

GEOG 2133b – Climate Change Section 001 Winter 2019

1. Course Information

Classroom Location:

Tuesday, 1:30-3:30 pm, SSC 2028

Thursday, 2:30-3:30 pm, SSC 2028

Contact Information:

Instructor team:	Dr. Katrina Moser	David Zilkey (TA)	Kevin Ng (TA)
Primary method of contact:	<p>Piazza This term we will be using Piazza for class discussion. The system is highly catered to getting you help fast and efficiently from classmates, the TA, and myself. Rather than emailing questions to the teaching staff, I encourage you to post your questions on Piazza. If you have any problems or feedback for the developers, email team@piazza.com.</p> <p>Find our class page at: https://piazza.com/uwo.ca/winter2020/geog2133b/home</p>		
Office	SSC Rm. 2407	SSC Rm. 2308	SSC Rm. 2304
Office Hours	By appointment	TBD	TBD
Phone	519-661-2111 x 80015		
Email	kmoser@uwo.ca	dzilkey@uwo.ca	kng342@uwo.ca

2. Course Description



Course Description

Climate change is one of the most important environmental issues that we face today. This course examines the processes that underlie natural and human-induced climate change at global and regional scales and describes the resultant climates that have existed and those projected to occur in the future. We also examine the impacts of past and future climate change on the physical and human environment. We will discuss options that may be used to address climate change and their linkage to the physical basis of climates. The course is taught

from a physical scientist's perspective – with an emphasis on how systems work (processes), use of the scientific method, collection and interpretation of data and development and use of numerical models to represent physical processes.

Course weight: 0.5

Senate Regulations

Senate Regulations state, “unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you will be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.”

3. Textbook (required)

SimUtext Climate Change Section – Available for \$10 USD online. Students will be emailed instructions to access this online textbook. The textbook is interactive and will help students understand course content. Students will be required to read the textbook and complete questions in the textbook as part of their participation grade. Questions for quizzes and exams will be, in part, taken from the SimUtext.

4. Course Format and Objectives

General Format

Instruction occurs during two classes (a two and one hour time slot) and will be a mix of lectures, videos, in-class activities, quizzes and group work. It is imperative to be at all classes.

Lectures

Lecture notes for each week will be provided on Owl. Please be aware that the notes are meant as a **guide** for the lecture, and will also provide figures and charts important for the course. It is important to be in class to hear the lectures, understand the figures and graphs and actively participate in the class discussions. Having a laptop in class is encouraged, however, using it to do e-mail or other non-class related activities is strongly discouraged.

Classroom culture of participation

This course requires active participation from students, both for assessment, and to enhance the learning experience of the entire class. Active learning benefits students by supporting higher-level learning and improves retention of material (M.J. Prince, 2004). Participation will be graded, and there are formal and informal expectations of involvement. Lectures will be interspersed with brainstorming, activities, work periods and discussion.

Please come to class prepared to be involved and to be respectful to your classmates and the instructor team. Derogatory or offensive remarks and responses are not acceptable, nor are they effective forms of academic debate.

Course Objectives

After successfully completing Geography 2133B, students will be able to:

1. understand the principles of Earth's climate system;
2. describe causes for natural variability of climate and appreciate the data sources and techniques used to assess past climate variability;
3. know the human impact on climate and climate change and its consequences;
4. understand the interrelated nature of climate with the atmosphere, hydrosphere, biosphere, lithosphere and cryosphere;
5. assess scientific data on climate;
6. synthesize and communicate climate change information;
7. make informed decisions related to climate change;
8. be informed and prepared to promote change from local to global scales

5. Learning Outcomes

Learning Outcomes

- ✓ Develop knowledge and critical understanding of the fundamental characteristics, processes, temporal changes and landscapes of social and biophysical systems and their interactions.
- ✓ Demonstrate informed awareness of geographical diversity through knowledge of different places and understanding of the processes that shape them spatially and over time.
- ✓ Combine breadth of knowledge of Geography with specialized understanding in selected sub-fields.
- ✓ Relate specialized understanding of the geography of bio-physical systems to knowledge and practices in environmental and natural sciences
- ✓ Synthesize and evaluate geographical information from diverse sources, including geo-spatial data
- ✓ Analyze real-world problems and policy applications using geographical concepts, skills and understanding.
- ✓ Communicate geographic ideas and understanding effectively to a variety of audiences in writing, orally, and graphically

Geographical Skills

- ✓ Map, remote sensing images and geo-spatial data interpretation and analysis
- ✓ Spatial thinking, spatial analysis & spatial processes of human and/or environmental processes (e.g. cultural, social, political, economic, scientific)

Generic Skills

- ✓ Literature and secondary data sources: information search and retrieval, meta-analysis of published data, synthesis of information sources and literature, annotated bibliographies.
- ✓ Critical and reflective reading, listening, thinking.

- ✓ Writing – education and practice in writing essays, reports, notebooks.
- ✓ Oral communication/presentation: -structured class discussions (seminars, small-group interaction, debates), individual and group presentations.

6. Evaluation

Evaluation

The material covered in lectures including assigned readings and assignments will be evaluated in short in-class quizzes, a midterm and a final exam. A mixed exam format (e.g. multiple choice, fill-in-the-blanks, short answer, diagram questions) will be used. Marking schemes will be used to assess answers to assignments and exams. Partial marks are awarded for incomplete answers.

Summary

Evaluation Components	Percentage of Course Grade	Assignment Schedule
Assignment 1	10	Jan. 30
Assignment 2	10	March 31
Climate Change Challenge	10	March 19
Quiz 1	5	Feb. 11
Quiz 2	5	March 24
Mid Term	20	Feb. 25
Participation (iClickers 5% and SimUText 5%)	10	Due as indicated on schedule
Final Exam	30	TBD

1. Marks as posted by the course instructor are considered provisional until approved by the Department Chair. Final marks are received from the Registrar; errors may be corrected through use of a Marks Revision Form.
2. Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.
3. No electronic devices will be allowed during test and examinations

Assignment Summaries

Further details will be provided as each assignment is introduced in class.

Assignments (20%)

Students will be required to complete two writing assignments. Time will be given in class for the completion of the assignment but the assignment will require work outside of class time as well.

Climate Change Challenge (10%)

Students will determine their own carbon footprint and then take actions to reduce it. The assignment will involve documenting the student's climate change challenge journey using Voice Thread.

Participation (10%)

Participation will be determined based on iClicker responses (5%) and SimUtext questions (5%). In each class iClickers will be used to answer questions and an exit ticket. At least 80% of the iClicker questions will need to be answered in order to get 5/5. SimUtext questions must be answered by the due date and a grade is assigned based on the score the student receives for the answered questions.

Grade Breakdown and Explanation

90-100	Excellent. You have surpassed my expectations (very rare)
80-89	Very good. You have fulfilled my expectations
70-79	Good. Expectations are mostly fulfilled with weak areas.
60-69	Satisfactory. There are problems such as confusing writing or expectations are not fulfilled.
50-59	Less than satisfactory. There are major problems.
< 50	Unsatisfactory. Task not fulfilled.

Students are responsible for material covered in the lectures as well as the assigned chapters/sections in the text. Students are expected to attend class.

Policy on Late Assignments:

For Western University Policy on Accommodation for Medical Illness and a downloadable SMC see [Policy on Accommodation for Illness](#).

Students seeking academic accommodation on medical grounds for any missed tests, exams, participation components and/or assignments worth 10% or more of their final grade must apply to the Academic Counselling office of their home Faculty and provide documentation. Academic accommodation cannot be granted by the instructor or department.

For non-documented medical absences or non-medical absences, late assignments will be given a penalty of five percent per day from the final grade for the assignment for a maximum of 5 days. After 5 days the assignment will not be assessed resulting in a grade of 0. Students looking for a change in a deadline are asked to submit a request to the course instructor as soon as possible.

For assignments worth less than 10%, the student must submit a request for accommodation to the instructor. Medical documentation will not be required.

Grades **will not be adjusted** on the basis of need. It is important to monitor your performance in the course. Remember: *You* are responsible for your grades in this course.

Requesting Academic Consideration

Students who experience an extenuating circumstance (illness, injury, or other extenuating circumstance) sufficiently significant to temporarily render them unable to meet academic requirements may submit a request for academic consideration through the following routes:

- (i) Submitting a Self-Reported Absence form provided that the conditions for submission are met;
- (ii) For medical absences, submitting a Student Medical Certificate (SMC) signed by a licensed medical or mental health practitioner in order to be eligible for Academic Consideration; or
- (iii) For non-medical absences, submitting appropriate documentation (e.g., obituary, police report, accident report, court order, etc.) to Academic Counselling in their Faculty of registration in order to be eligible for academic consideration. Students are encouraged to contact their Academic Counselling unit to clarify what documentation is appropriate.

Students seeking academic consideration:

- are advised to consider carefully the implications of postponing tests or midterm exams or delaying handing in work;
- are encouraged to make appropriate decisions based on their specific circumstances, recognizing that minor ailments (upset stomach) or upsets (argument with a friend) are not normally an appropriate basis for a self-reported absence;
- **must communicate with their instructors no later than 24 hours** after the end of the period covered by either the self-reported absence or SMC, or immediately upon their return following a documented absence.

Academic consideration is not normally intended for the following circumstances:

- **Students who require academic accommodation based on an ongoing physical or mental illness (recurring or chronic) or an existing disability.** Students with an ongoing physical illness or mental disorder (recurring or chronic) or an existing disability are responsible, in consultation with their doctors or other health professionals, to determine if they are capable of pursuing their studies and, if so, with what accommodations. Students are expected to seek and arrange reasonable accommodations with Student Accessibility Services (SAS) as soon as possible in accordance with the Policy on Academic Accommodation for Students with Disability. Students with pre-existing accessibility plans arranged through SAS may not need to provide additional documentation when seeking academic consideration where such request for consideration relates to their disability and where their accessibility plans allow for coursework deferral or deadline extensions.

- **Students who experience high levels of stress related to academic performance** (including completing assignments, taking part in presentations, or writing tests or examinations). Students with academic or exam stress should access supports through [Student Health and Wellness](#) and [Learning Skills Services](#) in order to deal with this stress in a proactive and constructive manner.

7. Make-up Examinations

Makeups will be granted with approved documentation only. All documentation for missed exams must be provided the Academic Counselling Office and Instructor within 48 hours of the scheduled exam. For missed exams, you must take your documentation to Academic Counselling within 48 hours of the exam. Otherwise, the instructor will assign a grade of zero. The format and content of make-ups may differ substantially from the scheduled test or examination.

8. Use of Electronic Devices

No electronic devices will be allowed during tests and examinations.

9. Academic Offences

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a [Scholastic Offence](#).

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

10. Western's Commitment to Accessibility

The Department of Geography strives at all times to provide accessibility to all faculty, staff, students and visitors in a way that respects the dignity and independence of people with disabilities.

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 519-661-2147 for any specific question regarding an accommodation. [Information regarding accommodation of exams](#) is available on the Registrar's website.

More information about "[Accessibility at Western](#)" is available.

11. Medical Issues

The University recognizes that a student's ability to meet his/her academic responsibilities may, on occasion, be impaired by medical illness. The Student Services website provides greater detail about the University's policy on [medical accommodation](#). This site provides links the

necessary forms. In the event of illness, you should contact Academic Counselling as soon as possible. The Academic Counsellors will determine, in consultation with the student, whether or not accommodation should be requested. They will subsequently contact the instructors in the relevant courses about the accommodation. Once the instructor has made a decision about whether to grant an accommodation, the student should contact his/her instructors to determine a new due date for tests, assignments, and exams.

Students must see the [Academic Counsellor](#) and submit all required documentation in order to be approved for certain accommodation.

12. Mental Health

If you or someone you know is experiencing distress, there are several resources here at Western to assist you. Please visit Western's [Health and Wellness website](#) for more information on mental health resources.

13. Support Services

[Student Support Services](#)

[Student Development Services](#)

14. Course Schedule

SCHEDULE: Assignment and quiz dates are fixed, but the lecture schedule may change periodically – double check OWL for updates.

Lecture	Date	Lecture Topic	Assignment/ Quizzes
1	Jan 7 (Tu)	Introduction – Class Introductions The Syllabus Course Introduction Introduction to iClickers, Piazza, SimUText	
2	Jan 9 (Th)	Climate Change – What do you know?	Climate Change Jeopardy
3	Jan 14 (Tu)	Overview: Climate and Climate Change, Global Environmental Systems, Climate data: An Introduction to Climate Change	Video: Thin Ice
4	Jan 16 (Th)	Why does climate change matter? Controls on Temperature and Spatial Variation	SimUText Exercise 1
5	Jan 21 (Tu)	Detecting Climate Change: Earth's Temperature Assignment 1: Determining Fact vs Fiction	Assignment 1 Handout

6	Jan 23 (Th)	Detecting Climate Change: Atmospheric and Oceanic Circulation	SimUText Exercise 1 DUE
7	Jan 28 (Tu)	Earth's Climate: The Carbon Cycle and Greenhouse Effect	SimUText Exercise 2
8	Jan 30 (Th)	Earth's Climate: Radiative Forcing and Feedbacks	Assignment 1 Due
9	Feb 4 (Tu)	Greenhouse Gases	SimUText Exercise 2 DUE SimUText Exercise 3
10	Feb 6 (Th)	Carbon Emissions and Projections	Research at Western
11	Feb 11 (Tu)	Quiz 1 Emissions, Carbon Concentration and Temperature	Quiz 1
12	Feb 13 (Th)	My Carbon Footprint and the Climate Change Challenge	CCC Handout

Lecture	Date	Lecture Topic	Assignment / Quizzes
	Feb 17-21	Reading Week	
13	Feb 25 (Tu)	Mid Term Exam	Mid Term Exam
14	Feb. 27 (Th)	Calculating your Carbon Footprint	In Class Assignment
15	Mar 3 (Tu)	Climate Archives (Dating, Tree Rings and Ice Cores) In Class Exercise	Start of the CCC
16	Mar 5 (Th)	Climate Archives (Lake Sediments)	Western Research
17	Mar 10 (Tu)	Tipping Points and Climate Surprises Humans and Climate Change: From the Past	SimUText Exercise 4
18	Mar 12 (Th)	Humans and Climate Change: From the Past	
19	Mar 17 (Tu)	Impacts of Altered Climates: The Past and Future In-Class Activity: Sea Level Rise	SimUText Exercise 4 DUE SimUText Exercise 5

20	Mar 19 (Th)	The Climate Change Challenge (SHARING DAY)	The Climate Change Challenge Due
21	Mar 24 (Tu)	Addressing Climate Change Quiz 2	Quiz 2 Assignment 2
22	Mar 26 (Th)	Addressing Climate Change: Carbon Taxes	SimUText Exercise 5 DUE
23	Mar 31 (Tu)	Addressing Climate Change: Geoengineering	Assignment 2 DUE
24	Apr 2 (Th)	Moving Forward and Class Wrap Up	