Western SocialScience

Geography and Environment

GEOG 2310B – Weather and Climate
Course Outline: Section 001 Winter 2025

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 6	February 17-23	April 4	April 5 & 6	April 7-30

January 14, 2025: Last day to add a second-term half course
February 17, 2025: Family Day
March 31, 2025: Last day to drop a second term half course without penalty

Course Instructor	Contact Information	Office Hours
James Voogt	javoogt@uwo.ca	Thursdays 11:30 – 12:30

Teaching Assistant(s)	Contact Information	Office Hours
Maria (Marie) Martinez Mendoza	Mmart376@uwo.ca	See course OWL site
Naeim Mijani	nmijani@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, 2 laboratory hours; 0.5 course
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 2152F/G, Geography 2153A/B, Geography 2160A/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 Earth Sciences or Environmental Science module.

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

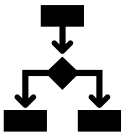
☒ Weather and Climate: An Introduction (Author: Ross, Publisher: Oxford, 3rd Edition 2024). The textbook costs $147.85 (paperback) or $55.00 (Ebook 180 day rental).
Students are welcome to purchase second-hand or earlier editions of this textbook or use equivalent text resources, but will not have access to online resources and only reading references for the official edition of the text are provided.

☒ Labs and additional materials will be posted to OWL. Students are responsible for printing labs for submission if hard copy is required.

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 the new OWL Brightspace learning environment: https://westernu.brightspace.com/d2l/home. Any changes will be indicated on the OWL site and discussed with the class.

Current versions of all popular browsers (e.g., Safari, Chrome, Edge, Firefox) are supported with OWL Brightspace; what is most important is that you update your browser frequently to ensure it is current. All JavaScript and cookies should be enabled.

If students need assistance, they can seek support on the OWL Brightspace 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 (Introduce)
- Visual presentation and graphical design: graphical design and production of: maps, diagrams, presentations, posters, web-based media (Introduce)

6. Course Content and Schedule

Wk	Dates	Topic	Lab	Readings*
1	Jan 6-10	Introduction and the atmosphere	Units, calculations, significant figures (nm)	Chps 1, 2, 3
2	Jan 13-17	Radiation	Weather and Climate Data (nm) Introduce: Winter Climate Analysis Assignment	Chp 5
3	Jan 20-24	Energy Balance & Atmospheric Thermodynamics	Lab 1 Radiation Budget	Chp 3, 4 & 6
4	Jan 27-31	Humidity and Fog	Lab 2 Atmospheric Humidity	Chp 7, 9
5	Feb 3-7	Stability and Vertical Motion	Lab 3 Atmospheric Soundings	Chp 8
6	Feb 10-14	Clouds & Precipitation Formation		Chp 9, 10
	Feb 17-21	*Spring Reading Week*		
7	Feb 24-28	Atmospheric Dynamics & Large Scale Flows	Lab 4 Winds & Upper Atmosphere Charts	Chp 11, 12
8	Mar 3-7	Mid-latitude Cyclones	Reading Surface Weather Maps	Chp 13 & 14
9	Mar 10-14	Mid-latitude Cyclones	Lab 5 Surface Weather Analysis Pt 1 **Winter Climate Analysis Due Mar 15, 4 pm**	Chp 14
10	Mar 17-21	Thunderstorms & Severe Weather	Lab 6 Surface Weather Analysis Pt 2	Chp 14
11	Mar 24-28	Weather Forecasting		Section 3.5
12	Mar 31-Apr 4	Climate Change	**Image Assignment Due Apr 4, 4 pm**	Chp 1, Chp 15

Note: Exam material focuses on the content of lectures, labs and assignments; reading the textbook will provide additional background beyond what we cover in the course.

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 to 4:00 pm Friday; response times may be slower on weekends)

8. Evaluation

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

Assessment	Format	Weighting	Due Date
Lab Assignments (6)	Mixed	30%[1]	At the start of the next lab session except where noted in the schedule
Winter Weather Analysis	Written	10%	Mar 15, 4 pm
Image Assignment	Written	15%	Apr 4, 4 pm
Participation	Assessed using iClickers in lecture	5%	Participation will count from Jan 21 (after the add course deadline)
Final Exam	Mixed	40%	Set by Registrar

[1] We will count the top 5 of 6 lab marks

All due dates have a 48 hour submission window. See Section 9 for Accommodation Policies.

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 at least 4 lab assignments to pass the course.
Students must complete the winter weather analysis assignment 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

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.

General Information about missed work:

University policy on academic considerations are described here. This policy requires that all requests for academic considerations must be accompanied by a self-attestation. Further information about academic considerations, and information about submitting this self-attestation with your academic consideration request may be found here.

Please note that any academic considerations granted in this course will be determined by the instructor, in consultation with the academic advisors in your Faculty of Registration, in accordance with information presented in this course outline.

Formal Documentation Designation statement:

No assignments or labs in this course are designated as requiring formal documentation.

Flexibility statements

All labs and assignments for this course have a 48 hour submission window.

Please note that because the submission deadlines for labs and assignments already includes flexibility in the form of a 48 hour, the instructor reserves the right to deny academic consideration for assignments which are submitted following the end of the period of flexibility.

Absence from Course Commitments

Students must familiarize themselves with the Policy on Academic Consideration – Undergraduate Students in First Entry Programs

Students missing course work for medical, compassionate or extenuating circumstances can request academic consideration by completing a request at the central academic consideration portal. Students are permitted one academic consideration request per course per term without supporting documentation. Note that supporting documentation is **always** required for academic consideration requests for examinations scheduled by the office of the registrar (e.g. December and April exams) and for practical laboratory and performance tests typically schedule during the last week of the term. Students should also note that the instructor may designate one assessment per course per term that requires supporting documentation. This designated assessment is described elsewhere in this document. Please note that any academic considerations granted in this course will be determined by the instructor of this course, in consultation with the academic advisors in your Faculty of Registration, in accordance with information presented in this course outline. Supporting documentation for academic considerations for absences due to illness should use the Student Medical Certificate or, where that is not possible, equivalent documentation by a health care practitioner.

Course Assessments that Require Supporting Documentation

For this course the following assessment has been designated as requiring supporting documentation: No assessment is designated for Geog 2310b this year.

Academic Consideration for Course Components with Flexible Deadlines

Labs

This course has 6 labs with only 5/6 labs counted towards your final grade. Academic consideration will not be granted for missed labs. If students miss 1 lab, the remaining 5 labs will be used in the calculation of the final lab grade. If students miss more than 2 labs, they will receive a grade of zero on each missed lab.

Winter Weather and Image Assignments

This course employs flexible deadlines for assignments. The assignment deadlines can be found above in the course outline. For each assignment, students are expected to submit the assignment by the deadline listed. Should illness or extenuating circumstances arise, students are permitted to submit their assignment up to 48 hours past the deadline without academic penalty. Should students submit their assessment beyond 48 hours past the deadline, a late penalty of 10% per day will be subtracted from the assessed grade. As flexible deadlines are used in this course, requests for academic consideration will not be granted. If you have a long-term academic consideration or an accommodation for disability that allows greater flexibility than provided here, please reach out to your instructor at least one week prior to the posted deadline.

Participation

The course uses iClickers to assess participation. Participation will be counted following the course add date (beginning Jan 21). The participation is based on responses (not correct answers) to questions posed in lectures. The participation mark will be based on the total number of questions given over the term, scaled such that a response to 80% of the questions

posed will yield a participation mark of 100%. This approach recognizes that students may miss an occasional lecture due to illness etc. No academic accommodations are provided for missed participation questions unless there is a long term academic consideration.

Accommodation for Religious Holidays

Students should review the policy for Accommodation for Religious Holidays. Where a student will be unable to write examinations and term tests due to a conflicting religious holiday, they should inform their instructors as soon as possible but not later than two weeks prior to writing the examination/term test. In the case of conflict with a midterm test, students should inform their instructor as soon as possible but not later than one week prior to the midterm.

10. Make-up Examinations

A Special Examination is any examination other than the regular examination, and it may be offered only with the permission of the Dean of the Faculty in which the student is registered, in consultation with the instructor and Department Chair. Permission to write a Special Examination may be given on the basis of compassionate or medical grounds with appropriate supporting documents.

The format and content of make-ups may differ substantially from the scheduled test or examination.

11. Use of Electronic Devices

A hand-held calculator is permitted for use during the final exam. (The final exam does not permit texts, notes, hand-held computers or cell phones).

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 textbook online resources 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 6: Classes resume
Tuesday January 14: Last day to add a second term half course
Monday February 17: Family Day – Department Office Closed
February 17-23: Spring Reading Week (No classes; Department Office open)
Friday March 7: Last day to drop a second term half course
Friday April 4: Classes end
April 5 and 6: Study days
April 7-30: Examination Period