



Welcome to ENVS 1100 – Fall 2023

Foundations of Environmental Science: Ecosphere, Resources, and Sustainability

Department of Earth & Environmental Sciences

Syllabus Part A

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.

We acknowledge the histories, contributions, and legacies of the African Nova Scotian people and communities who have been here for over 400 years.

Instructors:

Dr. Sue Gass | Pronouns: she/her | Email: sue.gass@dal.ca – Course Coordinator

Dr. Caroline Hammerschlag-Peyer | Pronouns: she/her | Email: caroline.hammerschlag@dal.ca –
Tutorial Coordinator

Lectures: Tuesdays and Thursdays 8:35-9:55 am – LSC C242

Tutorials: Each student has signed up for a weekly 110 min tutorial which will run 10 times throughout the term. See the course schedule for details.

Course delivery: This course will be held in person. Lectures slides with voice over will be recorded and posted on Brightspace.

Teaching Assistants:	Email	Tutorials
Justine Duncalfe	Justine.duncalfe@dal.ca	Tuesday 12:35 pm, 2:30 pm & Thursday 2:30 pm
Hannah Freeman	hn899719@dal.ca	Thursday 12:30 pm & Friday 3:30 pm
Sadie Russel	sadierussell@dal.ca	Wednesday 9:30 am & Friday 1:30 pm

Office Hours: Thursdays from 1:00 pm – 4:00 pm or you can email me to set up a meeting at another time. You can book an appointment for office hours using the MS Bookings system: [Book an appointment here](#)

Course Description

The environment is a dynamic web of interactions between all components of the lithosphere, the hydrosphere, the biosphere, and the atmosphere. Humans are one component of the biosphere, and we are unique in that we have the capacity to make individual and community decisions that can have a tremendous impact on many other components of the environment. How can we predict the effects of our actions? How can we mitigate our impacts? We must understand the components of the environment and the interactions between them to answer these questions. Foundations of Environmental Science introduces students to environmental science, explores Earth systems, the environmental problems and the ethics that impinge on our individual and community decisions about the environment. Specifically, the course will cover the how scientists conduct scientific investigations, information literacy, environmental ecology, human population growth, biogeochemical cycles, forests and forest management, conservation biology, agriculture and the environment, and ocean and freshwater systems.

There are no pre-requisites for this course.

Course Learning Objectives

We will work on developing critical thinking and problem-solving skills by working through case studies, discussing videos, and exploring the topics introduced in the textbook.

By the end of this course, you should be able to do the following:

1. Define Environmental Science
2. Describe different ways to approach scientific investigations
3. Identify logical fallacies while working through an environmental problem
4. Describe and apply basic concepts of community and population ecology to the analysis of human population growth and the loss of global biodiversity
5. Describe the principles of the theory of evolution by natural selection
6. Compare and contrast the time frames between the theory of evolution by natural selection and the current rate of the loss of global biodiversity
7. Illustrate the reservoir and fluxes of the global carbon, nitrogen and phosphorus cycles
8. Describe the characteristics of terrestrial biomes
9. Describe the ecosystem goods and services provided to humans
10. Discuss humans impacts on forests and sustainable management options
11. Explain the development of modern agriculture, identify the resulting environmental problems, and describe options for sustainable farming methods
12. Describe the causes and consequences of ocean acidification
13. Describe ecosystem services provided by coral reefs
14. Discuss challenges associated with sustainable fisheries management and aquaculture
15. Describe key issues around freshwater resources and pollution
16. Identify examples of adaptive management and the precautionary principle
17. Reflect on personal morals and ethics and how these are influencing your everyday actions that may impact the natural environment

Course Materials - Required

S. Karr et al. 2021 Environmental Science for a Changing World. 4th Edition Read and Practice.

You can purchase this book either at the bookstore in hard copy or as an e-book via our Brightspace page. All new hard copies purchased at the bookstore come with access to the e-book as well. The Read and Practice version also comes with online practice questions to help you study for the quizzes and exams.

This course is participating in Dalhousie University's Inclusive Access Initiative, which means that you will be able to access the textbook directly inside of Brightspace. All you need to do is simply click on any course material link. You can access your course material for free any time before the add-drop deadline. If you have any questions, please feel free to reach out to support@willolabs.com.

We will also be using Poll Everywhere in class. This is a free software for students. Please feel free to download this software on your mobile device before coming to class for ease of use during our first day of class.

Online Learning Platform

Brightspace – On-line Integrated Learning Platform

All course materials can be found on our Brightspace. The course syllabus, lecture slides, announcements, assignments, out-of-text readings, access to the textbook, weekly quizzes, and other pertinent information are accessible through our course Brightspace site.

TECHNOLOGY SUPPORT

If you require support for the course or university technologies (Brightspace, email, Microsoft products) you can contact Information Technology Services (ITS) at support@dal.ca

Course Assessment

Overview

Assessment	Date	% of final grade
Reading Quizzes (Best 12 out of 16)	See class schedule	10%
Tutorial Assignments	See class schedule	30%
Mid-term Exam	October 17 th	20%
Final Exam	Exam period	40%
Total		100%

Assignments

There are 8 assignments which will be introduced during tutorial sessions. You must attend your tutorial to be eligible to submit an assignment. Students are required to complete all eight assignments. Each assignment is worth 3.57% except the Species at Risk Infographic which is worth 5%. Tutorial assignments are due before the start of the next scheduled tutorial the following week except for the Species at Risk Infographic which is due during Week 12. Please see the schedule for more details.

Brightspace Reading Quizzes

There will be 16 quizzes based on the textbook readings spread throughout the term. The idea is that you are quizzed on the reading for the designated lecture before attending that lecture. Each quiz will be available on Brightspace on the days leading up to the designated lecture. Each quiz will close at midnight the day **before** the designated lecture day. Each quiz will consist of 5 multiple-choice questions based on the assigned reading for that day. You will have 15 minutes to complete the quiz once you start. The 5% for your final grade will come from the average of your 12 highest scores from the 16 quizzes. This means you have four freebies that will not count towards your final grade. Quizzes are noted in the class schedule as Q1-Q16. Remember you must complete the quiz before midnight the day **before** the designated lecture. There are no make-up quizzes.

Mid-term Exam

There will be a mid-term exam on **October 17th during class time** worth 20% of your grade. It will cover the course material from Week 1 – Week 6 inclusive.

Final Exam

There will be a final exam held during the final exam period (**Dec. 8-19th**). The exam dates will be announced by the Registrar's Office in early October. The exam will consist of questions based on material from the **whole term** and is worth 40% of your grade. You will have a total of **3 hours** to complete the exam.

Policy on late assignments, extensions, and make-up tests

Late assignments

Dalhousie students are asked to take responsibility for their own missed assignment deadlines (3 days or less) and should **not** seek doctor's notes for missed assignments. Students in ENVS 1100 who require an extension due to illness should contact the tutorial instructor **by email prior to an assignment deadline and submit a completed Student Declaration of Absence (SDA)** via the Assignment link on Brightspace. Only **TWO** separate Student Declaration of Absence forms may be submitted per term for this course. Once the SDA has been submitted, the student will have three extra days to complete the assignment. Assignments submitted late without prior notification **and** the submission of an SDA, or without an approved extension will receive a deduction of 10% per day the assignment is late.

Missed tutorials

You must attend each tutorial to be eligible to submit an assignment for that tutorial. If you are going to miss a tutorial due to illness, please contact your TA and Tutorial Coordinator ahead of time to receive instructions for a make-up assignment. If you do not notify the TA and instructor ahead of missing a tutorial, you will not be eligible for a make-up assignment.

Missed quizzes

SDAs cannot be used for Brightspace quizzes. Your final grade will come from the best 12 out of 16 quiz scores.

Exams

If you are ill for the mid-term, you should contact the instructor by email and submit an SDA form. A make-up midterm exam will be scheduled on the week following the originally scheduled exam.

Note that, except for documented sudden unforeseen circumstances, no make-up exam or rewrite will be offered for the final exam. It is your responsibility to write the exam when it is scheduled. Students who miss the final exam due to unforeseen circumstances must inform the instructor prior to the start of the exam and will be offered a make-up exam at a later date. The Student Declaration of Absence form does not apply to final exams.

Course Policies related to Academic Integrity

Students will often be asked to work together during the tutorial sessions, but unless specifically stated in the assignment instructions, the final work that is submitted must be completed individually.

You will find that your tutorial assignments will be based on work that YOU have completed during the tutorial sessions and answers to the questions may vary for every student depending on the outcome of their tutorial exercise. You will find that the use of AI generative tools will not be helpful to these assignments because of the individual and specific nature of each assignment. You should note that the material generated by these AI programs may be inaccurate, incomplete, or otherwise problematic. Further, you should be aware that use may also stifle your own independent thinking and creativity.

You may not submit any work generated by an AI program as your own. You may use AI-driven tools to assist your learning, but you may not use them to produce work to be submitted for evaluations. Due to the nature of this course, it would be impracticable and more difficult to assess students properly if AI tools were allowed. For this reason, and even if these tools will be valuable tools in your career, their use is restricted. Using AI-driven tools when producing submitted work constitutes an academic offence.

Any plagiarism or other form of cheating will be dealt with severely under relevant Dalhousie University policies.

Conversion of numerical grades to Final Letter Grades follows the Dalhousie Common Grade Scale

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

ENVS 1100 – Fall 2023
Syllabus Part B
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.

ENVS 1100 Lecture Schedule – Fall 2023

Week	Lecture	Date	Topic	Textbook or other Readings
1	1	5 Sep	Introduction to the class and earth systems	Syllabus and Module 1.1
	2	7 Sep	What is science?	Module 1.2 Q1 & Brightspace video
2	3	12 Sep	Ecosystems and nutrient cycles	Module 2.1 Q2
	4	14 Sep	Carbon cycle	Module 2.1 & Brightspace Reading
3	5	19 Sep	Population ecology	Module 2.2 Q3
	6	21 Sep	Community ecology	Module 2.3 Q4
4	7	26 Sep	Biodiversity and ecosystem services	Module 3.2 Q5
	8	28 Sep	Evolution and Extinction	Module 3.1 Q6
5	9	3 Oct	Cases study 1: Single species versus ecosystem-based conservation	Module 3.3 & Brightspace Reading Q7
	10	5 Oct	Human populations	Module 4.1 Q8
6	11	10 Oct	Invasive species	Brightspace readings
	12	12 Oct	Catch up and review	
7		17 Oct	***Mid-term exam*** – In class	
	13	19 Oct	Freshwater resources	Module 6.1 Q9
8	14	24 Oct	Freshwater pollution Case Study 2 - Mercury	Module 6.2 & Brightspace Reading Q10
	15	26 Oct	Forest resources	Module 7.2 Q11
9	16	31 Oct	Soils	Brightspace Reading
	17	2 Nov	Agriculture – Feeding the world	Module 8.1 Q12
10		7 Nov	Agriculture – Sustainable agriculture	Module 8.2 Q13
		9 Nov	Case study 3: The Mississippi watershed	Module 6.2
11	18	14 Nov	NO CLASSES – STUDY BREAK	
	19	16 Nov	NO CLASSES – STUDY BREAK	
12	20	21 Nov	Ocean ecosystems – coral reefs	Module 6.3 E-book only Q14
	21	23 Nov	Ocean acidification	Module 6.3 E-book only
13	22	28 Nov	Fisheries & Aquaculture	Module 8.4 E-book only Q15
	23	30 Nov	Environmental ethics and education	Module 1.1 Q16
14	24	5 Dec	No classes – Monday classes held Dec 5	
		TBA	Fall exam held during regular exam period Dec 8-19th	

Tutorial Schedule

Week	Dates	Tutorials	Topic
1	Sep 3-8	No Tutorial	No Tutorials this week
2	Sep 11-15	Tutorial 1	The process of science (No assignment)
3	Sep 18-22	Tutorial 2	Earth systems – Assignment 1 – 3.57%
4	Sep 25-29	Tutorial 3	Dal Biodiversity Day. You will attend your regular tutorial for 1 hour to get iNaturalist.ca set up on your cell phone or computer and you will sign up for at least a 1 hour slot to participate in Dal Biodiversity Day on Friday September 29 th - Assignment 2 – 3.57%
5	Oct 2-6	No Tutorial	Dal Biodiversity Day make-up week if we get rained out the week before
6	Oct 9-13	Tutorial 4	Graphing human population data – Assignment 3 – 3.57%
7	Oct 16-20	Tutorial 5	Species at risk infographics – Introduction
8	Oct 23-27	Tutorial 6	Environmental forensics – Assignment 4 – 3.57%
9	Oct 30-Nov 3	Tutorial 7	Soil porosity and permeability – Assignment 5 – 3.57%
10	Nov 6-10	Tutorial 8	Forests – Assignment 6 - 3.57%
11	Nov 13-17	No Tutorial	Fall study break
12	Nov 20-24	Tutorial 9	Species at risk infographic poster session - Assignment 7 – 5%
13	Nov 27-Dec 1	Tutorial 10	Marine fisheries – Assignment 8 – 3.57%
14	Dec 5 -7	No Tutorial	No Tutorials this week

Tutorial assignments are due before the start of your next scheduled tutorial session. Exceptions are the Species at Risk infographic which is due on Week 12.