

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

**Environmental Ecology (BIOL 3060)
Fall 2019**

Instructor: Rajesh Rajaselvam Email: Rajesh.Rajaselvam@Dal.Ca Office: LSC 3082
Office Hours: Tuesday/Friday 14:30 – 15:30 pm, Thursday by appointments

Lectures: Tuesday & Thursday 11:35 – 12:55 hrs (LSC/C238)

Tutorials: 6 tutorials (150 min/tutorial)
Monday 15:35 – 17:25 pm (LSC 238, P4258, McCain 2132 & McCain 2118)

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. 3rd 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
- Carry out lab and field activities on plant, soil and environment
- 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	Oct 03
Mid-Term Exam	24	Oct 15
Oral Presentation (group presentation)	10	Nov 19, 21 & 25
Quiz 2	08	Nov 07
Lab/Seminar Reports	20	TBA/See Brightspace
Final Exam	30	Scheduled by Registrar
Total	100	

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

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) will be 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.

Course Content

Schedule (Tentative)

A. Lectures

Week 1

Sep 03 - Course Introduction

Sep 05 - Introduction to Environment and Sustainability (Chap1)

Week 2

Sep 10 - Energy, Ecosystems and Cycles of Nutrients (Chap 2 & 3)

Sep 12 - Biomes and Eco-zones (Chap 5)

Week 3

Sep 17 - Global/Canadian Populations/ **Discussion session by TAs** (Chap 6)

Sep 19 - Soil Resources / **Pre-tutorial session, Mandatory** (Based on Chap 7)

Week 4

Sep 24 - Energy Resources & Energy Alternatives/ **Panel Discussion** (Based on Chap 15 & 16)

Sep 26 - The Antarctica Challenge: A Global Warning/ **Pre-tutorial session, Mandatory**

Week 5

Oct 01 - Air Pollution/Climate Change (Chap 13 & 14)

Oct 03- Quiz 1 ...8 Marks

Week 6

Oct 08 - Focus on Current Environmental Issues

Oct 10 - Midterm Review & Individual Question Period

Week 7

Oct 15 - Midterm Exam (11:35 – 12:55 hrs @ C238)...24 Marks

Oct 17 - Forestry and Conservation (Chap 10)

Week 8

Oct 22 - Toxic Elements & Environmental Health/ **Panel Discussion** (Based on Chap 19)

Oct 24 - Trees and Environment, **Introduction to Students' Oral Presentations**

Week 9

Oct 29 - Managing our Waste/ **Panel Discussion** (Based on Chap 18)

Oct 31 - Agriculture and Environment (Chap 8)

Week 10

Nov 05 - Water Resource/ Guest Lecture

Nov 07 - Quiz 02 8 Marks

Week 11

Nov 11 - 15 - Fall Study Break

Week 12

Nov 19, 21 & 25 - Students' Presentation 10 Marks

Week 13

Nov 26 - Strategies for Sustainability (Chap 22)

Nov 28 - Solutions for Biodiversity Crisis (Based on Chap 9) & End-Term revision

Week 14

No classes

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

B. Seminar/Tutorial sessions

Attendance Mandatory, (5 x 4) = 20 marks

Sep 16: Tutorial 1: Serengeti National Park/ Movie (**Report required**)

Sep 23: Tutorial 2A: Soil: Field study and data collection Part 1 (**Report required**)

Sep 30: Tutorial 2B: Soil: Field study and data collection Part 2 (**Report required**)

Oct 07: Tutorial 3: Anthropocene: Impact on Environment (**Report required**)

Oct 21: Tutorial 4: Paper critique (**Report required**)

Oct 28: Tutorial 5A: Topic/Discussion on oral presentation (group activity)

Nov 04: Tutorial 5B: Oral presentation/PPT preparation (**Nov 18: Final submission/PPT**)

Nov 19, 21 & 25: Students' oral presentations

(Sep 23rd & Sep 30th: Soil analysis in Lab 2102)

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

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

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

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).

Information: 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

University Grading Practices

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

Missed or Late Academic Requirements due to Student Absence (policy)

https://www.dal.ca/dept/university_secretariat/policies/academic/missed-or-late-academic-requirements-due-to-student-absence.html

Student Resources and Support

Advising

General Advising 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

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

International Centre: 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

Studying for Success: 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

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

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>