

GEOG 2310B – Weather and Climate Course Outline: Section 001 Winter 2024

This course is taught in-person

1. Course Information

*Details about design and delivery of the course are listed below in Section 6



Classes Start	Spring Reading Week	Classes End	Study day(s)	Exam Period
January 8	February 19-23	April 8	April 9 & 10	April 11-30

January 16, 2024: Last day to add a second-term half course

February 19, 2024: Family Day

March 7, 2024: Last day to drop a second term half course without academic penalty



Course Instructor	Contact Information	Office Hours
James Voogt	javoogt@uwo.ca	Wednesdays 2-3 pm

Teaching Assistant(s)	Contact Information	Office Hours
Cornelius Pienaah	cpienaah@uwo.ca	See course OWL site
Maria (Marie) Martinez Mendoza	mmart376@uwo.ca	See course OWL site

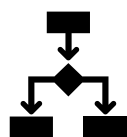


Office hours for the course instructor will be held in-person. Office hours for the Teaching Assistants will be held in-person and may also include a remote option – see the OWL course site for details.

To meet with the course instructor outside of scheduled office hours please email in advance to set up a day and time.

2. Calendar Description

Fundamentals of the physical processes underlying weather and climate; radiant energy, energy balances, clouds, atmospheric dynamics and thermodynamics; principles of the "Greenhouse Effect", mid-latitude cyclones and aspects of weather forecasting, severe weather phenomenon and atmospheric optics.

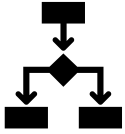


2 lecture hours, 0.5 course

Antirequisite(s): None

Prerequisite(s): 1.0 course from Geography 1100, Geography 1200A/B, Geography 1300A/B, Geography 1400F/G, Geography 1500F/G, Geography 2131A/B, Geography 2132A/B, Geography 2133A/B, Geography 2142A/B, Geography 2152F/G, Geography 2153A/B; or 0.5 course from Mathematics, Applied Mathematics, Calculus, Environmental Science or Physics at 1000-1999 level; or enrolment in the Major in Physical Geography and Environment or in an Honours Earth Science Program for Professional Registration.

Prerequisite checking is the student's responsibility



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

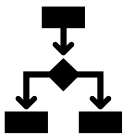


- Meteorology Today, 2nd Canadian Edition (Ahrens et al.) ISBN: 9780176598358 – MindTap Instant Access.
- Lab Materials will be provided via OWL.
- We will use iClickers for course participation

4. Course Objectives and Format

This course provides an introduction to the physical processes underlying weather and climate on time and space scales ranging upwards from the local to the global, with a particular emphasis on the formation of mid-latitude cyclones. Laboratories include use of meteorological data, maps, charts, simple instrumentation, graphical tools and numerical computation.

- The course will use iClickers for participation and practice questions.



Lecture and lab material will be posted to OWL: <http://owl.uwo.ca>. Any changes will be indicated on the OWL site and discussed with the class.

Google Chrome or Mozilla Firefox are the preferred browsers to optimally use OWL; update your browsers frequently. Students interested in evaluating their internet speed, please click [here](#). [Using the right browser is important, especially when using different features integrated with OWL]

If students need assistance, they can seek support on the OWL Help page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

5. Learning Outcomes

Upon successful completion of this course, students will be able to:

- Develop knowledge and critical understanding of the fundamental characteristics, processes, temporal changes and landscapes of social and biophysical systems and their interactions. (Reinforce)
- Demonstrate informed awareness of geographical diversity through knowledge of different places and understanding of the processes that shape them spatially and over time. (Reinforce)
- Synthesize and evaluate geographical information from diverse sources, including geo-spatial data (introduce)





- Collect, analyze and interpret geographical and geo-spatial data in relation to social and biophysical systems (introduce)
- Describe, explain, analyze and interpret a range of geographical phenomena outside the classroom by engagement with people, places and environments (introduce)
- Analyze real-world problems and policy applications using geographical concepts, skills and understanding. (introduce)
- Map, remote sensing images and geo-spatial data interpretation and analysis (reinforce)
- Spatial thinking, spatial analysis & spatial processes of human and/or environmental processes

6. Course Content and Schedule

Lecture and Lab Schedule; (LA = Lab Assignment; nm = not marked,)

Week	Dates	Lecture Topic	Lab
1	Jan 8-12	Introduction and the atmosphere	Math in the course (nm; optional)
2	Jan 15-19	Radiation	Weather and Climate Data (nm) Introduce: Winter Climate Analysis (LA)
3	Jan 22-26	Energy Balance & Atmospheric Thermodynamics <i>(iClicker participation starts)</i>	Radiation Budget (LA)
4	Jan 29-Feb 2	Humidity and Fog	Atmospheric Humidity (LA)
5	Feb 5-9	Stability and Vertical Motion	Atmospheric Soundings (LA)
6	Feb 12-16	Clouds and Precipitation Formation	Atmospheric Soundings (continued if necessary)
	<i>Feb 19-23</i>	<i>Reading Week</i>	<i>N/A</i>
7	Feb 26-Mar 1	Atmospheric Dynamics & Large Scale Flows	Winds & Upper Atmosphere Charts (LA)
8	Mar 4-8	Mid-latitude Cyclones	Reading Surface Weather Maps (nm)
9	Mar 11-15	Mid-latitude Cyclones	Surface Weather Analysis Pt 1 (LA)
10	Mar 18-22	Thunderstorms & Tornadoes	Surface Weather Analysis Pt 2 (LA) Image Assignment Due
11	Mar 25-29	Weather Forecasting	
12	Apr 1-5	Climate Change	Winter Climate Analysis Due Exam practice! (optional)



Course Readings

Week	Dates	Lecture Topic	Text Readings
1	Jan 8-12	Introduction and the Atmosphere	Chp 1
2	Jan 15-19	Radiation	Chp 2 & Chp 3 (Seasons)
3	Jan 22-26	Energy Balance and Atmospheric Thermodynamics	Chp 2, 3
4	Jan 29-Feb 2	Humidity and Fog	Chp 4, 5
5	Feb 5-9	Stability and Vertical Motion	Chp 6

6	Feb 12-16	Clouds and Precipitation Formation	Chp 5, 7
	<i>Feb 19-23</i>	<i>Reading Week</i>	<i>N/A</i>
7	Feb 26-Mar 1	Atmospheric Dynamics & Small-Scale Flows	Chp 8, 9
8	Mar 4-8	Large Scale Flows, Air Masses & Fronts	Chp 10, 11
9	Mar 11-15	Mid-latitude Cyclones	Chp 12
10	Mar 18-22	Thunderstorms & Tornadoes	Chp 13
11	Mar 25-29	Weather Forecasting	Chp 15
12	Apr 1-5	Climate Change	Chp 16, 17

7. Communication



- Students should check the OWL site every 24 – 48 hours
- For any other communication, the centrally administered **e-mail account** provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner. You can read about the privacy and security of the UWO email accounts [here](#).
- Emails will be monitored daily; students will receive a response in one business day (24 hrs for emails received between 08:00 Monday to 4:00 pm Friday; response times may be slower on weekends).
- Students should post all course-related content on the discussion forum so that everyone can access answers to questions
- The discussion forums will be monitored daily by instructors or teaching assistants

8. Evaluation

Below is the evaluation breakdown for the course. Any deviations will be communicated.

Assessment	Format	Weighting	Due Date
Lab Assignments	Mixed	35% ¹	At the start of the next lab session except where noted in schedule
Weather and Climate Image Assignment	Written	20%	Mar 21, 2024 at start of Lab Session
Participation	Assessed using iClickers in lecture	5%	Participation starts Jan 23 (after add date)
Final Exam	Mixed	40%	Set by Registrar

¹ There are 7 marked lab assignments – we will use your top 6 marks.

The evaluation methods described in the course outline are essential requirements for the course.

Students are responsible for material covered in the lectures as well as the assigned chapters/sections in the text. **Students must complete the majority (4 of 7) of the laboratory assignments to pass the course.**

- All assignments are due at the start of the lab session one week from when they were assigned unless otherwise specified
- After an assessment is returned, students should wait 24 hours to digest feedback before contacting their evaluator; to ensure a timely response, reach out within 7 days

Click [here](#) for a detailed and comprehensive set of policies and regulations concerning examinations and grading. The table below outlines the University-wide grade descriptors.

A+	90-100	One could scarcely expect better from a student at this level
A	80-89	Superior work which is clearly above average
B	70-79	Good work, meeting all requirements, and eminently satisfactory
C	60-69	Competent work, meeting requirements
D	50-59	Fair work, minimally acceptable
F	below 50	Fail

Information about late or missed evaluations:

- Late assessments without illness self-reports will be subject to a late penalty 10%/day
- Late assessments with illness self-reports should be submitted within 24 hours of submission of the last illness self-report
- An assessment cannot be submitted after it has been returned to the class; the weight will be transferred (in the case of a missed lab) to the other lab assessment or for other assignments, to the final exam.

Participation is an important part of the success of the course and ensuring students learn the course material, so part of the final grade will be based on participation. To facilitate participation, the course will use iClicker technology, with participation assessed through completion of in-class questions. **Assessment is based on the completion (not correctness) of the questions. To get full marks for participation, a minimum of 75% of the questions must be answered.** This recognizes that illness or other factors that affect attendance can be accommodated. Participation marks are not adjusted for absences with the exceptions for official accommodation from your Faculty Academic Counselling Office. Participation marks cannot exceed 100%.

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.

9. Accommodation Policies

Students with disabilities work with Accessible Education (formerly SSD) which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The accommodation policy can be found here: [Academic Accommodation for Students with Disabilities](#).

Academic Consideration for Student Absence

Accommodation for medical illness of work **less than 10%** of the total course grade (lab assignments, participation) is provided by the assigned Teaching Assistant (for lab assignments), to a maximum of two times; a third accommodation must be approved by the Faculty Dean's office; submit medical documentation to the appropriate Faculty Dean's Office for approval. **Do not submit medical documentation to the course instructor or teaching assistants.** For other assignments see the course instructor for approval. Accommodation for missed participation components should only be made if an absence of more than 20% of the course is missed for approved reasons.

Non-medical absences from laboratory sessions require **prior approval** of the assigned Teaching Assistant.

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.

The University recognizes that a student's ability to meet their academic responsibilities may, on occasion, be impaired by medical illness. Illness may be acute (short term), or it may be chronic (long term), or chronic with acute episodes. The University further recognizes that medical situations are deeply personal and respects the need for privacy and confidentiality in these matters. However, in order to ensure fairness and consistency for all students, academic accommodation for work representing 10% or more of the student's overall grade in the course shall be granted only in those cases where there is documentation indicating that the student was seriously affected by illness and could not reasonably be expected to meet their academic responsibilities.

[Policy on Academic Consideration for Medical Illness - Undergraduate Students](#)

[Student Medical Certificate \(SMC\)](#)

Religious Accommodation

Students should consult the University's list of recognized religious holidays, and should give reasonable notice in writing, prior to the holiday, to the Instructor and an Academic Counsellor if their course requirements will be affected by a religious observance. Additional information is given in the [Western Multicultural Calendar](#).

10. Make-up Examinations

Makeups will be granted with approved documentation only. All documentation for missed exams must be provided to the Academic Counselling Office within 48 hours of the scheduled 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.

[If a student fails to write a scheduled Special Examination, the date of the next Special Examination (if granted) normally will be the scheduled date for the final exam the next time this course is offered. The maximum course load for that term will be reduced by the credit of

the course(s) for which the final examination has been deferred. See the Academic Calendar for details (under Special Examinations).

Note: missed work can only be excused through one of the mechanisms above. Being asked not to attend an in-person course requirement due to potential COVID-19 symptoms is not sufficient on its own. Students should check the Western website to see what directives for Covid are to be followed. Western has been and will continue to follow directives established by the Middlesex-London Health Unit. That directive will state whether students should or should not come to campus/class and any other requirements (e.g., masks are mandatory). Please check on your own and do not email the instructor, the Department Undergraduate Advisor/Coordinator or the Faculty of Social Science Academic Counselling Office.]

11. Use of Electronic Devices

Course exams will specify in advance whether calculators can be used and students will be informed in advance.

Geog 2310b will use iClickers, an audience response device. iClicker is Western's officially-supported audience response system. It supports both virtual and physical clickers.

To create an account please follow the instructions at <https://wts.uwo.ca/iclicker/>
If you already have an iClicker account, do not create a duplicate account, use the existing account and follow the instructions provided on the webpage.

Once your account is created, you can participate using iClicker using a 'virtual clicker' by way of a mobile app (Android or iOS mobile device) or web browser. These are free. Or you can purchase a physical clicker from The Book Store.

We will use the iClicker system to encourage participation and active learning. Questions posed using the system will provide you examples of the types of questions to be used on the exams. The participation mark will be based on responses to questions using the iClicker system (the participation mark is based on a response, rather than a correct vs incorrect answer). See the section on Participation for how this component is evaluated.

iClickers can only be used by the account owner, clicker misuse (including use by a student other than the owner) is considered a form of Scholastic Offence

iClicker uses an external account. Student responses are anonymized when displayed. Responses associated with the participation mark are treated in a similar manner to all other marked components of the course and are only available to the student, instructor and TAs.

Guidelines for Students on the use of Personal Response Systems ("Clickers")

Personal Response Systems ("clickers") may be used in some classes. If clickers are to be used in a class, it is the responsibility of the student to ensure that the device is activated and functional. Students must see their instructor if they have any concerns about whether the clicker is malfunctioning.

Students must use only their own clicker. If clicker records are used to compute a portion of the course grade:

- the use of somebody else’s clicker in class constitutes a scholastic offence,
- the possession of a clicker belonging to another student will be interpreted as an attempt to commit a scholastic offence.

12. How to Be Successful in this Class:

Students enrolled in this class should understand the level of autonomy and self-discipline required to be successful.

1. Take notes as you go through the lesson material. Powerpoint lecture slides are provided but often have little text. Adding notes to these, either in the provided pptx file or in a separate document or notebook will help you learn more effectively.
2. The course focuses on the lecture and laboratory material – use the text to help understand this material and to broaden the context for what we examine in lecture and lab.
3. Check out the additional resources provided on OWL to supplement lectures and labs.
4. Use the MindTap website to access other materials supporting the course and for checking your knowledge (self-test) – but remember the course focuses on the lecture and lab material covered – rather than a test of the textbook.
5. Connect with others. Try forming a study group and try meeting on a weekly basis for study and peer support.
6. Do not be afraid to ask questions. If you are struggling with a topic, check the online discussion boards, read the text and/or supplementary materials. For help with labs, use office hours held by your teaching assistant and for help with lecture material use office hours held by the course instructor.
7. Reward yourself for successes. It seems easier to motivate ourselves knowing that there is something waiting for us at the end of the task.



13. 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.

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.

14. Western’s Commitment to Accessibility

The Department of Geography and Environment 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.

15. 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.

16. Support Services

[Western's Support Services](#)
[Student Development Centre](#)

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.

17. Important Dates

Monday January 8: Classes resume

Tuesday January 16: Last day to add a second term half course

Monday February 19: Family Day – Department Office Closed

February 17 to February 25: Spring Reading Week (No classes; Department Office open)

Thursday March 7: Last day to drop a second term half course without academic penalty

Friday March 29: Good Friday – Department Office Closed

Monday April 8: Classes end

April 9 and 10: Study days

April 11-30: Examination Period