

GEOG272: Introduction to Climatology and Hydrology

Instructor: Dr. Johannes Feddema feddema@uvic.ca

Office hours: T 14:00 15:00 (David Turpin Bldg. B203c)

Lectures: T, W 12:30 13:20 (CRN: 11800) David Turpin Building A102

Labs:

W	8:30	10:20	(B01)	David Turpin Bldg. B307 (CRN: 11801) - Chris Krasowski
W	16:30	18:20	(B02)	David Turpin Bldg. B307 (CRN: 11802) - Chris Krasowski
Th	14:30	16:20	(B03)	David Turpin Bldg. B307 (CRN: 11803) - Adam Gabro
F	12:30	14:20	(B04)	David Turpin Bldg. B307 (CRN: 11804) - Bennit Mueller

Introduction:

Weather, climate, and the movement of water have important impacts on our lives and activities. The weather is an ever-present factor in Canadian lives, and extreme events can have catastrophic consequences the effects of which are felt for years after the disaster. Periodic severe flooding in the Prairies, powerful storms of the North Pacific, the Gulf of Mexico hurricanes in 2005 and 2017, and the climate anomalies associated with El Niño and the PDO are prime examples of these impacts. The climate of a region determines, in part, the types of vegetation present, the nature of the soils and landforms, potential agricultural activity, the form of our cities, and simply how we live our lives. As well as being influenced by it, human activities can influence the atmosphere – I think we are all aware of climate change at some level. The flow of the atmosphere and ocean over the earth's surface means that events in on18 Tm0 g[(L)3(e)3(c4e)7()] TE

Specific Objectives:

1. Describe the vertical structure, composition, and broad patterns of the earth's atmosphere and climate system and account for these patterns in terms of thermodynamics and geographic controls.
2. Explore how to apply the laws of physics to analyze this system, and study the methodology of modern climatology.
3. Examine methods to gather and analyze climatic data, including improving your use of spreadsheet software and general handling of numbers.
4. Learn about more advanced Canadian and US federal weather forecast products.
5. Learn about the role of water in the atmosphere and begin exploration of how water moves in the ground and over land, setting the stage for more detailed work in hydrology in later courses.
6. This course has a laboratory component that will emphasize essential physical and chemical concepts as they relate to consideration of atmospheric phenomena using methods of direct physical experimentation. We will also conduct some analyses of climate data during the lab sessions, to introduce ideas of data reduction and data set description, both fundamental practices in atmospheric sciences of any stripe.

General Course Subjects:

1. Atmospheric composition
2. Radiation pathways, energy balance
3. Atmospheric pressure and motion
4. Air masses, fronts
5. Vertical thermodynamic structure
6. Water in the atmosphere, clouds
7. Storms
8. Fluvial hydrology, flood return frequency analysis
9. Groundwater hydrology
10. Climate Change

Textbook and Readings:

The textbook for this course is:

Sheila Loudon Ross. 2013. *Weather and Climate: an Introduction*. Oxford University Press. 510p, ISBN 978-0-19-544587-9

This is a Canadian edition, so it has some more examples from closer to home. I will post materials on Course Spaces as needed to provide supplemental readings.

Computer use: In the laboratories, we will be doing a number of exercises using the computer. You should be familiar with basic computer skills such as file maintenance, printing and word processing.

Laboratories: The labs are an essential part of the course and **attendance is required**. There will be reports due: see below for detailed schedule. All lab reports must be neatly typed and figures must be cleanly and correctly presented. Your lab instructor is your first point of contact for the labs. The labs will give you practice in using standard software for the analysis of climatic data and in making observations to build and support ideas about how things work. Preparing synthesis reports is a major skill needed in today's job market. Analysis and presentation of data is a necessary skill in all fields. **Labs are not designed to march in step with lecture material they are their own course component.**

Coursespaces: This course is hosted on the UVic Coursespaces system. <http://coursespaces.uvic.ca/> I will post various course-related materials or news items here from time to time; make sure you keep a regular eye on the site. Readings will be posted here ahead of classes for which they are required.

In addition, there are many sites on the Internet with satellite images, current maps and other data and information. I will post some links on the webpage that you ca

Tentative course outline

Exam dates and due dates for assignments are fixed, but the subject matter we cover depends on many factors, and may vary.

Wk	Date	UNIT	Lecture Subject	Exam
1	T Sep 5		No Class	
	W Sep 6		Course intro	
2	T Sep 11		Atm composition, history (Ch1&2)	
	W Sep 12		WTm0 g[(W)-7()67()-24W 8L g496*48.78108449555.5 reW* nB8 2 g496*	

Meteorology

Undergraduate Grading**

<i>Passing Grades</i>	<i>Description</i>
A+ A A-	Exceptional, outstanding and excellent performance. Normally achieved by a minority of students. These grades indicate a student who is self-initiating, exceeds expectation and has an insightful grasp of the subject matter.
B+ B B-	Very good, good and solid performance. Normally achieved by the largest number of students. These grades indicate a good grasp of the subject matter or excellent grasp in one area balanced with satisfactory grasp in the other area.
C+ C	

Infractions will be dealt with in accordance with University policy. Commonly, the penalty for any form of cheating/plagiarism is a grade of F on the tests or laboratory assignments, or a final grade of F in the course. However, depending on the severity of the case other penalties may include a record on the student's transcript or expulsion.

Please familiarize yourself with the University policy on academic integrity found in the Undergraduate Calendar at the following website. Please contact me if you have any questions.

UVIC plagiarism policy: <http://www.uvic.ca/learningandteaching/students/resources/expectations/>

Policy on Academic Integrity: <http://web.uvic.ca/calendar2015-01/FACS/UnIn/UARe/PoAcI.html>

Accessibility

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a documented disability/health consideration that may require accommodations, please feel free to approach me and/or the Resource Centre for Students with a Disability (RCS D) as soon as possible. The RCS D staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations <http://rcsd.uvic.ca/>. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.

Positivity and Safety