
ENVS*2270 - Impacts of Climate Change

Winter 2026 Course Outline

Section: 01

Credits: 0.50

Land Acknowledgement: Guelph

The University of Guelph resides on the ancestral lands of the Attawandaron people and the treaty lands and territory of the Mississaugas of the Credit. We recognize the significance of the Dish with One Spoon Covenant to this land and offer respect to our Anishinaabe, Haudenosaunee and Métis neighbours. Today, this gathering place is home to many First Nations, Inuit, and Métis peoples and acknowledging them reminds us of our important connection to this land where we work and learn.

Calendar Description

This course will provide students with an overview of recent research into what climate change means for Canada and Canadians. Students will learn about evidence for significant changes to the Boreal forests and about the potential impacts of climate change on human health through increasing heat waves and the heat stress on individuals. The course is intended to bridge the gap between abstract discussion of the climate and understand what these changes mean at both personal and societal levels.

Prerequisite(s): Minimum of 4.00 credits

Restriction(s): Not available to students registered in the BAS, BBRM, BIESP, BSC, BSC(Agr) or BSC(Env) programs.

Department(s): School of Environmental Sciences

Lecture Schedule

TuTh 11:30am-12:50pm in RICH*2529 (1/5 to 4/21)

Instructor Information

Kimberley Bolton

Email: kbolton@uoguelph.ca

Learning Resources

Required Resources

There is no required textbook for this course.

CourseLink (Website)

The instructor uses CourseLink (<https://courselink.uoguelph.ca/>) for posting lecture slides, announcements, class readings, discussions, and other required or recommended materials relevant to the course. Please check CourseLink (<https://courselink.uoguelph.ca/>) frequently.

Zoom (Software)

Zoom will be available for online meetings with students. Please email me to set up a time to meet.

You can access Zoom from within the CourseLink page under Content. Please check your system requirements (<https://opened.uoguelph.ca/student-resources/system-and-software-requirements>) here (<https://opened.uoguelph.ca/student-resources/system-and-software-requirements>).

Campus Resources

If you are concerned about any aspect of your academic program: Make an appointment with a Program Counsellor (<https://www.uoguelph.ca/uaic/programcounsellors>) in your degree program. If you are struggling to succeed academically: There are numerous academic resources offered by

the Learning Commons (<https://www.lib.uoguelph.ca/using-library/spaces/learning-commons>) including, Supported Learning Groups for a variety of courses, workshops related to time management, taking multiple choice exams, and general study skills.

Cost of Textbooks and Learning Resources

Textbook / Learning Resource	Required / Recommended	Cost
		No costs

Students are advised that prices are often determined by the publisher or bookstore and may be subject to change.

Library Course Reserve (Ares)

For this course, you will be required to access course reserve materials through the University of Guelph McLaughlin Library. To access these items, select **Ares** on the navbar in CourseLink. Note that you will need your Central Login ID and password in order to access items on reserve. For further instructions on accessing reserve resources, visit How to Get Course Reserve Materials (<https://lib.uoguelph.ca/find/course-reserves-ares/how-get-course-reserve-material>).

If you have difficulty accessing reserve materials, please contact the e-Learning Operations and Reserve Services staff at:
Tel: 519-824-4120 ext. 53621 | Email: libres2@uoguelph.ca | Location: McLaughlin Library, First Floor, University of Guelph

Course Learning Outcomes

1. Explain how interactions among atmosphere, ocean, land, and life lead to climate changes.
2. Describe the direct observations of climate change in recent decades, and articulate the evidence attributing global warming in this time period to human causes.
3. Assess the utility, and limits, of climate models to predict global and regional climate change.
4. Analyze the evidence regarding impacts of climate change globally and in Canada.
5. Engage critically and in a scholarly manner, in public arguments about climate change issues.
6. Evaluate the opportunities for climate change adaptation globally and in Canada
7. Describe proposed climate change mitigation strategies.

Lecture Content

Weather and Climate

- Atmospheric circulation and ocean currents
- Earth's energy budget
- Radiative forcing
- The Carbon cycle

Let's talk about Science

- Scientists and the peer review process
- IPCC
- The importance of isotopes
- Understanding graphs

Evidence of Climate Change

- Greenhouse Gases and the human fingerprint
- Global temperature
- Paleoclimate and climate proxies
- Orbital cycles

Climate Projections

- The climate models and representative concentration pathways
- The predictions

Impacts of Climate Change on Oceans

- Ocean warming and acidification
- Sea-level rise

Impacts of Climate Change

- How do we study impacts?
- Impacts on natural ecosystems
- Impacts on humans
- What's in store for Canada?

Adaptation and Mitigation

- Climate Change adaptation
- Mitigation strategies

Assessment Breakdown

Description	Weighting (%)	Due Date
Online Group Discussions	20%	Throughout Semester
Midterm Examination	20%	Thursday February 12, in lecture
Climate Change Projections Assignment	25%	Sunday March 15, 11:59 PM
Final Exam	35%	Monday April 20, 2:30 PM - 4:30 PM

Assessment Details

Discussion

Online Group Discussion

20%

There are six discussion topics. Instructions and due dates are available on CourseLink.

Online Group Discussions are an important vehicle for you to practice your critical thinking and for you to progress toward the course learning objectives. The discussions will be related to assigned readings and/or videos. A list of resources will be provided to you on CourseLink.

Course Learning Outcomes Assessed: 2, 3, 4, 5

Midterm

Midterm Examination

20%

The Midterm Examination will take place in person during lecture time. More information about the format of the Midterm Examination will be provided to you during lectures.

Course Learning Outcomes Assessed: 1, 2, 3, 4

Assignment

Climate Change Projections Assignment

25%

Details will be available on CourseLink.

The Climate Change Projections Assignment should be submitted electronically via Dropbox on CourseLink.

Course Learning Outcomes Assessed: 3, 4, 5

Exam

Final Examination

35%

The Final Exam will be an **in-person examination**.

Course Learning Outcomes Assessed: 1, 2, 3, 4, 5, 6, 7

Final Exam

Date: Apr 20

Time: Mon 2:30pm-4:30pm

Location: TBA *Please see Web Advisor closer to the date of scheduled final for location.*

To understand rules and regulations regarding Examinations students are encouraged to read Student's Responsibilities (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/examinations/>)

If the student is unable to meet the final exam requirements due to medical, psychological or compassionate circumstances they are encouraged to review Student's Responsibilities in the Academic Consideration, Appeals and Petitions (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-consideration-appeals-petitions/>) section of the Academic Calendar.

Last Day to Drop Course

The final day to drop Winter 2026 courses without academic penalty is the last day of classes: April 06

After this date, a mark will be recorded, whether course work is completed or not (a zero is assigned for missed tests/assignments). This mark will show on the student's transcript and will be calculated into their average.

Course Standard Statements

Grading

Policy on Late Assignments: All late assignments will receive a 5% deduction for each day that they are late. Extensions will be considered for medical reasons or other extenuating circumstances. If you require an extension, contact the instructor (Dr. Kim Bolton) with a valid reason **in advance** of the due date.

There will be NO extensions given for the Online Group Discussions.

Group Work

Course Policy on Group Work: You are not authorized to work together on any part of this course. Doing so would constitute academic misconduct.

Standard Statements for Undergraduate Courses

Academic Integrity

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-misconduct/>) is outlined in the Undergraduate Calendar.

Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability. Use of the SAS Exam Centre requires students to make a booking at least 10 days in advance, and no later than the first business day in November, March or July as appropriate for the semester. Similarly, new or changed accommodations for online quizzes, tests and

exams must be approved at least a week ahead of time. For students at the Guelph campus, information can be found on the SAS website. (<https://www.uoguelph.ca/sas>)

Accommodation of Religious Obligations

If you are unable to meet an in-course requirement due to religious obligations, please email the course instructor within two weeks of the start of the semester to make alternate arrangements.

See the Academic calendar for information on regulations and procedures for Academic Accommodations of Religious Obligations (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-accommodation-religious-obligations/>).

Copies of Out-of-class Assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

Drop Date

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. This applies to all undergraduate students except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and alternative delivery) students. The regulations and procedures for course registration are available in the Undergraduate Calendar - Dropping Courses (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/dropping-courses/>).

Email Communication

As per university regulations, all students are required to check their <uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students.

Health and Wellbeing

The University of Guelph provides a wide range of health and wellbeing services at the Vaccarino Centre for Student Wellness (<https://wellness.uoguelph.ca/>). If you are concerned about your mental health and not sure where to start, connect with a Student Wellness Navigator (<https://wellness.uoguelph.ca/navigators>) who can help develop a plan to manage and support your mental health or check out our mental wellbeing resources (<https://wellness.uoguelph.ca/shine-this-year>). The Student Wellness team are here to help and welcome the opportunity to connect with you.

Illness

Medical notes will not normally be required for singular instances of academic consideration, although students may be required to provide supporting documentation for multiple missed assessments or when involving a large part of a course (e.g., final exam or major assignment).

Recording of Materials

Presentations that are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a student, or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

Resources

The Academic Calendars (<http://www.uoguelph.ca/registrar/calendars/?index>) are the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs.

When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. See the Undergraduate Calendar for information on regulations and procedures for Academic Consideration. (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-consideration-appeals-petitions/>)