineral resources, geologic hazards, geologic connections to pollution and waste disposal, and the role that water plays in its various guises. Canadian examples are incorporated where appropriate.

#### **Course Prerequisites and Exclusions**

One of: ERTH 1080, ERTH/GEOG 1030, ERTH/GEOG 1060, ENVS 1100.03 and ENVS 1200.03, or ENVS 1000.06, SUST 1001 with a grade of B or above, or SCIE 1507.

This course does not count toward a Major or Honours in Earth Sciences

#### **Student Resources**

Resources to aid your learning will be posted on BrightSpace. If students are struggling with course content, they should book office hours with the instructor as early as possible. Office Hours can be scheduled through Bookings up to two weeks in advance. Meetings can be virtual (over MSTeams) or in-person in office LSC 3606 (3<sup>rd</sup> floor Oceanography). In person meetings require masks. If there are no times in Bookings that work for you, please contact the instructor directly.

#### **Course content**

This course will cover environmental issues related to Earth resources (i.e., water, soils, and minerals). Natural and anthropogenic hazards such as erosion, desertification, and pollution as they relate to Earth resources will be explored. Although not explicitly covered, all subjects will be viewed through the lens of the current climate crisis.

### Course Delivery

Lectures are Tuesday and Thursday 10:05-11:25am in Dunn 135. Course delivery is in person. PowerPoint slides will be made available within a week of the class delivery. Classes will not be recorded.

### Learning Objectives

- Identify and apply the basic knowledge and skills of geologic thinking to broader environmental concerns.
- Apply a general knowledge and understanding of earth materials and processes in an environmental context.
- Determine patterns and interconnections of geologic relevance to environmental problem solving.
- Read and interpret relevant maps, photos, diagrams, and graphs as they relate to the earth sciences aspect of the environment.
- Communicate effectively, ethically, and in plain language, the role of earth sciences to a given environmental issue
- Critically analyze environmental-related issues through an earth sciences lens using information presented in case studies and reports.
- Question your own assumptions, biases, and interpretations, and those of others as they relate to environmental issues and the earth sciences.

### Course Materials

There is no textbook to purchase but you need to access BrightSpace and the linked resources. All assignments should be submitted as MSWord documents or pdfs.

You should bring a pen/pencil and a device (phone, tablet, or laptop) to class to participate in class activities. You will be made aware of any other class requirements (ruler, eraser, kittens, etc.) ahead of time.

### Student responsibilities

As with all courses, students are expected to engage with the course content both in and outside the classroom. There will be assigned readings, assignments, and quizzes. These will require you to plan and schedule accordingly. Attendance in class is expected. If students are struggling with course content, they should book office hours with the instructor as early as possible.

### Pedagogy

There are many ways to deliver course content and aid students' learning. These styles vary depending on class size, course content, required skills development, etc. For this course, the aim is to support student learning through some low stakes testing but primarily through alternative assessments that allow students to show their mastery over the topics covered. These alternate assessments have been aimed at increasing your communication and science literacy skills.

### Assessment

**Please note:** *These components make up your final mark. There will be no redistribution of marks and no extra work given at the end of term. If you are concerned about your grades, please see me at the time the grade is given or within a reasonable period.*

### In Class

#### Exercises (25%):

- There will be in-class exercises that will support learning of the content. These cannot be done outside of class.
- You will be informed of upcoming exercises in-class and on BrightSpace at least one class in advance of in-class assignments. Some in-class assignments will require pre-reading or preparatory assignments to be completed prior to the assessment.
- To accommodate illness or other excused absences, one of the in-class assessments will be dropped. **There are no makeups.**

#### Activities (10%)

- These are low stakes activities that include class discussions, quizzes, entry/exit “tickets”, reflections, etc.
- You will not be given advanced notice of these activities and they will occur at least once a week. **There is no makeup for activities.** Only ~90% of the highest marks on these activities will be counted toward the activity mark.

#### Tests (30%)

- There are three in-person, written tests this semester. Each is worth 10%.
- The first two tests will occur in the class period. The final test will occur during the **exam period**. Do not book travel home until the exam schedule is posted.
- Makeup tests will be written immediately following the final exam during the exam period.

### Outside of class

#### Assignments (25%):

- There are three assignments you will be expected to complete outside of class time.
- These assignments are meant for you to demonstrate your understanding of one of the topics covered in class (or another related topic). Further information will be provided soon.
- Students missing an assignment deadline should contact the instructor to arrange submission. The penalty for lateness is 20%/day. Once marks are released or assignments returned a mark of 0 will be recorded and submissions will no longer be accepted.

#### BrightSpace quizzes (10%)

- There will be weekly BrightSpace quizzes. Quizzes will test work we've covered in the previous week or will cover assigned readings that should be completed prior to class.
- Quizzes will have unlimited attempts but close on Tuesday before class begins.
- **There will be no make-up.** Quizzes will be open for a minimum of four days.

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)	

### **Final Marks:**

*In this course there are multiple opportunities to achieve better grades (unlimited attempts on BrightSpace quizzes, dropping missed in class assessments, etc); therefore, final marks are not rounded up. A mark of 79.9 is not an 80 and will be a grade of B+.*

## **Course Policies on Missed or Late Academic Requirements**

Student Declaration of Absences (SDAs) should be submitted to the SDA folder for missed **Assignments, Exercises, and Tests**; along with an email to the instructor explaining the missed deadline (see the SDA form for more information).

As outlined previously, a makeup Test can be written in the exam period (following Test #3). Assignments will be subjected to late penalties unless and SDA has been approved.

In-class Activities and Exercises have no makeup. To accommodate illnesses, the lowest Exercise mark will be dropped. Missing an Exercise with no excuse, does not excuse a subsequent exercise with an SDA. Activities will accommodate absences by only counting the highest 90%.

There are no extensions or makeups for BrightSpace quizzes. Quizzes are open for four days, and will fall outside the time frame of an SDA. We cannot plan illnesses/disruptions, so please plan your engagement with this content accordingly.

If you have absences lasting longer than three days, you need to contact the instructor and your advisor to look at other accommodations.

## **Course Policies related to Academic Integrity**

Collaboration is an important part of science. Students will collaborate on in-class exercises and activities but should submit work in their own words. Students are expected to work independently on Assignments and plagiarism software may be used in this course.

Submitted work in this course must not have been generated by the use of AI-driven tools or generative AI models, including but not limited to language models (e.g. GPT suite), translation models (e.g. Google Translate or DeepL), editing tools (e.g. QuillBot, GrammarlyGO, etc).

The objective of the assessments in this course is for you to acquire and exhibit competencies and achieve course outcomes. If it is suspected that the work submitted does not represent your own competencies, the Academic Integrity Office will be contacted. You may be asked to complete a supplemental assessment to evaluate your mastery of course outcomes.

## 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](mailto:elders@dal.ca). Additional information regarding the Indigenous Student Centre can be found at: [https://www.dal.ca/campus\\_life/communities/indigenous.html](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](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](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](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](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](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.