

COURSE OUTLINE

1. Course Description

This course explores the nature and function of Earth’s atmosphere. Topics include atmospheric composition and structure, insolation, atmospheric circulation, humidity and precipitation, and weather systems. Climate diversity and change (natural and anthropogenic) will be examined in detail. Lab activities will introduce methods for sampling and analyzing weather and climate data.

My classes tend to be quite informal, and I encourage participation and discussion. My goal is to have you think and understand, so please speak up if you are confused! Group work is encouraged, and you should help each other learn. But this does not mean you can copy! Each student must do their own individual assignment reports, and if I catch people copying, all parties involved will get a mark of zero.

Note: The official Approved Course Description is available on the web at <http://camosun.ca/learn/calendar/current/web/geog.html>

- *Please note: this outline will be electronically stored for five (5) years only. It is strongly recommended students keep this outline for your records.*

2. Instructor Information

Instructor:	Chris Ayles
Office Hours:	Mon, Wed, Fri 12:30-1:20. Tue, Thu 1:30 – 2:20. Other times available by chance or appointment.
Location:	Fisher 342C
Phone:	370-3393
Email:	cayles@camosun.bc.ca
Website:	faculty.camosun.ca/chrisayles

3. Intended Learning Outcomes

Upon successful completion of this course, a student will be able to:

1. Describe the structure and function of Earth’s atmosphere in order to understand weather and climate systems.
2. Describe the influence of water and the hydrologic cycle on weather and climate.
3. Discuss human influence on the atmosphere.
4. Collect and analyze weather and climate data in order to interpret atmospheric conditions.

4. Course Materials

(a)	Textbook	<p><u>Required:</u> Ross, S.L., 2013. <i>Weather and Climate – An Introduction</i>. Don Mills, ON: Oxford University Press Canada, 510 pp.</p> <ul style="list-style-type: none">• This is a new book with a strong Canadian emphasis.• It is also being used at UVic, which could facilitate resale.• Copies are on reserve in the library.• Similar introductory atmospheric science texts by Aguado & Burt, Ahrens, or Lutgens & Tarbuck could be substituted in a pinch, but specifics and examples will vary.
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5. Course Content

- **Lectures:** Tuesday lectures will generally provide the theory you need to understand the labs and pass the tests, so attendance is essential. I mostly use PowerPoint, and I will post basic lecture outlines, plus labs and other things, on my web site: faculty.camosun.ca/chrisayles.

I want class to be relaxed and fun, but I also want to optimize the learning experience for serious students. To this end:

- Please turn off cell phones at the start of class.
 - If you use a laptop, please sit near the back so you don't distract others.
 - If you use a laptop, please don't distract yourself with email, facebook, gaming, etc.
 - Please avoid whispering to your neighbours.
- **Readings** are an essential part of your learning in this course – they provide indispensable depth and context, and a different perspective on the subject matter. Reading assignments are detailed below.
 - **Labs:** There are eight real labs, plus Lab 0, which is a self-guided warm-up exercise. Regular labs will be given roughly two hours of class time. Labs must be downloaded from the class web site and printed before class; please hand in a hard copy. You may work in groups, but each student must write their own individual answers unless instructed otherwise. **Attendance is crucial**. No credit will be given for wrong answers or missed activities due to unexcused absence from lab. Labs are generally due the following week, and late labs may be penalized 10% per day. Late assignments will not be accepted after I have returned them marked.

Most labs involve basic math, computer and/or map skills - simple formulas, conversions, graphing, scale calculations, etc. Lab 0 will help you assess your lab skills, and if you find any weak spots, I am happy to provide some coaching. Just ask. On lab days, you should bring pencils, paper, graph paper, calculator and ruler. Some labs involve outdoor field work. Read labs ahead of time and be prepared for the weather.

- **Weather Analysis Project:** Students will monitor the local weather for a week, and analyze what happened using weather data and maps. The project requires a formal written report. See details in the project handout.
- **Exams:** There will be two midterms and a final exam. The format for these will be a combination of multiple choice, short answer and long answer questions. They mainly will emphasize the lecture material, though lab material will also be covered. The final exam will be cumulative.
- **Illness, etc.:** If you miss a lab or exam due to illness or some other serious reason, I must ask you to provide a doctor's note or other documentation. Otherwise, a mark of zero for the missed assignment will be given. Exams and field trips are hard to reschedule, so try not to miss them unless you are too sick to perform at a normal level. Students who are absent for a valid reason must contact me within 24 hours. In such cases, one makeup exam time will be scheduled, and all students needing it will be expected to attend.

6. Basis of Student Assessment

Evaluation will be based on accuracy, clarity and thoroughness. Always show your work and keep track of units of measure! When grading, I look for proof of your understanding, so work clearly and carefully. I endeavour to mark fairly and consistently, but if you have a question about my assessment, feel free to ask about it.

Labs	29% (1% for Lab 0, 3.5% for others)
Weather analysis project	10%
Field trip notes	1%
Midterm exams	30% (15% each)
Final exam	30%
TOTAL	100%

7. COURSE SCHEDULE (Subject to change at instructor's discretion):

<u>Week</u>	<u>Tuesday</u>	<u>Thursday</u>
Sep. 2	Course Intro <i>Reading: Ch. 1</i>	Atmosphere Intro / Weather balloon launch (Do Lab 0: Basic Skills on your own.)
Sep. 9	Atmospheric Composition & Structure <i>Reading: Ch. 2</i>	Lab 1: Weather Data <i>Meet in E115 computer lab.</i>
Sep. 16	Radiation <i>Reading: Ch. 4, 5</i>	Lab 2: Solar Radiation
Sep. 23	Temperature <i>Reading: Ch. 6</i>	Lab 3: Radiation and Temperature
Sep. 30	Pressure and Wind <i>Reading: Ch. 3, 11</i>	Midterm 1
Oct. 7	Atmospheric Circulation <i>Reading: Ch. 12</i>	Lab 4: Wind
Oct. 14	Water in the Atmosphere 1 <i>Reading: Ch. 7, 8</i>	Lab 5: Humidity and Precipitation
Oct. 21	Water in the Atmosphere 2 <i>Reading: Ch. 9, 10</i>	Lab 6: Stability and Uplift
Oct. 28	Weather Systems 1 <i>Reading: Ch. 13, 14</i>	Midterm 2
Nov. 4	Weather Systems 2 <i>Reading: Ch. 14, 15</i>	Lab 7: Weather Maps <i>Start weather project next Monday, Nov. 12.</i>
Nov. 11	Ocean Circulation <i>Reading: M. Denny 2008, pp. 218-230</i> Collect observations, data and maps for weather project all this week.	Field trip to VENUS <i>Travel logistics TBA</i>
Nov. 18	Climate Zones <i>Reading: Ch. 16</i>	<u>No lab: weather project due today</u>
Nov. 25	Natural Climate Change <i>Reading: Ch. 17</i>	Lab 8: Climate Change <i>Meet in E115 computer lab.</i>
Dec. 2	Global Warming <i>Reading: IPCC report excerpt</i>	Climate change video / discussion Review for final exam
Exam Week	Final Exam	

8. Grading System

Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D		1
0-49	F	Minimum level has not been achieved.	0

Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy at camosun.ca or information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	<i>Incomplete:</i> A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	<i>In progress:</i> A temporary grade assigned for courses that are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.
CW	<i>Compulsory Withdrawal:</i> A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy E-1.5 at camosun.ca for information on conversion to final grades, and for additional information on student record and transcript notations.

8. Recommended Materials or Services to Assist Students to Succeed Throughout the Course

LEARNING SUPPORT AND SERVICES FOR STUDENTS

There are a variety of services available for students to assist them throughout their learning. This information is available in the College calendar, at Student Services or the College web site at camosun.ca.

STUDENT CONDUCT POLICY

There is a Student Conduct Policy **which includes plagiarism**. It is the student's responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, at Student Services and on the College web site in the Policy Section.