



# Meteorology, Climatology and Hydrology – GEOG 230

## University Studies Program

### Course Outline

COURSE IMPLEMENTATION DATE: September 2020  
OUTLINE EFFECTIVE DATE: September 2020  
COURSE OUTLINE REVIEW DATE: April 2025

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#### GENERAL COURSE DESCRIPTION:

This course will examine the basic principles and processes governing the Earth's weather and climate, including the movement of water. In this course, students will analyze the linkages between the atmosphere, hydrosphere, and land surface interactions responsible for creating the weather and climate that we experience each day. Specifically we will examine fluxes of mass and energy exchanges, radiation, precipitation, winds, weather systems, fluvial hydrology, water balances, and global climates.

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**Program Information:** This course can be used as either a required course or an elective in several University Studies Programs. Refer to the College Program Guide for additional information.

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**Delivery:** This course is delivered face to face.

**COTR Credits:** 3

**Hours for this course:** 90 hours

#### Typical Structure of Instructional Hours:

Instructional Activity	Duration
Lecture Hours	45
Seminars / Tutorials	
Laboratory / Studio Hours	45
Practicum / Field Experience	
Other Contact Hours	
<b>Total</b>	<b>90</b>

#### Practicum Hours (if applicable):

Type of Practicum	Duration
On-the-Job Experience	
Formal Work Experience	
Other	
<b>Total</b>	

**Course Outline Author or Contact:**

Katie Burles, M.Sc.

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Signature

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**APPROVAL SIGNATURES:**

Department Head  
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Department Head Signature

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Valid from: September 2020- April 2025

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Education Council Approval Date

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**COURSE PREREQUISITES AND TRANSFER CREDIT:**

**Prerequisites:** GEOG 101

**Corequisites:** None

**Flexible Assessment (FA):**

Credit can be awarded for this course through FA

Yes     No

Learners may request formal recognition for flexible assessment at the College of the Rockies through one or more of the following processes: External Evaluation, Worksite Assessment, Demonstration, Standardized Test, Self-assessment, Interview, Products/Portfolio, Challenge Exam. Contact an Education Advisor for more information.

**Transfer Credit:** For transfer information within British Columbia, Alberta and other institutions, please visit <http://www.cotr.bc.ca/Transfer>.

Student should also contact an academic advisor at the institution where they want transfer credit.

**Prior Course Number:** N/A

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## Textbooks and Required Resources:

Textbook selection varies by instructor and may change from year to year. At the Course Outline Effective Date the following textbooks were in use:

Ross, S.I. 2013. *Weather and Climate: An Introduction*. Oxford University Press. 510 pp. ISBN 978-0-19-544587-9.

*Please see the instructor's syllabus or check COTR's online text calculator <http://go.cotr.bc.ca/tuition/tCalc.asp> for a complete list of the currently required textbooks.*

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## LEARNING OUTCOMES:

Upon the successful completion of this course, students will be able to

- explain the vertical structure, composition, and large scale patterns of the Earth's atmosphere and climate systems and describe these patterns in terms of both thermodynamic and geographic controls;
- describe the role of water in the atmosphere and how water moves in the ground and overland;
- define and describe the local weather, climate, and hydrology processes and patterns that impact localities in British Columbia and the Columbia Basin;
- demonstrate foundational knowledge in climatology, meteorology, and hydrology in preparation for upper level and advanced topics in Geography and other subjects;
- describe the impact of human activities on global climate;

Demonstrate competence in:

- methods to gather climate data, including use of basic meteorological and hydrological instrumentation
  - scientific research and data analysis including: the construction and reading of graphs; use of spreadsheets, and online weather products;
  - communicating science including: written, numeric, graphic, and oral methods; and
  - working collaboratively with other students and teams.
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## COURSE TOPICS:

1. Atmospheric composition and structure
2. Radiation pathways and energy balance
3. Daily and seasonal temperature variation
4. Atmospheric pressure and motion
5. Winds at different spatial scales
6. Atmospheric humidity, clouds, and precipitation
7. Air masses, fronts, and storms
8. Fluvial hydrology and floods
9. Water balance, process and pathways
10. Global climates
11. Climate change and variability

*See instructor's syllabus for the detailed outline of weekly readings, activities and assignments.*

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## EVALUATION AND ASSESSMENT (Face-to-Face Delivery):

Assignments		% of Total Grade
Lab		
	Lab Assignments	30%
	Lab Exam	10%
	Weather (Lab) Journal	10%
Class		
	Midterms	20%
	Final Exam	30%
	Total:	100%

Please see the instructor's syllabus for specific classroom policies related to this course, such as details of evaluation, penalties for late assignments and use of electronic aids.

**Note:** Students must attain a 50% average on all lab-based assignments and exams and a 50% average on all class-based evaluations to pass Geography 230.

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### EXAM POLICY:

Students must attend all required scheduled exams that make up a final grade at the appointed time and place.

Individual instructors may accommodate for illness or personal crisis. Additional accommodation will not be made unless a written request is sent to and approved by the appropriate Department Head prior to the scheduled exam.

Any student who misses a scheduled exam without approval will be given a grade of "0" for the exam.

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### COURSE GRADE:

Course grades are assigned as follows:

Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F
Mark (Percent)	≥ 90	89-85	84-80	79-76	75-72	71-68	67-64	63-60	59-55	54-50	< 50

A grade of "D" grants credit, but may not be sufficient as a prerequisite for sequential courses.

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### ACADEMIC POLICIES:

See [www.cotr.bc.ca/policies](http://www.cotr.bc.ca/policies) for general college policies related to course activities, including grade appeals, cheating and plagiarism.

## **COURSE CHANGES:**

Information contained in course outlines is correct at the time of publication. Content of the courses is revised on an ongoing basis to ensure relevance to changing educational, employment and marketing needs. The instructor endeavours to provide notice of changes to students as soon as possible. The instructor reserves the right to add or delete material from courses.