University of Victoria

GEOGRAPHY 272 - A01
UNIVERSITY OF VICTORIA
FALL TERM 2021
Ben Paquette-Struger

COURSE OUTLINE

GEOG272: Introduction to Climatology and Hydrology

In grateful acknowledgement of the L'kwungen & W̱SÁNEĆ Peoples upon whose territories we are able to live and learn.

Course materials and instructions will be made available on Brightspace (bright.uvic.ca). Please read this outline and further instruction carefully.

The laboratory component of this course is supported by Senior Laboratory Instructor Gillian Krezoski (**gkrezoski@uvic.ca**) and Matt Bonnyman. You can find all lab assignment and supporting material on Brightspace. All contact information and lab details will be provided.

Online Office Hours: Wednesday 2-4 pm
Office Location: David Turpin Building B120
Contact: baps@uvic.ca
Lectures: T, W 12:30 – 13:20 (A01) Clearihue Building A224 (CRN: 11757)

Labs:	W	8:30 – 10:20	(B01) – David Turpin Bldg. B307- Jill Krezoski
	W	16:30 – 18:20	(B02) – David Turpin Bldg. B307- Matt Bonnyman
	Th	14:30 – 16:20	(B03) – David Turpin Bldg. B307 - Jill Krezoski
	F	12:30 – 14:20	(B04) – David Turpin Bldg. B307- Matt Bonnyman

COURSE DESCRIPTION

Weather, climate, and the movement of water constantly affect our lives and activities. Together these factors determine, 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 these processes. This course seeks to equip you with an understanding of climate, weather, and the flow of water necessary to better understand the structure, energy, and water processes in the Earth System – potentially in preparation for further study. Additionally, it will provide you with a basic understanding of the factors governing climate and driving climate change and allow you to be a more effective citizen by fully engaging in and appreciating the global environmental change debate.

This course is a general introduction to climatology and hydrology, with an emphasis on the essential controls of weather and climate, broad patterns and dynamics of the global climate, basic hydrology with a focus on the core scientific concepts that form our understanding of climate processes and the drivers of climate and hydrologic change.

LEARNING OUTCOMES

- Learn about the global energy balance, and regional climate and weather patterns and some of the physics behind these processes
- Learn about the global water cycle, water flows and how these influence water resources
- Understand how climate and water data are collected, analyzed and used
- Develop an understanding of models used in climate and water analyses
- Understand the basic drivers of climate change and how it might impact society with an emphasis on water resources
- Observe and apply climatology and hydrology concepts in the laboratory component of the class

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REQUIRED TEXT

Robert V. Rohli and Anthony J. Vega. 2017. *Climatology*. Jones & Bartlett Learning; 4th Edition
418p, ISBN 978-1284119985

This text is intended to provide an overview of different aspects of climatology, there will also be materials posted on Brightspace as needed to provide supplemental readings. Lectures will generally follow the outline of the text, although some topics will follow a slightly different order. The text is also a very valuable resource for laboratory section, especially in the latter half of the class. This syllabus and course outline lists suggested chapter readings for each section of the course, but we will spend significantly more time on the early chapters.

EVALUATION

The course grade will be based on the following

		Date (or date due)	Weight	Subject
1	Quizzes	Four quizzes (3% each) – Dates TBA	12 %	Lecture, text and labs topics and external lecture reports
2	Mid-Term Test	Listed below	18 %	Lecture and text materials
3	Final Exam	Will be posted	30 %	Lecture materials (all)
4	Labs	Detailed breakdown to follow in sections	40 %	Varied

EXAM AND QUIZZES:

There will be four quizzes, each based on the lecture sections and readings up to the previous quiz. Quizzes will be administered through Brightspace and are intended to emphasize concepts from the readings and lecture. There is one mid-term test. The final exam will be comprehensive but weighted 2:1 on the second half of the term and it will contain some elements from your labs. The final exam will be 3 hours long. Further details will be discussed in class.

LABORATORY SECTIONS

The labs are an essential part of the course and **attendance is required**. There will be reports due; see the Lab Syllabus for a detailed schedule. All lab reports must be neatly typed and figures must be cleanly and correctly presented following the format presented in the lab syllabus. 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.

Please attend only the laboratory section for which you are registered. If you must miss a lab for exceptional circumstances, please arrange with your TA - in advance – to join another section. This however does not change the due date of your lab assignment.

Details regarding your labs and their marks are managed by the course TAs. Please discuss any issues or questions on labs with your TA first and then direct questions at the instructor if you would like further clarification. Any excuses for late labs (i.e. sick, etc.) must be approved by the course instructor (Ben).

While we do our best to guide you through this unprecedented learning experience, TAs and I will not be answering emails 24/7. Make sure that you address all questions regarding assignments or lecture material in time to receive a response within the work week.

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.

GEOGRAPHY DEPARTMENT INFO

Geography Department website: http://geog.uvic.ca
Undergraduate Advisor: geogadvising@uvic.ca
Department Chair: Dr. David Atkinson - geogchair@uvic.ca

POLICY ON LATE ASSIGNMENTS

Deadlines for lab assignments can be found in the lab syllabus. Quizzes will be conducted through Brightspace and will have automatic deadlines. Requirements for each quiz may vary and will be announced in class or indicated on the quiz.

POLICY ON ATTENDANCE

Attendance is required for labs and assumed for lecture. While we will not take attendance during lecture, a significant portion of the exams will depend on lecture materials and it will be difficult to pass the course without regular attendance.

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/calendar2019-09/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/index.php.

ACCESSIBILITY

Students with diverse learning styles and needs are welcome in this course. In particular, 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 https://www.uvic.ca/services/cal/). The CAL staff is 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.

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.

SEXUALIZED VIOLENCE PREVENTION AND RESPONSE AT UVIC

UVic takes sexualized violence seriously, and has raised the bar for what is considered acceptable behaviour. We encourage students to learn more about how the university defines sexualized violence and its overall approach by visiting uvic.ca/svp. If you or someone you know has been impacted by sexualized violence and needs information, advice, and/or support please contact the sexualized violence resource office in Equity and Human Rights (EQHR). Whether or not you have been directly impacted, if you want to take part in the important prevention work taking place on campus, you can also reach out:

Where: Sexualized violence resource office in EQHR; Sedgewick C119
Phone: 250.721.8021
Email: svpcoordinator@uvic.ca
Web: uvic.ca/svp

COURSE EXPERIENCE SURVEY (CES)

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 to 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.

DISCLAIMER

The above schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances.

NOTE:

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.

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/

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

Elders' Voices - *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/services/indigenous/students/programming/elders/index.php

WEEKLY CALENDAR

WEEK	DATE	Topic	Reading
1	Sep. 8	Course Introduction	Course Syllabus
2	Sep. 14 Sep. 15	Introduction to Climatology and Hydrology Composition and Structure of the Atmosphere	Chapter 1 Chapter 2
3	Sep. 21 Sep. 22	Energy in the Climate System Surface Radiation Budgets	Chapter 5 Chapter 3
4	Sep. 28 Sep. 29	Calculating the Solar Constant of the Earth General Controls on Global Climate	Chapter 3
5	Oct. 5 Oct. 6	General Controls on Global Climate Uplift, Moisture, and Cloud Formation	Chapter 3 Chapter 5
6	Oct. 12 Oct. 13	General Controls on Global Climate General Controls on Global Climate	Chapters 4, 5, & 7
7	**Oct. 19** Oct. 20	**MIDTERM** Other Climate System Components (Monsoons, ENSO, etc.)	**MIDTERM** Chapter 4
8	Oct. 27 Oct. 28	Introduction to Hydrology Ground and Surface Water	Chapter 6
9	Nov. 2 Nov. 3	River and Stream Flow Analyses of Event Hydrographs	
10	Nov. 9 **Nov. 10**	Analyses of Annual Hydrographs and Hydrologic Regimes **READING BREAK**	 **NO CLASS**
11	Nov. 16 Nov. 17	Hydrologic Regimes of British Columbia Hydrologic Regimes of British Columbia	
12	Nov. 23 Nov. 24	Lake Ecosystems Limnology	
13	Nov. 30 Dec. 1	Climate Warming Cryospheric Systems	