

PHYSICAL CLIMATOLOGY WINTER 2023

GEOG 309

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CLASS SCHEDULE

Section	Location	Time	Instructor(s)
GEOG 309 001 [LEC]	STC 0010	Tuesdays & Thursdays 4 p.m. - 5:20 p.m.	Yuri Leonenko leonenko@uwaterloo.ca
This table is generated automatically			

INSTRUCTOR / TA INFORMATION

My office hours: Tuesdays 13:00 to 15:00, Room 2048, EIT Building

Email: leonenko@uwaterloo.ca

All questions related to the course content (including assignments questions and marks) should be addressed in person: office hours; during or after the lecture. Email CANNOT be used for the course content questions.

Course TAs:

Horna Kuonqui, Natalia (nhornaku@uwaterloo.ca)

Williamson, Jessica (ja5willi@uwaterloo.ca)

Office Hours and email communications: TBA (each TA will be responsible for particular assignment)

COURSE DESCRIPTION

Calendar Description for GEOG 309

Principles of physical climatology with emphasis on regional and global change and variability. Topics include radiation and energy balances, general circulation patterns, synoptic development and micro-climatology.

Prereq: GEOG 102 or EARTH 121 or Science and Aviation plans

Since the public health situation remains somewhat unpredictable, a short-term (one-week) or longer-term cancellations of in-person classes are possible. In such cases all in-person components will be switched to remote mode (details to be posted on Learn).

LEARNING OUTCOMES

By the end of this course students should be able to understand and discuss the following:

Climate change and climate variability
Fundamentals of global warming
The concepts of feedbacks
Physical fundamentals of different scale atmospheric processes
Climate change and human dimensions
How to explain the issues of climate change and variability ideas to others with confidence and persuasion

TENTATIVE COURSE SCHEDULE

(I will try to keep deadlines in the below table but have the right to change them. Any changes will be announced on Learn)

Week#	Date	Topics	Ed 5 pages	Ed 7 pages	Weather, Due	G-Wiki Due	Blog, Due	Quiz, (16:00-16:10)
1	Jan 10	Intro						
	Jan 12	Climate Change and Variability		446-449				
2	Jan 17	Human Dimension	519-527	500-512				Unmarked Q1 Jan 17
	Jan 19	Radiant Energy Flow (Part 1)	32-44, 59-69, 72-75	32-42, 54-71, Ch. 2,3				

3	Jan 24	Radiant Energy Flow (Part 2)						Marked Q2 Jan 24
	Jan 26	Other types of Energy Flow (Part 3)	35-36, 69-72, 77-97	35-36 64-67 71-89			Blog 1 23:59, Jan 25	
4	Jan 31	Feedback		Ch. 2.3 497-499				Marked Q3 Jan 31
	Feb 2	Video 1					G-W 1 23:59, Jan 27	
5	Feb 7	Mid Term 1						Unmarked Q4 Feb 9
	Feb 9	Circulation Processes (Part 1)	101-129	90-119 216- 245, Ch. 4,8			Blog 2 23:59 Feb. 10	
6	Feb 14							
	Feb 16	Video 2						
		Reading week						
7	Feb 28	Circulation Processes (Part 2)						Marked Q5 Feb 28
	Mar 2					G-W 2 23:59 Mar 1	Blog 3 23:59, Mar 3	

8	Mar 7 Mar 9	Circulation Processes (Part 3)						Unmarked Q6, Mar 7
9	Mar 14 Mar 16	Weather Systems and Synoptic Development (Part 1)	273-295 299-325	262-285 287-313 Ch. 9,10			Blog 4 23:59, Mar 17	Marked Q7 Mar 14
10	Mar 21 Mar 23	Weather Systems and Synoptic Development (Part 2) Mid Term 2						Unmarked Q8 Mar 21
11	Mar 28 Mar 30	Ocean Circulations	497-533	474-513 Ch.16		G-W 3 23:59 Mar 29	Blog 5 23:59, Mar 31	
12	Apr 4 Apr 6	 Video 3			Weather Assignment 23:59 Apr 5			Marked Q9 Apr 4

TEXTS / MATERIALS

Title / Name	Notes / Comments	Required
Aguado, E., Burt J. E., Understanding Weather and Climate (7th edition, Pearson), Option 1: (Digital, E-text rental) \$50.00; Option 2: (Paperback), \$189.99	Any earlier edition is good but the page numbers in the outline will not be correct for other editions than the fifth and seventh.	Yes

Ordering options:

UW WStore (<https://wstore.uwaterloo.ca/course-materials.html> (<https://wstore.uwaterloo.ca/course-materials.html>)); or

Pearson (<https://www.pearson.com/en-ca/subject-catalog/p/understanding-weather-and-climate/P200000006901/9780137521234>)

STUDENT ASSESSMENT

Component	Value
Short Quizzes, Two Mid-terms, Blogs, Photography assignments, Group Assignment	See below table

Course Learning Outcomes/goals	Teaching and Learning Methods	Assessment Methods	% grade
Understand physical processes of climate and weather	Lectures and Text readings	Short Quizzes	30
		Two Mid-terms (closed books)	30
Assess public debate on Climate Change and Variability	Newsfeeds	Group discussion on Learn (Blogs)	15
Assess role of weather on personal daily activity	“GEO-WIKI”	Photography assignments	15

Analysis of Weather events during the course	Analysis of Sequence of Weather Maps (Working as groups of 6-8 and explain the sequence and processes of weather in Southern Ontario)	Weather Map Group Assignment.	10
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There will be *marked* quizzes and *unmarked* quizzes and all quizzes will be administered using Learn at specified time (see Tentative Course Schedule). Unmarked quizzes still will be marked but not counted towards a final grade.

The *marked quizzes* will be a series of five tests graded out of a total of 25 marks. These will be multiple-choice of ten questions, each worth 1/2 mark. Each quiz with more than 5 of the 10 questions answered will get 1 participation mark in addition to the grade out of 5.

The unmarked quizzes will help you gauge your learning and preparation throughout the course. They will have the same format as the marked quizzes.

The detailed instructions regarding **“Geo-Wiki”** photo submissions, **Blog Assignments Weather Map Assignment, and Mid Term exams** will be posted on the Learn site at least two weeks before the due date.

MISSING ASSISMENT ITEMS:

Missing Quiz or Mid Term Exam: If you miss midterm exam or Quiz due to a valid medical reason, personal or family emergency, etc., contact me immediately, and promptly obtain a Verification of Illness, medical or counselor’s note, etc. explaining the reason for your absence, degree of incapacitation, dates covered by the note, etc. **The document must also be properly submitted:**

Self-declared absences (for flu-like illness, short-term 48 hour self declared absences) must be submitted through Quest.

Absences requiring documentation (e.g. Verification of Illness Form, bereavement, etc.) - send your documentation to env-vif@uwaterloo. Do not send documentation to your advisor, course instructor, teaching assistant, or lab coordinator. Submission to env-vif@uwaterloo.ca will notify all of your instructors of your absence. Instructors maintain agency over decisions regarding course component accommodations.

The **Geo-Wiki assignments, Blog Assignment** and the **Weather Map Assignment** are not expected to be missed since for each item at least two weeks will be provided for completion.

A missed item mark could be shifted to another similar remaining item(s) or to the “final exam” held at the final examination make-up session to be scheduled and announced in early March by Registrar’s Office. This “final exam” is only for the students with missed item and with alternative accommodation granted.

Also note, only ONE missed mid-term exam, even with a valid medical or counselor’s note, will be accommodated with such an alternative arrangement. The second exam missed will result in a zero mark.

ASSIGNMENT SCREENING

No assignment screening will be used in this course.

ADMINISTRATIVE POLICY

Intellectual Property: For further information on IP related to teaching, please see https://uwaterloo.ca/legal-and-immigration-services/sites/ca.legal-and-immigration-services/files/uploads/files/volume_1_issue_3_winter_2018.pdf (https://uwaterloo.ca/legal-and-immigration-services/sites/ca.legal-and-immigration-services/files/uploads/files/volume_1_issue_3_winter_2018.pdf) and the Guidelines for Faculty, Staff and Students Entering Relationships with External Organizations Offering Access to Course Materials, <https://uwaterloo.ca/secretariat/faculty-staff-and-students-entering-relationships-external> (<https://uwaterloo.ca/secretariat/faculty-staff-and-students-entering-relationships-external>) . The following text is recommended:

Students should be aware that this course contains the intellectual property of their instructor, TA, and/or the University of Waterloo. Intellectual property includes items such as:

- Lecture content, spoken and written (and any audio/video recording thereof);
- Lecture handouts, presentations, and other materials prepared for the course (e.g., PowerPoint slides);
- Questions or solution sets from various types of assessments (e.g., assignments, quizzes, tests, final exams); and
- Work protected by copyright (e.g., any work authored by the instructor or TA or used by the instructor or TA with permission of the copyright owner).

Course materials and the intellectual property contained therein, are used to enhance a student's educational experience. However, sharing this intellectual property without the intellectual property owner's permission is a violation of intellectual property rights. For this reason, it is necessary to ask the instructor, TA and/or the University of Waterloo for permission before uploading and sharing the intellectual property of others online (e.g., to an online repository).

Permission from an instructor, TA or the University is also necessary before sharing the intellectual property of others from completed courses with students taking the same/similar courses in subsequent terms/years. In many cases, instructors might be happy to allow distribution of certain materials. However, doing so without expressed permission is considered a violation of intellectual property rights.

Please alert the instructor if you become aware of intellectual property belonging to others (past or present) circulating, either through the student body or online. The intellectual property rights owner deserves to know (and may have already given their consent).

Research Ethics: The University of Waterloo requires all research conducted by its students, staff, and faculty which involves humans as participants to undergo prior ethics review and clearance through the Director, Office of Human Research and Animal Care (Office). The ethics review and clearance processes are intended to ensure that projects comply with the Office's Guidelines for Research with Human Participants (Guidelines) as well as those of provincial and federal agencies, and that the safety, rights and welfare of participants are adequately protected. The Guidelines inform researchers about ethical issues and procedures which are of concern when conducting research with humans (e.g. confidentiality, risks and benefits, informed consent process, etc.). If the development of your research proposal consists of research that involves humans as participants, the please contact the course instructor for guidance and see: <https://uwaterloo.ca/research/office-research-ethics> (<https://uwaterloo.ca/research/office-research-ethics>)

Anti-racism Statement: The University of Waterloo does not tolerate racism or any other form of discrimination and expects campus community members to contribute to a culture where all members feel safe and valued. Any member of the campus community who has experienced racism or discrimination at the University is encouraged to seek guidance from the Office of Equity, Diversity, Inclusion & Anti-racism (EDI-R) via email at equity@uwaterloo.ca (mailto:equity@uwaterloo.ca) or through their website: > [uwaterloo.ca/human-rights-equity-inclusion/ about/equity-office3](http://uwaterloo.ca/human-rights-equity-inclusion/about/equity-office3)

Co-op interviews and class attendance: Co-op students are encouraged to try and choose interview time slots that result in the least amount of disruption to class schedules. When this is challenging, or not possible, a student may miss a portion of a class meeting for an interview. Instructors are asked for leniency in these situations; but, a co-op interview does not relieve the student of any requirements associated with that class meeting.

When a co-op interview conflicts with an in-class evaluation mechanism (e.g., test, quiz, presentation, critique), class attendance takes precedence and the onus is on the student to reschedule the interview. CEE provides an interview conflict procedure to manage these situations.

Students will be required to provide copies of their interview schedules (they may be printed from WaterlooWorks) should there be a need to verify class absence due to co-op interviews.

Declaring an absence: Regardless of the process used to declare an absence, instructors maintain agency over decisions regarding course component accommodations.

Self-declared absences (for flu-like illness, short-term 48 hour self declared absences) must be submitted through Quest.

Absences requiring documentation (e.g. Verification of Illness Form, bereavement, etc.) - send your documentation to env-vif@uwaterloo.ca. Do not send documentation to your advisor, course instructor, teaching assistant, or lab coordinator. Submission to env-vif@uwaterloo.ca () will notify all of your instructors of your absence.

Mental Health: The University of Waterloo, the Faculty of Environment and our Departments/Schools consider students' well-being to be extremely important. We recognize that throughout the term students may face health challenges - physical and / or emotional. **Please note that help is available.** Mental health is a serious issue for everyone and can affect your ability to do your best work. Counselling Services <https://uwaterloo.ca/campus-wellness/> (<https://uwaterloo.ca/campus-wellness/>) is an inclusive, non-judgmental, and confidential space for anyone to seek support. They offer confidential counselling for a variety of areas including anxiety, stress management, depression, grief, substance use, sexuality, relationship issues, and much more.

All students are encouraged to download the WatSAFE app which is available free through the google and iOS app stores. The WatSAFE app provides on- and off-campus contacts for students in distress, including international students, and other information related to campus safety and security.

Religious Observances: Students need to inform the instructor at the beginning of term if special accommodation needs to be made for religious observances that are not otherwise accounted for in the scheduling of classes and assignments.

Communications with Instructor and Teaching Assistants: All communication with students must be through either the student's University of Waterloo email account or via LEARN. If a student emails the instructor or TA from a personal account they will be requested to resend the email using their personal University of Waterloo email account.

Recording lecture: Use of recording devices during lectures is only allowed with explicit permission of the instructor of the course. If allowed, video recordings may only include images of the instructor and not fellow classmates. Posting of videos or links to the video to any website, including but not limited to social media sites such as: facebook, twitter, etc., is strictly prohibited.

UNIVERSITY POLICY

Academic integrity: In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. [Check [the Office of Academic Integrity](https://uwaterloo.ca/academic-integrity/) (https://uwaterloo.ca/academic-integrity/) for more information.]

Grievance: A student who believes that a decision affecting some aspect of their university life has been unfair or unreasonable may have grounds for initiating a grievance. Read [Policy 70, Student Petitions and Grievances, Section 4](https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-70) (https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-70) . When in doubt, please be certain to contact the department’s administrative assistant who will provide further assistance.

Discipline: A student is expected to know what constitutes academic integrity to avoid committing an academic offence, and to take responsibility for their actions. [Check [the Office of Academic Integrity](https://uwaterloo.ca/academic-integrity/) (https://uwaterloo.ca/academic-integrity/) for more information.] A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about “rules” for group work/collaboration should seek guidance from the course instructor, academic advisor, or the undergraduate associate dean. For information on categories of offences and types of penalties, students should refer to [Policy 71, Student Discipline](https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-71) (https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-71) . For typical penalties, check [Guidelines for the Assessment of Penalties](https://uwaterloo.ca/secretariat/guidelines/guidelines-assessment-penalties) (https://uwaterloo.ca/secretariat/guidelines/guidelines-assessment-penalties) .

Appeals: A decision made or penalty imposed under [Policy 70, Student Petitions and Grievances](https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-70) (https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-70) (other than a petition) or [Policy 71, Student Discipline](https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-71) (https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-71) may be appealed if there is a ground. A student who believes they have a ground for an appeal should refer to [Policy 72, Student Appeals](https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-72) (https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-72) .

Note for students with disabilities: [AccessAbility Services](https://uwaterloo.ca/disability-services/) (https://uwaterloo.ca/disability-services/) , located in Needles Hall, Room 1401, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with AccessAbility Services at the beginning of each academic term.

Turnitin.com: Text matching software (Turnitin®) may be used to screen assignments in this course. Turnitin® is used to verify that all materials and sources in assignments are documented. Students' submissions are stored on a U.S. server, therefore students must be given an alternative (e.g., scaffolded assignment or annotated bibliography), if they are concerned about their privacy and/or security. Students will be given due notice, in the first week of the term and/or at the time assignment details are provided, about arrangements and alternatives for the use of Turnitin in this course.

It is the responsibility of the student to notify the instructor if they, in the first week of term or at the time assignment details are provided, wish to submit alternate assignment.