

Weather and Water GEOG 2013 A

Winter 2025

Tuesdays and Thursday 8:35-9:55

Instructor: Elyn Humphreys

Office location & hours: A301a Loeb Building, Tuesdays 1:15 – 2:15 or stop by or email to make an appointment

Email: elyn.humphreys@carleton.ca

Teaching assistants: Olivia Meier-Legault OliviaMeierLegault@cmail.carleton.ca, Josie Mallett JosieMallett@cmail.carleton.ca & Nathalie Ouellette NathalieaOuellette@cmail.carleton.ca

TA office hours: TBD

Brightspace course [link](#)

1. Calendar Description: Introduction to climate, weather and the hydrological cycle. Physical properties of the atmosphere, radiation and energy balances, global circulation, atmospheric moisture and precipitation, weather systems and forecasting, mechanisms of climate change.

2. Prerequisites: None

3. Learning outcomes:

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

1. Describe the properties, structure and behaviour of the atmosphere.
2. Identify different storm types and explain their origins and outcomes.
3. Interpret weather maps, reports, forecasts and alerts.

4. Textbook, lecture notes, and laboratory manual:

1) Ross, Sheila Loudon. (2024) Weather & Climate: an introduction, 3rd Edition. Oxford University Press. *Required. Older versions are ok.*

2) Lecture notes will be made available on Brightspace*.

3) Laboratory assignments will be available on Brightspace*.

*Student or professor materials created for this course (including presentations and posted notes, labs, assignments and exams) remain the intellectual property of the author(s). They are intended for personal use and may not be reproduced or redistributed without prior written consent of the author(s).

5. Lecture and Lab schedule:

Tentative schedule:

Week	Lecture	Lab
W1. Jan 6	L1. Introduction L2. The Atmosphere	-No labs this week-
W2. Jan 13	L3. Thermodynamics (part 1) L4. Thermodynamics (part 2)	Lab 1. Pressure & the atmosphere
W3. Jan 20	L5. Thermodynamics (part 3)	Lab 2. Temperature measurements

	L6. Radiation & Energy Budgets (part 1)	<i>(Lab 1 due)</i>
W4. Jan 27	L7. Radiation & Energy Budgets (part 2) L8. Stability	Lab 3. Energy flux measurements <i>(Lab 2 due)</i> <i>[Lab 1 EWP due date]</i>
W5. Feb 3	L9. <i>(No Class)</i> – Zoom review/help period during class time. <i>Test 1 in class (Feb 5)</i>	<i>-No labs this week-</i> <i>[Lab 2 EWP due date]</i>
W6. Feb 10	L10. Clouds and precipitation (part 1) L11. Clouds and precipitation (part 2)	Lab 4. Clouds and humidity <i>(Lab 3 due)</i>
<i>Feb 17-21</i>	<i>Reading Break – no lectures this week</i>	<i>-No labs this week-</i> <i>[Lab 3 EWP due date]</i>
W7. Feb 24	L12. Dynamics (part 1) L13. Dynamics (part 2)	Lab 5. Precipitation measurements <i>(Lab 4 due)</i>
W8. Mar 3	L14. Global circulation (part 1) L15. Global circulation (part 2)	Lab 6. Wind <i>(Lab 5 due)</i> <i>[Lab 4 EWP due date]</i>
W9. Mar 10	L16. Air masses and fronts L17. Mid-latitude cyclones (part 1)	Lab 7. Weather maps <i>(Lab 6 due)</i> <i>[Lab 5 EWP due date]</i>
W10. Mar 17	L18. Mid-latitude cyclones (part 2) L19. Hurricanes	Lab 8. Weather forecasting <i>(Lab 7 due)</i> <i>[Lab 6 EWP due date]</i>
W11. Mar 24	L20. Thunderstorms L21. Thunderstorm hazards (part 1)	<i>-No labs this week-</i> <i>(Lab 8 due)</i> <i>[Lab 7 EWP due date]</i>
W12. Mar 31	L22. Thunderstorm hazards (part 2) L23. Final Review	<i>-No labs this week-</i> <i>[Lab 8 EWP due date]</i>
W13. Apr 7	<i>No Class</i>	<i>-No labs this week-</i>

6. Evaluation:

In-class activities & quizzes	10%
Laboratory assignments	40% (8 x 5%)
Test 1	20% (held in class, Feb 5)
Final exam	30% (held during the exam period)

In-class activities & quizzes: Up to 10% of the final grade will be available through participation during in-class activities & quizzes (worth 0.5% per lecture). There will be 23 lectures with opportunities to receive these marks. No marks will be given if absent.

Laboratory assignments:

Eight mandatory laboratory sessions will be held during which you will explore instrumentation used to study weather and water and further develop the concepts introduced during the lectures through hands-on activities and problem sets. Each lab assignment will be given equal weight towards the final lab grade.

Collaboration on assignments is encouraged, and often required, although individual reports must be submitted. This means that you may submit the same group-derived tables or data sheets (these will be identified by your teaching assistants in the labs), but all answers to questions, analyses and discussion points must be your own work (see note about Plagiarism below).

Except under special circumstances, you must pass the lab section in order to pass the course.

Policy on lateness:

Lab assignments must be submitted via Brightspace before your lab period start time on the due date. Lab assignments have two due dates: [an ideal due date](#) and [an extension-without-penalty \(EWP\) due date](#) as noted above. We strongly encourage submissions be made by the ideal due dates to maintain a good learning routine for this course. However, we are providing the EWP due date you can chose to use when you need extra time due to illness, workload challenges, etc. Labs not submitted by the EWP due dates will not be graded.

7. Statement on Plagiarism:

The University Academic Integrity Policy defines plagiarism as “*presenting, whether intentionally or not, the ideas, expression of ideas or work of others as one’s own.*” This includes reproducing or paraphrasing portions of someone else’s published or unpublished material, regardless of the source, and presenting these as one’s own without proper citation or reference to the original source. Examples of sources from which the ideas, expressions of ideas or works of others may be drawn from include but are not limited to books, articles, papers, literary compositions and phrases, performance compositions, chemical compounds, artworks, laboratory reports, research results, calculations and the results of calculations, diagrams, constructions, computer reports, computer code/software, material on the internet and/or conversations.

Examples of plagiarism include, but are not limited to:

- any submission prepared in whole or in part, by someone else, including the unauthorized use of generative AI tools (e.g., ChatGPT)
- using ideas or direct, verbatim quotations, paraphrased material, algorithms, formulae, scientific or mathematical concepts, or ideas without appropriate acknowledgment in any academic assignment
- using another’s data or research findings without appropriate acknowledgement
- submitting a computer program developed in whole or in part by someone else, with or without modifications, as one’s own
- failing to acknowledge sources with proper citations when using another’s work and/or failing to use quotations marks.

Plagiarism is a serious offence that cannot be resolved directly by the course’s instructor.

The Associate Dean of the Faculty follows a rigorous [process for academic integrity allegations](#), including reviewing documents and interviewing the student, when an instructor suspects a violation has been committed. Penalties for violations may include a final grade of “F” for the course.

8. Statement on Student Mental Health

As a student you may experience a range of mental health challenges that significantly impact your academic success and overall well-being. If you need help, please speak to someone. There are numerous resources available both on- and off-campus to support you. For more information, please consult <https://wellness.carleton.ca/>.

9. Requests for Academic Accommodations

Carleton is committed to providing academic accessibility for all individuals. You may need special arrangements to meet your academic obligations during the term. The accommodation request processes, including information about the Academic Consideration Policy for Students in Medical and Other

Extenuating Circumstances, are outlined on the Academic Accommodations website (students.carleton.ca/course-outline).