

GEOGRAPHY FINAL COURSE OUTLINE: WINTER 2020
GEOGRAPHY 408
GFC HOURS (3-2)

Meteorology & Hydrology

Section	Days	Time	Location
LEC 01	TuTh	15:30 – 16:45	SB 142
LAB 01	Mo	09:00 – 10:50	ES 407
LAB 02	Tu	08:00 – 09:50	ES 407
LAB 03	Tu	11:00 – 12:50	ES 407

Instructor: Brent Else	Office: ES 340
Telephone: 403 220 2484	Email: belse@ucalgary.ca
Office Hours: by appointment	

TA: Sam Jones	Email: samantha.jones3@ucalgary.ca
TA: Zoe Walker	Email: zoe.walker@ucalgary.ca
Office Hours: TBD	

Please note: The emergency evacuation assembly point for all classes taught in Science B and Earth Sciences is ICT Food Court.

***Mar. 19, 2020 Update due to COVID-19 move to remote learning: All deletions are noted with crossed out text, additions are noted in red text.**

Official Course Description

Atmospheric connections with the hydrological cycle, including evapotranspiration, water vapour, stability, cloud development, and precipitation. Water transport is followed through soil moisture, groundwater, and stream flow. Discussed methods focus on tracking water transport through the land-atmosphere system at various scales. Additional topics may include water quality, water resource management, and hydrology of selected landscapes.

Course Objectives

Students in this course will learn how to:

1. Understand atmospheric circulation, and how it is controlled by energy transfers and the fundamental properties of air.
2. Understand, analyze, and track the flow of water through evaporation, cloud formation, and precipitation.
3. Understand the hydrologic cycle and the water balance equation as a unifying framework for studying and managing freshwater.
4. Use various techniques to measure, model, or calculate flows and reservoirs within the hydrological cycle.
5. Identify reliable sources of scientific information, and construct knowledge from primary sources.
6. Construct and execute field sampling plans to test sound scientific hypotheses, and critically analyze sample data to generate reliable results.

Course Learning Outcomes

The Department of Geography is committed to student knowledge and skill development. The table below lists the key learning outcomes for this course, the program-learning outcomes to which they contribute, and the expected level of achievement.

Course Learning Outcomes	PLO(s)*	Level(s)**
Students should be able to explain global weather patterns	2	3
Students will be expected to solve quantitative problems through selection and manipulation of the relevant equations and basic spreadsheet skills	4,7	2
Students should be able to apply knowledge about atmospheric science into other undergraduate courses and workplace responsibilities	2,5	2
Students should be able to explain the weather conditions they are currently experiencing, wherever in the world they find themselves	5	1
Distinguish between types of water vapour; adiabatic process; atmospheric stability; cloud/precipitation formation mechanisms, and clouds	2	2
Describe the forces that act on air to create local to global wind at the surface and aloft; horizontal and vertical motions of pressure systems	7	2
Describe general circulation of atmosphere, global heat/energy transfer; jet streams; air masses; storms; climate change	7	2

**PLOs = Program Learning Outcomes: 1 = reflect and communicate diverse human-environment perspectives, 2 = identify and explain human-environment processes, 3 = implement sampling, data collection, analyses and communication methods, 4 = analyze spatial and temporal aspects of human-environment systems, 5 = employ knowledge, arguments, and methodologies for solving human-environment problems, 6 = evaluate geospatial data and manipulate it to create cartographic products, 7 = communicate geographic concepts using oral, written, graphic, and cartographic modes, and 8 = demonstrate literacy skills.*

***Levels: 1 = Introductory, 2 = Intermediate, and 3 = Advanced.*

Prerequisites

Prerequisites: 3 units from Geography 211, 308.

Learning Resources

There is no required textbook for this course. Readings will be posted on the D2L site.

Grading (Weighting)

There is no final examination scheduled by the Registrar's Office. It is essential to pass all elements/components to pass the course as a whole.

- Lab Assignments: 40% (4 assignments @ 10% each)
- Exams: 30% (2 in-class exams)
- Project: 30% (see break-down below)

Labs: There will be a series of four labs, each worth 10% of your final mark. You have at least 2 weeks to complete each lab exercise. The lab TA will be available during the lab periods. Lab exercises are a blend of computer-based data analysis and hands-on activities. **Some of the activities can only be completed in the lab period, so your attendance at those labs is mandatory.** Mandatory lab periods are noted in the course schedule. Attendance will be taken, and 10% of each lab assignment (i.e. 1% of your overall mark per lab) will be based on attendance. If you cannot attend a mandatory lab, please contact your TA in advance of the lab period to discuss alternative options.

Individual written assignments are required for each lab. Students are permitted to collaborate on labwork for this course. However each student must hand in an individual assignment that reflects their own work. Given the numerical nature of many of the assignments, this can lead to some confusion regarding plagiarism. In written questions, it is easy to ensure that responses are written “in your own words”. For mathematical problems, this can be more difficult; often there is only one correct approach to a question, and limited ways to express that approach in an assignment. In general, it is okay if two students hand in very similar answers to mathematical questions, provided they **each did the work themselves**. The line is actually quite clear: there should be **no digital files transferred between students**. Two students can be sitting next to each other working together, but that should be done on **two separate computers**, working together on **two separate documents**. To make life easier on the TA marking your assignments, you may wish to format your documents differently to make it clear that two people did the work. All lab assignments must be submitted in a D2L compatible format (i.e. .pdf or .docx).

Midterm Exams: Two exams will be held during class time, as per the schedule posted on D2L. **The second midterm exam will be a take-home exam. The exam will be designed to take 75 minutes, and is due at 4:45 on April 14 (end of the final scheduled class). However, the exam will be made available early, to give all students additional time.**

Project: A group project will be conducted during the lab periods. The project will consist of a proposal (5% of final grade), ~~presentation~~ **project update** (5% of final grade), written project (15% of final grade), and individual assessment (5% of final grade). The details of this project will be posted on the D2L site.

Late Policy: Assignments submitted after the stated deadline will be penalized with the loss of a grade of 10% for **each day** late (including weekends). Exceptions to this policy must be discussed and confirmed with the lead instructor **in advance of the due date**. If a student fails to complete an assignment or similar set piece of work for legitimate reasons (for example: illness or domestic affliction), an alternative course of action must be discussed with the lead instructor or course assistant in a timely fashion and documentation will be required as per the University Calendar.

Grading System

96 – 100	A+	77 – 80	B	59 – 61	C-
90 – 95	A	71 – 76	B-	55 – 58	D+
86 – 89	A-	65 – 70	C+	50 – 54	D
81 – 85	B+	62 – 64	C	0 – 49	F

In the event that a student misses a midterm or any course work due to illness, supporting documentation, such as a medical note or a statutory declaration will be required see:

<https://www.ucalgary.ca/pubs/calendar/current/m-1.html>

Please refer to <https://www.ucalgary.ca/registrar/registration/appeals/student-faq> for frequently asked questions concerning the provision of a medical note/statutory declaration. Deferred in-term exams are permitted, and will be administered according to the Department of Geography’s deferred exams system.

For additional detailed course information posted by the instructor, visit the course Desire2Learn page online at <https://d2l.ucalgary.ca/d2l/home>.

SUPPLEMENTAL INFORMATION

Principles of Conduct

The University Calendar includes a statement on the principles of conduct expected of all members of the university community (including students, faculty, administrators, any category of staff, practicum supervisors, and volunteers), whether on or off university property. This statement applies in all situations where members of the university community are acting in their university capacities. All members of the university community have a responsibility to familiarize themselves with the principles of conduct statement, which is available at: www.ucalgary.ca/pubs/calendar/current/k.html.

Plagiarism, Cheating, and Student Misconduct

The University of Calgary is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect.

Academic dishonesty is not an acceptable activity at the University of Calgary, and students are **strongly advised** to read the Student Misconduct section in the University Calendar at: www.ucalgary.ca/pubs/calendar/current/k-3.html. Often, students are unaware of what constitutes academic dishonesty or plagiarism. The most common are (1) presenting another student's work as your own, (2) presenting an author's work or ideas as your own without adequate citation, and (3) using work completed for another course. Such activities will not be tolerated in this course, and students suspected of academic misconduct will be dealt with according to the procedures outlined in the calendar at: www.ucalgary.ca/pubs/calendar/current/k-5.html.

Instructor Intellectual Property

Information on Instructor Intellectual Property can be found at <https://www.ucalgary.ca/policies/files/policies/Intellectual%20Property%20Policy.pdf>

Freedom of Information and Protection of Privacy

Freedom of Information and Protection of Privacy (FOIP) legislation in Alberta disallows the practice of having students retrieve assignments from a public place, such as outside an instructor's office, the department office, etc. Term assignments will be returned to students individually, during class or during the instructor's office hours; if students are unable to pick up their assignments from the instructor, they must provide the instructor with a stamped, self-addressed envelope to be used for the return of the assignment.

Internet and electronic communication device information

There are no restrictions on the use of laptops and tablets in class if they are used to take notes or find information relevant to the class, and if there is no disturbance or distraction of other students or the instructor. Phones must be turned off during class, unless you have previously identified yourself to the instructor as a health care or law enforcement professional.

Posting of Grades and Picking-up of Assignments

Graded assignments will be returned by the instructor or teaching assistant personally during scheduled lecture or laboratory periods, unless they are made available electronically through the course D2L webpage. Grades and assignments will not be available at the Department of Geography's main office.

Academic Accommodations

It is the student's responsibility to request academic accommodations, according to the university policies and procedures listed in the University Calendar.

The student accommodation policy can be found at: www.ucalgary.ca/access/accommodations/policy. Students needing an accommodation because of a disability or medical condition should communicate this need to Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities: www.ucalgary.ca/policies/files/policies/student-accommodation-policy.pdf.

Students needing an accommodation based on a protected ground other than disability should communicate this need, preferably in writing to their instructor or the Department Head (email: david.goldblum@ucalgary.ca).

Copyright Legislation

All students are required to read the University of Calgary policy on Acceptable Use of Material Protected by Copyright (www.ucalgary.ca/policies/files/policies/acceptable-use-of-material-protected-by-copyright.pdf) and requirements of the copyright act (<https://laws-lois.justice.gc.ca/eng/acts/C-42/index.html>) to ensure they are aware of the consequences of unauthorised sharing of course materials (including instructor notes, electronic versions of textbooks etc.). Students who use material protected by copyright in violation of this policy may be disciplined under the Non-Academic Misconduct Act.

Wellness and Mental Health Resources

The University of Calgary recognizes the pivotal role that student mental health plays in physical health, social connectedness, and academic success and aspires to create a caring and supportive campus community where individuals can freely talk about mental health and receive supports when needed. We encourage you to explore the mental health resources available throughout the university community, such as counselling, self-help resources, peer support, or skills-building available through the SU Wellness Centre (Room 370, MacEwan Student Centre, <https://www.ucalgary.ca/wellnesscentre/services/mental-health-services>) and the Campus Mental Health Strategy website (<http://www.ucalgary.ca/mentalhealth/>).

Contact Information for Student and Faculty Representation

- Student Union VP Academic 403-220-3911, suypaca@ucalgary.ca
- Students Union Representatives for the Faculty of Arts – 403-220-3913, arts1@su.ucalgary.ca, arts2@su.ucalgary.ca, arts3@su.ucalgary.ca, arts4@su.ucalgary.ca
- Student Ombuds Office information can be found at: www.ucalgary.ca/ombuds/

Campus Safewalk

Campus Security, in partnership with the Students' Union, provides the Safewalk service, 24 hours a day, to any location on Campus, including the LRT station, parking lots, bus zones, and university residences. Contact Campus Security at 220-5333 or use a help phone, and Safewalkers or a Campus Security officer will accompany you to your campus destination.