University of Victoria

**GEOGRAPHY 272 - A01**
**UNIVERSITY OF VICTORIA**
**FALL TERM 2024**
**Dr. Sophie Norris**

**COURSE OUTLINE**

# GEOG272: Climatology and Hydrology

**We acknowledge and respect the lək̓ʷəŋən peoples on whose traditional territory the university stands and the Songhees, Esquimalt and W̱SÁNEĆ peoples whose historical relationships with the land continue to this day.**

**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 TAs Lindsay Worden and Adam Wicks (**lindsayworden@uvic.ca and awicks@uvic.ca**). You can find all lab assignments and supporting material on Brightspace. All contact information and lab details will be provided.

**Instructor:** Dr. Sophie Norris
**Office Hours:** Friday 10.30-12.30 pm (my office David Turpin Building B128)
**Contact:** sophienorris@uvic.ca
**Lectures:** T, W, F 11:30 am – 12:20 pm (A01) Clearihue Building A224 (CRN: 11701)

## 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 data are collected, analyzed and used

- Develop an understanding of models used in climate and water budget 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 atmospheric hydrology concepts in the laboratory component of the class

**WEEKLY CALENDAR**

| Week | Date | Topic | Due | Reading | Lab Meeting |
|---|---|---|---|---|---|
| **1** | 04-Sept | • **Classes start Sept 4th**<br>• Intro to 272<br>• Intro to Climatology and Hydrology | | Course Syllabus Chapter 1 | No Lab |
| **2** | 09-Sept | • Atmospheric Composition<br>• Energy in the Climate System-Part 1<br>• No lecture- self guided study session | | Chapter 1 & 2 | No Lab |
| **3** | 16-Sept | • Energy in the Climate System-Part 2<br>• Surface Radiation Budget<br>• Data sources and acquisition | | Chapter 3 & 5 | Lab #1 – Collecting Climate Data – Weather Station Assignment |
| **4** | 23-Sept | • Calculating the Solar Constant<br>• Controls on the Global Climate<br>• Lecture period set aside for independent completion of Quiz 1 | **Quiz 1** | Chapter 3 & 5 | Lab #2 – Solar Insolation |
| **5** | 30 Sept | • Controls on the Global Climate<br>• Controls on the Global Climate<br>• No lecture- self guided study session | Lab #2 (6%) | Chapter 3 & 5 | Lab #3 – Humidity, Evaporation and Condensation ** |
| **6** | 07-Oct | • Controls on the Global Climate<br>• El Nino Southern Oscillation<br>• Optional practice calculations session | Lab #3 (6%) | Chapters 4 & 7 | Lab #4 – Long-Wave Radiation ** |
| **7** | 14-Oct | • El Nino Southern Oscillation<br>• In class review and study session<br>• **FIRST MIDTERM EXAM (Oct 18th during lecture period)** | | Chapters 4 & 7 | No Labs |
| **8** | 21-Oct | • The hydrological cycle<br>• The hydrological cycle<br>• No lecture- self guided study session | | Chapter 6 | Lab #5 – Heat Flux Densities ** |
| **9** | 28-Oct | • Hydrographs and hydrological regimes<br>• Hydrographs and hydrological regimes<br>• No lecture- self guided study session | Lab #4 (6%) | Chapter 6 | Open Work Period – TA present |
| **10** | 4-Nov | • Hydrology in BC<br>• Introduction to Lakes<br>• Lecture period set aside for independent completion of Quiz 2 | **Quiz 2**<br>Lab #5 (8%) | | Lab #6 – Surface Water Balance |
| **11** | 11-Nov | • **READING BREAK** (No Class) | Lab #1 (8%) | | |
| **12** | 18-Nov | • Introduction to Limnology<br>• Global Climatic Change<br>• Catch up lecture/buffer class | Lab #6 (6%) | Chapter 11 | No Labs |
| **13** | 25-Nov | • Environmental Reconstruction<br>• In class water budget review<br>• In class review and study session | | | No Labs |
| **14** | 2-Dec | • **SECOND MID TERM (Dec 3rd during lecture period)** | | | No Labs |

*Labs are due in the virtual dropbox before your lab section meeting that week.

** Outdoor labs, dress for weather.

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**RECOMMENDED 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 the laboratory sections, 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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**EVALUATION**

The course grade will be based on the following

| | | Date (or date due) | Weight | Subject |
|---|---|---|---|---|
| 1 | Quizzes | Two Quizzes (10% each) | 20% | Lecture, text and labs topics and external lecture reports |
| 2 | First mid-term | Listed below | 25 % | Lecture and text materials |
| 3 | Second mid-term | Listed below | 15 % | Lecture materials (all) |
| 4 | Labs | Detailed breakdown to follow in sections | 40 % | Varied |

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**EXAM AND QUIZZES**:

There will be two 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 lectures. There are two mid-terms test. The second mid-term will be comprehensive but weighted 2:1 in the second half of the term, and it will contain some elements from your labs. Further details will be discussed in class.

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**LABORATORY SECTIONS**

The labs are an essential part of the course and **attendance is required**. A high level of student cooperation and participation involving asking and answering questions is expected. 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. Synthesizing reports is a major skill needed in today's job market. Analysis and presentation of data is a necessary skill in all fields.

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

Details regarding your labs and their marks are managed by the course TAs. Discuss any issues or questions on labs with your TA first and then direct questions at the instructor if you would like further

clarification. Of importance, your TAs and 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.

**Lab Management**

1. Students are expected to attend their scheduled lab section meetings. Refer to the schedule for class meeting and due dates.
2. Lab meetings are in-person in DTB B307 unless otherwise noted.
3. Please attend only the section meeting that you are registered for. If you have an emergency, please arrange with your lab instructor ahead of time to attend a different section meeting.
4. All materials for labs are posted on Brightspace in that lab activity's module. All assignments will be submitted electronically in the virtual dropbox.
5. You are expected to complete all course components to get course credit – this includes submitting something for each lab assignment.
6. Lab material is designed to supplement lecture topics. Materials covered in lecture and lab are eligible to be tested. It is important to attend lab to learn the material. Attendance will be taken.

**Lab Sections:**

| Time | Location | Instructor | Office Hours location/time |
|---|---|---|---|
| Wed 08:30-10:20 | DTB B307 | Jill Krezoski | DTB B302 Fri 10:30-12:30 |
| Wed 12:30-14:20 | DTB B307 | Jill Krezoski | DTB B302 Fri 10:30-12:30 |
| Thurs 14:30-16:20 | DTB B307 | Lindsay Worden | DTB B306 Fri 10.30-11.30 |
| Fri 12:30-14:20 | DTB B307 | Adam Wicks | DTB B306 Fri 9.30-10.30 |

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**GRADING SYSTEM**

As per the Academic Calendar:

| Grade | Grade point value | Grade scale | Description |
|---|---|---|---|
| **A+**<br>**A**<br>**A-** | 9<br>8<br>7 | 90-100%<br>85-89%<br>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+**<br>**B**<br>**B-** | 6<br>5<br>4 | 77-79%<br>73-76%<br>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+**<br>**C** | 3<br>2 | 65-69%<br>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: uvic.ca/socialsciences/geography/
- Geography Department Chair: geogchair@uvic.ca
- Geography Undergraduate Advising: geogadvising@uvic.ca

**POLICY ON LATE ASSIGNMENTS**

**Extension on assignments will not be offered in this course. If you are unable to complete your lab assignment by the due date you will receive 0% for this lab assignment. If an assignment is missed due to an extenuating circumstance, attend your instructor's (Dr. Sophie Norris) next available office hours to discuss the possibility of a make-up assignment. A new make-up laboratory assignment will be issued in extenuating circumstances only and with appropriate documentation as necessary.**

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**. Unless stated otherwise, students are expected to complete coursework on their own.

**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 RCSD 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

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**RESOURCES FOR INTERNATIONAL STUDENTS**

The University of Victoria offers a number of resources to support international students as they pursue their studies. UVic's International Centre for Students is the primary office supporting international students on campus at the university-wide level and provides various supportive program through the UVic Global Community Initiative, including a Mentorship Program and Conversation Partner Program. For academic advising-related questions, students in the Geography Department are also encouraged to meet with the Geography Undergraduate Advisor (geogadvising@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. Other resources include the Centre for Academic Communication and the Math and Stats Assistance Centre. International students are also encouraged to contact the International Student Liaison in Geography (Prof. CindyAnn Rose-Redwood, cindyann@uvic.ca), who can assist in making connections with other international and domestic students in the Geography Department and share opportunities for getting involved in departmental activities more broadly.

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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/

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*