



We acknowledge and respect the Lək̓ʷəŋən (Songhees and Esquimalt) Peoples on whose territory the university stands, and the Lək̓ʷəŋən and W̱SÁNEĆ Peoples whose historical relationships with the land continue to this day.

COURSE OUTLINE

Weather and Climate

Monday & Thursday, 10:00-11:20 (ECS 108, in person)

PREREQUISITES: 1.5 units of 100 level PHYS; 1.5 units of 100 level MATH

CONTACT INFO:

Instructor(s):	Adam Monahan	
Email:	monahana@uvic.ca	
Office:	BWC A311	
Office Hours:	Tuesday 0900-1000	Thursday 1300-1400
TA:	Fateme Salehi	fatemesalehi@uvic.ca

COURSE DESCRIPTION

An introduction to the physical processes that determine Earth's weather and climate. Topics include: atmospheric composition, flows of energy through the atmosphere, small-scale and large-scale winds, cloud and precipitation processes, climate change.

LEARNING OUTCOMES

By the end of this course, you will

- Describe the structure, composition, and variability of the Earth's atmosphere
 - Identify and explain the differences between natural and anthropogenic influences on the climate system
 - Apply fundamental physical principles (e.g. energy and mass conservation, Newton's laws of motion) to quantify atmospheric processes
 - Interpret graphical representations of the atmospheric state such as weather maps
 - Engage in scientific communication through written assignments
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COURSE MATERIALS

Textbook: S.L. Ross, *Weather & Climate: An Introduction*.

Class recordings will be posted on the Brightspace site. These recordings are intended to supplement in-person lectures rather than replace them. Attendance in class is expected but not required.

BRIGHTSPACE

<https://bright.uvic.ca/d2l/home/441066>

EVALUATION

Assignments	(5)	20%
Midterm exam	(75 minutes, in person)	30%
Final exam	(3 hours, in person)	50%

In the assignments you will be asked to apply concepts discussed in the lectures. These assignments will involve a combination of quantitative analysis and writing. You are encouraged to discuss assignment questions with other students but submitted material must be your own work. In the assignments, you must show your work as well as the final answer.

The exams will be based on material covered in the assignments. Although the assignments contribute a relatively small amount to the final grade, understanding the material they cover is essential for success on the exams. It is therefore worth your while to make sure that you complete the assignments yourself (as noted, working with other students is encouraged). You may use generative AI to check your results, but not to do the work itself.

The midterm and final exams must be completed to be eligible to pass the course.

COURSE POLICIES

POLICY: CLASS CONDUCT

The [student code of conduct](#) for the Tri-Faculties of Humanities, Science, and Social Sciences describes the rights and responsibilities of students in the Tri-Faculties.

POLICY: LATE/MISSED ASSIGNMENTS OR EXAMINATIONS

Of the five assignments, only the best four will count toward the final grade. As such, you can choose not to submit one assignment due to illness or affliction without penalty.

Assignments are due at 4:30 pm on the afternoon of the date indicated in the weekly calendar below. Assignments may be submitted to me in class or in the drop box beside the SEOS main office on the 4th floor of the A wing of the Bob Wright Centre. **Do not slide assignments under my office door.** Late assignments will be accepted with a grade penalty of 20% per day.

If you are unable to write the midterm exam at the time scheduled, a make-up exam will be scheduled for the following week.

POLICY: ATTENDANCE

Attendance in class is expected but not required. Recordings of classes will be posted on Brightspace.

POLICY: ACADEMIC INTEGRITY

It is every student's responsibility to be aware of the university's policies on academic integrity, including policies on **cheating, plagiarism, unauthorized use of an editor, multiple submission, and aiding others to cheat.**

Policy on Academic Integrity: web.uvic.ca/calendar/undergrad/info/regulations/academic-integrity.html

If you have any questions or doubts, talk to me, your course instructor. For more information, see uvic.ca/learningandteaching/cac.

POLICY: USE OF AI

You may use generative AI in this course (eg. ChatGPT) to help with calculations in assignments or verify your answers to assignment questions. **You may not use generative AI to produce written text submitted as part of an assignment.** Note that you will not have access to generative AI during exams.

COURSE FEEDBACK

I value your feedback on this course. Towards the end of term, as in all other courses at UVic, you will have the opportunity to complete an anonymous survey regarding your learning experience (CES). **The survey is vital for providing feedback** to me regarding the course and my teaching, as well as to help the department improve the overall program for students in the future. The survey is accessed online and can be done on your laptop, tablet, or mobile device. I will remind you and provide you with more detailed information nearer the time but please be thinking about this important activity during the course.

COURSE WEEKLY CALENDAR

UVic Important Dates - uvic.ca/calendar/dates/

Last day to add courses: September 19th

Last day to drop a course without penalty of failure: October 31st

WEEK	DATE	LECTURE	Assessment
1	September 4	Structure of the atmosphere	
2	September 8 September 11	Composition of the atmosphere Ideal gas law and hydrostatic equilibrium	
3	September 15 September 18	Weather forecasting Work, heat, and the first law of thermodynamics	
4	September 22 September 25	Energy transfers in the atmosphere Blackbody radiation	Assignment 1
5	September 29 October 2	Radiative transfer and the greenhouse effect Planetary and surface energy budgets	
6	October 6 October 9	Thermodynamics of water in the atmosphere Measures of atmospheric humidity	Assignment 2
7	October 13 October 16	Thanksgiving Static stability and vertical motion	
8	October 20 October 23	Static stability and vertical motion	Midterm
9	October 27 October 30	Condensed water: Dew, fog, and clouds Precipitation	
10	November 3 November 6	Physical controls of wind Physical controls of wind	Assignment 3
11	November 10 November 13	Reading Break Global-scale circulation	
12	November 17 November 20	Synoptic-scale weather Convective storms and tornados	Assignment 4
13	November 24 November 27	Climate change Climate change	
14	December 1	Review	Assignment 5

CHANGES DUE TO UNFORESEEN CIRCUMSTANCES

The above schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances. In the event of significant changes, a revised outline will be posted/circulated.

APPENDIX

SCHOOL OF EARTH AND OCEAN SCIENCES INFO

- SEOS Website: uvic.ca/seos
- SEOS Office: seos@uvic.ca
- SEOS Director: Dr. Jay Cullen, seosdirector@uvic.ca
- SEOS Mental Health & Wellness Contact: Dr. Andy Fraass, andyfraass@uvic.ca
- SEOS Undergraduate Advisor: Dr. Lucinda Leonard, seosadvisor@uvic.ca
- SEOS Graduate Advisor: Dr. Roberta Hamme, seosgradadvisor@uvic.ca
- Ocean Science Mentor: Dr. Jody Klymak, seosoceansci@uvic.ca
- Climate Science Advisor: Dr. Colin Goldblatt, climateadvising@uvic.ca

UNIVERSITY STATEMENTS & POLICIES

- Academic Calendar: [Information for All Students](#)
- [Creating a respectful, inclusive, and productive learning environment](#)
- [Accommodation of Religious Observance](#)
- [Accommodation and Access for Students with Disabilities](#)
- [Student Conduct](#)
- [Non-academic Student Misconduct](#)
- [Accessibility](#)
- [Diversity / EDI](#)
- [Equity statement](#)
- [Sexualized Violence Prevention and Response](#)
- [Discrimination and Harassment Policy](#)

UVIC GRADING SYSTEM

As per the Academic Calendar:

Grade	Grade point value	Grade scale	Description
A+ A A-	9 8 7	90-100% 85-89% 80-84%	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-	6 5 4	77-79% 73-76% 70-72%	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	3 2	65-69% 60-64%	Satisfactory , or minimally satisfactory . These grades indicate a satisfactory performance and knowledge of the subject matter.
D	1	50-59%	Marginal Performance. A student receiving this grade demonstrated a superficial grasp of the subject matter.
F	0	0-49%	Unsatisfactory performance. Wrote final examination and completed course requirements; no supplemental.
N	0	0-49%	Did not write examination or complete course requirements by the end of term or session; no supplemental.

STUDENT RESOURCES

POSITIVITY AND SAFETY

The University of Victoria is committed to promoting, providing, and protecting a positive and safe learning and working environment for all its members.

[Student Groups & Resources](#)

ACADEMIC RESOURCES

UVic Library - *UVic Library offers many services and resources for undergraduate and graduate students.*
uvic.ca/students/academics/library-services

Learning Resources - *UVic Learn Anywhere is the primary learning resource for students that offers many learning workshops and resources to help students with academics and learning strategies.*
onlineacademiccommunity.uvic.ca/uviclearn

Academic Skills Centre - *Offers online and in-person one-on-one tutorials, workshops, and more.*
uvic.ca/learningandteaching/cac

Math & Stats Assistance Centre - *Offers drop-in, face-to-face tutoring and a friendly, collaborative study space for 100- and 200-level math and stats courses.*
uvic.ca/science/math-statistics/current-students/undergraduate/msac

MENTAL HEALTH & WELLNESS

A note to remind you to take care of yourself. Do your best to maintain a healthy lifestyle this semester by eating well, exercising, getting enough sleep, and taking some time to relax. This will help you achieve your goals and cope with stress. All of us benefit from support during times of struggle. You are not alone.

SEOS Mental Health & Wellness Contact - *Dr. Fraass is a faculty member who can act as a sympathetic ear and (more importantly) provide guidance about: how to access the multitude of University support services, and which are useful in different circumstances. Andy can be found by dropping by his office or lab (Bob Wright A431, B409). He is also available via email for questions or to arrange a time to have a chat.* andyfraass@uvic.ca

Student Wellness Centre - *Our team of practitioners offers a variety of services to support students' mental, physical, and spiritual health.* uvic.ca/student-wellness

Counselling Services - *Counselling Services can help you make the most of your university experience. They offer free professional, confidential, inclusive support to currently registered UVic students.* uvic.ca/services/counselling/

Health Services - *University Health Services (UHS) provides a full-service primary health clinic for students and coordinates healthy student and campus initiatives.* uvic.ca/services/health/

ACCESSIBILITY

Students with diverse learning styles and needs are welcome in this course. If you have a documented disability or health consideration that may require accommodations, please feel free to approach me and/or the Centre for Accessible Learning (CAL) as soon as possible.

Centre for Accessible Learning - *The CAL staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.* uvic.ca/services/cal/

ADVISING

For academic advising-related questions, students in the School of Earth and Ocean Sciences are also encouraged to meet with the SEOS Undergraduate Advisor (seosadvisor@uvic.ca) as well as an academic advisor in the Academic Advising Centre early in their studies to help map out a plan to declare a major and complete university program requirements.

Academic Advising Centre - *Academic advice and support is currently available by phone, email and virtual or in-person appointments.* uvic.ca/services/advising

Ombudsperson - *The ombuds office is an independent, impartial, and confidential resource for undergraduate and graduate students and other members of the University of Victoria community. The ombudsperson helps resolve student problems or disputes fairly.* uvicombudsperson.ca

ACADEMIC CONCESSION

You can request an academic concession if your course requirements are affected by unexpected and unavoidable circumstances, or conflicting responsibilities. Concession requests can be for an in-course extension, deferral, withdrawal under extenuating circumstances, or an aegrotat. Please speak to an advisor at the Academic Advising Centre if you have questions on how requesting a concession will affect your academic program.

Undergraduate Academic Concessions - uvic.ca/students/academics/academic-concessions-accommodations/request-for-academic-concession/index.php

EQUITY AND HUMAN RIGHTS AT UVIC

EQHR is a resource for students, staff, and faculty who have experienced sexualized violence, discrimination, and/or harassment and are looking for informal and/or formal resolution options as well as advice, coaching, and/or education. We are available for confidential consultations so that you can ask questions and learn your options.

EQHR – *By email at eqhr01@uvic.ca or in-person (Sedgewick C115).* uvic.ca/equity

Sexualized Violence Resource Office – *If you have been directly or indirectly impacted by sexualized violence, reach out to the SVRO for information, advice, resolution options (restorative and disciplinary) as well as support options and referrals. The SVRO is both survivor-centred and trauma-informed in their approach. You can reach us by phone at [250-721-8021](tel:250-721-8021) or by email at eqhr01@uvic.ca to book either an in-person (Sedgewick C119) or online appointment.* uvic.ca/svp

RESOURCES FOR INTERNATIONAL STUDENTS

International Centre for Students - *The primary office supporting international students on campus at the university-wide level.* uvic.ca/international-experiences

UVic Global Community Initiative - *Provides various supportive programming, including a Mentorship Program and Conversation Partner Program.*

uvic.ca/international-experiences/get-involved/uvic-global-community

RESOURCES FOR INDIGENOUS STUDENTS

Indigenous Student Support - *UVic offers holistic services to Indigenous students throughout their academic journey.* uvic.ca/students/info-for/indigenous-students

Elders in Residence - *The Office of Indigenous Academic and Community Engagement (IACE) has the privilege of assembling a group of Elders from local communities to guide students, staff, faculty, and administration in Indigenous ways of knowing and being.* uvic.ca/iace/elders/elder-visits