

**Faculty of Science Course Syllabus  
Department of Biology**

**Environmental Ecology (BIOL 3060)  
Winter 2022**

**Instructor:** Rajesh Rajaselvam      Email: [Rajesh.Rajaselvam@Dal.Ca](mailto:Rajesh.Rajaselvam@Dal.Ca)      Office: LSC 3082

Office Hours: Monday/Wednesday 14:30 - 15:30 hrs, Thursdays by appointment

**Lectures:** Tuesday & Thursday 10:05 – 11:25 hrs (Studley/Chemistry 226)

**Tutorials:** 8 tutorial sessions (80 min/tutorial)

Tuesday 13:05 - 14:25 hrs (LSC 206, LSC 216 & LSC 220)

***\*\*Delivery of lectures & tutorials: In-person (if lockdown occurs; synchronous via Collaborate Ultra on Brightspace) and will NOT be recorded; therefore, it is very important to attend live lectures and tutorials.***

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### **Course Description**

This course highlights the ecological effects of pollution, disturbance, and other stressors, both anthropogenic and natural. Major subject areas are air pollutants, toxic metals, acidification, eutrophication, oil spills, pesticides, forestry, warfare, urban ecology, risks to biodiversity, and resource degradation. The overarching context of the course is ecological sustainability of the human economy.

### **Course Prerequisites**

BIOL 2060.03 or BIOA 3001.03 or instructor's permission.

### **Course Textbook**

Withgott J, Laposata M, Murck B. 2017. Environment: the science behind the stories. 3<sup>rd</sup> Canadian edition. Pearson education, Canada.

### **Learning Objectives**

- Explain the importance of natural resources and ecosystem services
- Identify major pressures on the global environment
- Identify and describe the forms of energy and major sources of renewable energy
- Understand water, carbon, nitrogen, and phosphorus cycle and explain how human activities affect these cycles
- Discuss the concept of sustainability and describe sustainable solutions
- Understand Earth's atmosphere and assess strategies for control of outdoor air pollution
- Outline current and expected future trends and impacts of climate change
- Demonstrate a basic knowledge of human population issues
- Understand environmental impacts of agriculture and forestry
- Outline the scale of deforestation and aspects of forest management
- Demonstrate basic environmental ethics

- Understand key toxins and pollution (toxic and greenhouse gases, metals, nutrients, petroleum, pesticides).
- Identify the challenges and discuss the current efforts in conserving biodiversity
- Demonstrate a deeper knowledge of a chosen topic through a formal group presentation
- Write lab reports based on data analysis and interpretation, and short assignments on tutorial topics

### Course Assessment

Assignment, Exam, or Presentation	Marks %	Date
Quiz 1	08	Feb 03
Mid-Term Exam	24	Feb 15
Oral Presentation (group presentation)	10	Mar 22, 24, 29 & 31
Quiz 2	08	Mar 10
Lab/Seminar Reports	20	TBA/See Brightspace
Final Exam	30	Scheduled by Registrar
<b>Total</b>	<b>100</b>	

### Oral Presentation

Students are expected to do a 12 minute power point presentation (Group) on one of the given current environmental issues. Topics are explained in the class.

### Grading Scale

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)		

### Course Policies

#### **General Policies:**

Class participation is considered vital.

Tutorial/Seminar sessions are compulsory. Complete attendance of all lectures is highly recommended, since it helps to improve your grade significantly.

Meeting deadlines is mandatory. No late submission without a valid reason is accepted for marking.

Brightspace (course web-tool) is used for regular updates and announcements. TAs are the first point of contact (unless for major issues) and copying the instructor on messages is highly recommended.

***During the Online Delivery Period:***

Online class participation is considered vital. Detailed PPT lectures are uploaded before the lectures. No lecture recordings are uploaded due to the nature of the course (global politics, personal research videos, copyright issues, etc.). Summary lecture clips and biweekly discussion sessions are offered (mainly considering students in the time zones with at-least eight-hour difference) on request.

Tutorial/Seminar sessions are compulsory. Complete attendance of all lectures is highly recommended since it helps to improve your grade significantly.

Meeting deadlines is mandatory (during the online delivery period a two-week deadline is given to all assignment submissions). No late submission without a valid reason is accepted for marking.

***Specific Policies:***

The policies will only be implemented when a student's absence is due to physical or mental health conditions; involvement in an accident; immediate family illness, injury, or death; or other extenuating circumstances as described in Dalhousie University's Academic Calendar Regulation: Missed or Late Academic Requirements due to Student Absence (SDA)<sup>(1)</sup>. The student must notify the instructor or teaching assistant *prior* to the academic requirement deadline and must submit a completed Student Declaration of Absence form<sup>(2)</sup>. No more than **two (2)** separate Student Declaration of Absence (SDA) forms may be used per course during a single term. SDA forms are valid **only** for tutorials, mandatory lectures/presentations & quizzes.

**Quizzes**

- If quiz #1 is missed for a valid and credible reason, those marks will be re-distributed to quiz #2
- If quiz #2 is missed for a valid and credible reason, those marks will be re-distributed to the final exam
- If both quizzes are missed, only one will be re-distributed

**Midterm Exam and Final Exam**

- One makeup exam can be scheduled for any student(s) provided the examination was missed for a valid and credible reason (document/s may be required), the instructor or teaching assistant was notified prior to the examination start time.
- The makeup exam will be a different exam than the one given during the regularly scheduled examination time
- If the missed exam is a final examination in the Fall term, the makeup exam will be scheduled for January of the following year.

**Tutorials**

- Missing a tutorial is only acceptable in those cases where the student has notified the teaching assistant prior to the start time of the tutorial with a valid and credible reason

Altogether, **no more than three (3)** tutorials, quizzes, and exams may be missed as there will not be enough material to adequately evaluate the student on.

<sup>(1)</sup>Academic Calendar Regulation: Missed or Late Academic Requirements due to Student Absence:  
[https://cdn.dal.ca/content/dam/dalhousie/pdf/dept/university\\_secretariat/Student%20Absence%20Regulation%20\(May%202018\).pdf](https://cdn.dal.ca/content/dam/dalhousie/pdf/dept/university_secretariat/Student%20Absence%20Regulation%20(May%202018).pdf)

<sup>(2)</sup>Student Declaration of Absence Form:

<https://cdn.dal.ca/content/dam/dalhousie/pdf/campuslife/Health%20and%20wellness/FINAL%20Student%20Declaration%20of%20Absence%20Form.pdf>

## Course Content

### Schedule (Tentative)

#### **A. Lectures**

##### Week 1

Jan 06 - Course Introduction

##### Week 2

Jan 11 - Introduction to Environment and Sustainability (Chap1)

Jan 13 - Energy, Ecosystems and Cycles of Nutrients (Chap 2 & 3)

##### Week 3

Jan 18 - Biomes and Eco-zones (Chap 5)

Jan 20 - Global/Canadian Populations/ **Discussion session by TAs** (Chap 6)

##### Week 4

Jan 25 - Soil Resources / **Pre-tutorial session, Mandatory** (Based on Chap 7)

Jan 27 - Air Pollution & Climate Change Part I (Chap 13 & 14)

##### Week 5

Feb 01 - Air Pollution & Climate Change Part II (Chap 13 & 14)

**Feb 03- Quiz 1 ...8 Marks**

##### Week 6

Feb 08 - The Antarctica Challenge: A Global Warning/ **Pre-tutorial session, Mandatory**

Feb 10 - Focus on Current Environmental Issues & Midterm Review

##### Week 7

**Feb 15 - Midterm Exam (10:05 – 11:25 hrs @ Studley Chemistry 226)...24 Marks**

Feb 17 - Forestry and Conservation (Chap 10)

##### Week 8

Feb 21 - 25 Winter Study break

##### Week 9

Mar 01 - Agriculture and Environment (Chap 8)

Mar 03 - Managing our Waste/ **Discussion session** (Based on Chap 18)

##### Week 10

Mar 08 - Trees and Environment, **Introduction to Students' Oral Presentations**

**Mar 10 - Quiz 02 ..... 8 Marks**

##### Week 11

Mar 15 - Strategies for Sustainability (Chap 22)

Mar 17 - Open Topic

##### Week 12 & 13

**Mar 22, 24, 29 & 31 - Students' Presentations ..... 10 Marks**

##### Week 14

Apr 05 - Solutions for Biodiversity Crisis (Based on Chap 9) & Final revision

**Final Exam (Scheduled by the registrar's office) ...30 marks**

**B. Seminar/Tutorial sessions**

*Attendance Mandatory, (4 x 5) = 20 marks*

Jan 18: Tutorial 1: Serengeti National Park/ Movie (**Report required**)

Jan 25: Tutorial 2A: Soil & Environment Part 1

Feb 01: Tutorial 2B: Soil & Environment Part 2 (**One Report required for Part I and II**)

Feb 08: Tutorial 3: Anthropocene: Antarctica (**Report required**)

Mar 01: Tutorial 4: Pesticides (**Report required**)

Mar 08: Tutorial 5A: Topic/Discussion on oral presentation (group activity)

Mar 15: Tutorial 5B: Oral presentation/PPT preparation (**Mar 21: Final submission/PPT**)

Mar 22, 24, 29 & 31: Students' oral presentations

## University Policies and Statements

**This course is governed by the academic rules and regulations set forth in the University Calendar and by Senate**

**Academic Integrity**

At Dalhousie University, we are guided in all of our work by the values of academic integrity: honesty, trust, fairness, responsibility and respect (The Center for Academic Integrity, Duke University, 1999). As a student, you are required to demonstrate these values in all of 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.

**Information:** [https://www.dal.ca/dept/university\\_secretariat/academic-integrity.html](https://www.dal.ca/dept/university_secretariat/academic-integrity.html)

**Accessibility**

The Advising and Access Services Centre is Dalhousie's centre of expertise for student accessibility and accommodation. The advising team works with students who request accommodation as a result of a disability, religious obligation, or any barrier related to any other characteristic protected under Human Rights legislation (Canada and Nova Scotia).

**Information:** [https://www.dal.ca/campus\\_life/academic-support/accessibility.html](https://www.dal.ca/campus_life/academic-support/accessibility.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.

**Code:** [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)

**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

**Statement:** <http://www.dal.ca/cultureofrespect.html>

**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 (1321 Edward St) ([elders@dal.ca](mailto:elders@dal.ca)).

**Information:** [https://www.dal.ca/campus\\_life/communities/indigenous.html](https://www.dal.ca/campus_life/communities/indigenous.html)

**Important Dates** in the Academic Year (including add/drop dates)

[https://www.dal.ca/academics/important\\_dates.html](https://www.dal.ca/academics/important_dates.html)

#### **University Grading Practices**

[https://www.dal.ca/dept/university\\_secretariat/policies/academic/grading-practices-policy.html](https://www.dal.ca/dept/university_secretariat/policies/academic/grading-practices-policy.html)

## **Student Resources and Support**

### **Advising**

**General Advising** [https://www.dal.ca/campus\\_life/academic-support/advising.html](https://www.dal.ca/campus_life/academic-support/advising.html)

**Science Program Advisors:** <https://www.dal.ca/faculty/science/current-students/academic-advising.html>

**Indigenous Student Centre:** [https://www.dal.ca/campus\\_life/communities/indigenous.html](https://www.dal.ca/campus_life/communities/indigenous.html)

**Black Students Advising Centre:** [https://www.dal.ca/campus\\_life/communities/black-student-advising.html](https://www.dal.ca/campus_life/communities/black-student-advising.html)

**International Centre:** [https://www.dal.ca/campus\\_life/international-centre/current-students.html](https://www.dal.ca/campus_life/international-centre/current-students.html)

### **Academic supports**

**Library:** <https://libraries.dal.ca/>

**Writing Centre:** [https://www.dal.ca/campus\\_life/academic-support/writing-and-study-skills.html](https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html)

**Studying for Success:** [https://www.dal.ca/campus\\_life/academic-support/study-skills-and-tutoring.html](https://www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html)

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

**Fair Dealing Guidelines** <https://libraries.dal.ca/services/copyright-office/fair-dealing.html>

### **Other supports and services**

**Student Health & Wellness Centre:** [https://www.dal.ca/campus\\_life/health-and-wellness/services-support/student-health-and-wellness.html](https://www.dal.ca/campus_life/health-and-wellness/services-support/student-health-and-wellness.html)

**Student Advocacy:** <https://dsu.ca/dsas>

**Ombudsperson:** [https://www.dal.ca/campus\\_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html](https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html)

### **Safety**

**Biosafety:** <https://www.dal.ca/dept/safety/programs-services/biosafety.html>

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

**Radiation Safety:** <https://www.dal.ca/dept/safety/programs-services/radiation-safety.html>

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

**Dalhousie COVID-19 information and updates:** <https://www.dal.ca/covid-19-information-and-updates.html>

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