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**COURSE OUTLINE**

**GEOG272: Introduction to Climatology and Hydrology**

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**Office Hours: ?**

**Office Location:** David Turpin Bldg. B203c

**Contact:** feddema@uvic.ca    Tel: 250-721-7325

Lectures: T, W 12:30 – 13:20 (A01) Fraser Building 159 (CRN: 11757)

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Labs:

W	8:30 – 10:20	(B01) – David Turpin Bldg. B307 (CRN: 11758) - Jill Krezoski
W	16:30 – 18:20	(B02) – David Turpin Bldg. B307 (CRN: 11759) - Chris Krasowski
Th	14:30 – 16:20	(B03) – David Turpin Bldg. B307 (CRN: 11760) - Jill Krezoski
F	12:30 – 14:20	(B04) – David Turpin Bldg. B307 (CRN: 11761) - Ben Paquette-Struger

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**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 – while we are all aware of climate change at some level, there remains confusion about how much is understood from a scientific perspective.

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. In addition to understanding process, the course will also look at how weather, climate and water resources differ across the globe and influence societies. Finally, the course will have a component focus on developing a deeper understanding of how data is collected, analyzed and disseminated, and how models have become a central tool to driving our understanding of these systems.

**KEY THEMES:**

- 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 climate science and hydrology concepts in the laboratory component of the class

## 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 Course Spaces 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.

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## LEARNING OUTCOMES

This course seeks to equip you with an understanding of climate, weather, and the flow of water necessary to:

- a) Provide you with the background information to better understand the structure and energy and water processes in the Earth System – potentially in preparation for further study
  - b) Provide you with a basic understanding of the factors governing climate and driving climate change
  - c) Deepen your understanding of the scientific process, how data is collected, analyzed and used in the context of climate and water resource; and provide example data sources.
  - d) Allow you to be a more effective citizen by fully engaging in and appreciating the global environmental change debate.
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## EVALUATION

The course grade will be based on the following

		Date (or date due)	Weight	Subject
1	Quizzes	Weekly	12.5 %	Lecture, text and labs topics and external lecture reports
2	Mid-Term Test	Listed below	17.5 %	Lecture and text materials
3	Participation	N/A	5 %	Lab and course participation, external lecture attendance
4	Final Exam	Will be posted	30 %	Lecture materials (all)
5	Labs	Detailed breakdown to follow in sections	35 %	Varied

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## EXAM AND QUIZZES:

We will have weekly quizzes, each based on the lecture sections and readings up to the previous quiz. Quizzes will be administered through Course Spaces 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 in duration. Participation is based on engagement in lab and responses/mini reports after attending 2 public lectures on climate (due last day of class at the latest). 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. Your lab instructor is your first point of contact for the labs. 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.

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## COMPUTER USE

In the laboratories, we will be doing a number of exercises using the computer. You should be familiar with basic computer skills such as file maintenance, printing and word processing. Ideally students will bring a laptop to labs where computers are used.

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## GRADING SYSTEM

As per the Academic Calendar:

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

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## GEOGRAPHY DEPARTMENT INFO

- Geography Department website: [uvic.ca/socialsciences/geography/](http://uvic.ca/socialsciences/geography/)
- Undergraduate Advising: [geogadvising@uvic.ca](mailto:geogadvising@uvic.ca)

## **COURSESPACES**

This course is hosted on the UVic Coursespaces system - <http://coursespaces.uvic.ca/> Course-related materials or news items will be posted here from time to time; make sure you keep a regular eye on the site. Readings will be posted here ahead of classes for which they are required and quizzes and lab materials will also be posted here.

In addition, there are many sites on the Internet with satellite images, current maps and other data and information which will be posted for you to explore. You may want to find these and study the weather during this semester. You will notice that your appreciation and understanding of the maps will greatly increase over the course of the semester.

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## **POLICY ON LATE ASSIGNMENTS**

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

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## **POLICY ON ATTENDANCE**

Attendance is required for labs and assumed for lecture, it will not be possible to pass the lab without attendance. 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.

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## **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](http://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](http://uvic.ca/learningandteaching/cac/index.php).

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## **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.

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## **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](http://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](mailto:svpcoordinator@uvic.ca)

Web: [uvic.ca/svp](http://uvic.ca/svp)

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## 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 via MyPage 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.

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## DISCLAIMER

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

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## 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/](http://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/](http://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/](http://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](http://uvic.ca/services/indigenous/students/programming/elders/index.php)

## WEEKLY CALENDAR

WEEK	DATE	Topic	Reading
1	Sep 4	Introduction, history of the discipline and scales	Chapter 1
2	Sep 10-11	Composition and structure of the Atmosphere	Chapter 2
3	Sep 17-18	Energy Balance	Chapter 3 & 5
4	Sep 24-25	Atmospheric processes and circulation	Chapter 3 & 5
5	Oct 1-2	Other systems that regulate climate (Spheres)	Chapter 4
6	Oct 8-9	Other climate system components (monsoons, ENSO etc.)	Chapters 3, 4, 5 & 7
7	Oct 15-16	Secondary climate features <b>MIDTERM October 16</b>	Chapters 5 & 7
8	Oct 22-23	Hydrologic cycle and water balance	Chapter 6 & hydrology reading on course spaces
9	Oct 29-30	Climate classification and global distributions	Chapters 8, 9, & 10
10	Nov 5-6	Climate models and boundary conditions	Chapter 6 & 13
11	Nov 12-13	READING BREAK – NO CLASS	
12	Nov 19-20	Past climates and Historical Climate Change	Chapter 11
13	Nov 26-27	Modern Climate Change	Chapter 12 & 13
14	Dec 3-4	Climate impacts and Analysis	Chapters 14-15

## GEOG 272 Laboratory Outline

For class policies and lecture information, please refer to the Geography 272 course syllabus. The laboratory component of this course is supported by Senior Laboratory Instructor Gillian Krezoski (gkrezoski@uvic.ca) and a number of Teaching Assistants (TAs). You can find all lab assignment and supporting material along with their contact information and office hours on CourseSpaces, and below.

**Sections:**

<b>Time</b>	<b>Location</b>	<b>Instructor</b>
Wednesday 8:30 am - 10:20 am	DTB B307	Jill Krezoski
Wednesday 4:30 pm - 6:20 pm	DTB B307	Chris Krasowski
Thursday 2:30 pm - 4:20 pm	DTB B307	Jill Krezoski
Friday 12:30 pm - 2:20 pm	DTB B307	Ben Paquette-Struger

**Schedule: NOTE – schedule and due dates are subject to change as needed.**

<b>Week of:</b>	<b>Lab # and Subject</b>	<b>Lab # Due*</b>
September 4	<b>No Labs</b>	None
September 9	Lab # 1 - Data Sources and Collection	None
September 16	Lab # 2 – Solar Irradiance	None
September 23	Lab # 3 – Long Wave Radiation	<b>Lab #2</b>
September 30	Lab # 4 - Evaporation (EHFD)	<b>Lab #3</b>
October 7	Lab # 5 - Convection (CHFD)	<b>Lab #4</b>
October 14	<b>Thanksgiving - No Labs</b>	<b>MIDTERM</b>
October 21	Lab # 6 – Air Temperature & Humidity	<b>Lab #5</b>
October 28	Lab # 7 - Water Budget	<b>Lab #6</b>
November 4	Lab # 8 - Examining Weather Data and Trends	<b>Lab #1</b>
November 11	<b>Reading Break - NO LABS</b>	<b>None</b>
November 18	Lab # 9 - Precipitation and Hydrology	<b>Lab #7 &amp; 8</b>
November 25	Lab # 10 - Climate Change Analysis	<b>Lab #9</b>
December 2	<b>No Labs</b>	<b>Lab #10</b>

**\*Labs will be considered late if handed in after the first 15 minutes of the scheduled lab. Each lab is worth 10% of your final laboratory mark.**

## COURSE POLICIES

Students are expected to attend all labs, take notes and be punctual. A high level of student cooperation and participation, involving asking and answering questions, is expected.

**Late assignments will be penalized 20% per day** (including weekends and holidays). Exceptions will only be granted for documented medical or compassionate reasons. Please inform the instructor of your situation promptly and present written proof within five working days. **Only the course instructor can grant exceptions.** You may turn in your assignment via our course dropbox outside of the main Geography office (DTB B202). Please email your TA so they know to look for it.

Please attend only the laboratory section for which you are registered. If you must miss a lab for exceptional circumstances, please make arrangements with your TA and Instructor in advance to attend another section. In this situation, you may be asked to attend a specific lab section because of space requirements and this may result in you missing content from other classes. *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 see your professor if you would like further clarification.

Unless otherwise stated students are expected to complete assignments independently.

## PLAGIARISM

Academic dishonesty (plagiarism, cheating) is a very serious matter in any academic institution and is dealt with severely at the University of Victoria. *The responsibility of the institution:* Instructors and academic units have the responsibility to ensure that standards of academic honesty are met. By doing so, the institution recognizes students for their hard work and assures them that other students do not have an unfair advantage through cheating on essays, exams, and projects. *The responsibility of the student:* Plagiarism sometimes occurs due to a misunderstanding regarding the rules of academic integrity, but it is the responsibility of the student to know them. If you are unsure about the standards for citations, for referencing your sources, or unauthorized use of an editor, please familiarize yourself with the University policy on academic integrity found in the Undergraduate Calendar at the following website. [web.uvic.ca/calendar2019-09/undergrad/info/regulations/academic-integrity.html](http://web.uvic.ca/calendar2019-09/undergrad/info/regulations/academic-integrity.html).

Infractions will be dealt with in accordance with University policy. Commonly, the penalty for any form of cheating/plagiarism is a grade of F on the tests or laboratory assignments, or a final grade of F in the course. However, depending on the severity of the case other penalties may include a record on the student's transcript or expulsion.

## GEOG 272 COURSE STYLE GUIDE

Weekly laboratory reports will follow the below style guide for submittal.

### All pages of your submission must have the following information:

Your name and V#

GEOG XXX – Spring Term 2017 Project (Lab) #

These can be placed in a header, a footer or on the back of each.

**STYLE:** All or your lab submissions are to be **typed** in a standard academic font, **size 11, black ink, double-spaced**. This means often you will have to reproduce your lab documents, re-create tables, etc.

**SUBMISSION:** The assignment/report are to be bound by a single staple in the upper left hand corner.

**ORDER OF SUBMISSION:** Where an assignment requires that you answer a series of questions, those questions must be replicated in your submittal and answered in order. Where an assignment asks for a report format, that format must be followed as requested.

**“APPROPRIATE TITLES or CAPTIONS”** – All diagrams, graphs, tables, drawings, plans, plots and profiles must have an appropriate title or caption (see below for captioning).

**What** does the diagram show or represent?

**Where** is the location that is being represented in the diagram (be specific)?

**When** was the diagram drawn or its related spatial data collected?

**CAPTIONING:** A good caption can replace the need for a title. Figure captions are typically at the bottom. Table captions are at the top. If there is a source for data in a table or image, be sure to include it. Here is an example:

**Table 1:** Climate Normal Data (1981-2010) for 4 stations on Vancouver Island (Environment and Climate Change Canada)

**CITATIONS:** In general, APA or MLA style guides are both acceptable to the university. As long as appropriate information is included in this lab, citations will be accepted. You can find out more on referencing on our library website, here: <https://www.uvic.ca/library/research/citation/index.php>. If referencing materials from a particular web site, give a description or name for the web site, its URL, and details regarding article(s) that were referenced and their dates if available. Please ask your TA for help if you are having difficulty.

**DATA SOURCES:** All tables, graphs, etc. that draw on data from secondary sources should include the source from which the data was collected whether it be from a web site, refereed journal or similar sources.

**NEATNESS COUNTS:** It is extremely difficult to take a submission seriously when it includes messy drawings, poor printing or hand writing, pages torn from a work book, etc. The size of figures and captions must be large enough to be easily interpreted and read. **RULE:** If you would not submit it to a boss or supervisor, **do not** presume to submit it to your lab instructor.