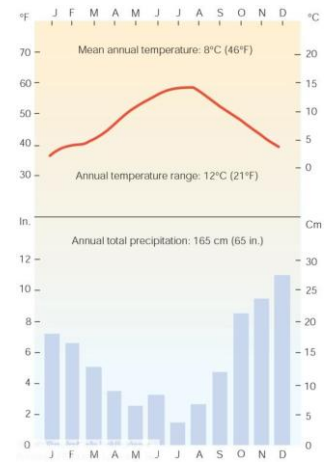


**GEOG-2207(3)-001**  
**Climatology**  
**Fall, 2023**  
**September 5<sup>th</sup> to December 20<sup>th</sup> 2023**



**INSTRUCTOR:**

**Dr. Jacqueline Binyamin**  
**Office: 5L10**  
**Phone: (204) 786-9982**  
**E-mail: [j.binyamin@uwinnipeg.ca](mailto:j.binyamin@uwinnipeg.ca)**  
**Office Hours (Zoom or in-person): Monday and Tuesday**  
**13:00 – 14:00 or by appointment**

**LECTURES:**

**Monday, Wednesday, and Friday, 11:30 – 12:20,**  
**Room CENT 4CM13**

**LABS**

**Section 070, Monday, 14:30 – 16:20, Room LOCK 5L25**  
**Section 071, Tuesday, 10:00 – 11:50, Room LOCK 5L25**

**COURSE NEXUS:**

Use your WebAdvisor User ID and Password.  
Login in at <https://nexus.uwinnipeg.ca>

If you are having difficulties with Nexus, contact the help desk at 204-786-9149 or [servicedesk@uwinnipeg.ca](mailto:servicedesk@uwinnipeg.ca)

Please use your University of Winnipeg email address for course related correspondence: [name@webmail.uwinnipeg.ca](mailto:name@webmail.uwinnipeg.ca). Students have a responsibility to regularly check their **Nexus e-mail address** to ensure timely receipt of correspondence from their course instructor. Emails from others accounts such as Hotmail or Gmail are frequently treated as spam and thus may not reach the recipient. **This course will send emails through NEXUS so please check regularly.**

**REFERENCES:**

**Boundary Layer Climates**  
By T. R. Oke (1987), 2<sup>nd</sup> ed., (University Press Cambridge)  
ISBN: 0-416-04422-0

**Climatology**  
By Rohli, R. V. and A. J. Vega (2015), 3<sup>rd</sup> ed., (Jones and Bartlett)  
ISBN-10: 0-7637-3828-X  
ISBN-13: 978-0763738280

**Earth's Climate: Past and Future**

By **W. F. Ruddiman (2013), 3<sup>rd</sup> ed., (Freeman and Company)**

**ISBN-13: 978-1429255257**

**ISBN-10: 1429255250**

**Consider a Spherical Cow: A Course in Environmental Problem Solving**

By **John Harte (1998, 2001), (University Science Books)**

**ISBN: 0-935702-58-X**

**Climatology: An Atmospheric Science**

By **Hidore J. J., Oliver J. E., Snow M., and R. Snow (2010), 3<sup>rd</sup> ed., (Pearson- Prentice Hall)**

**ISBN-13: 978-0-321-60205-3**

**There is no required textbook for this course. However, for those who would like to supplement lectures, some of these books have been reserved at the front desk in the library.**

Office hours are scheduled on **Monday and Tuesday 13:00 – 14:00** . If these hours are inconvenient, appointment can be arranged through **Nexus email** or The University of Winnipeg email address. The instructor will respond within 24 hours, except on weekends.

Please visit the University of Winnipeg's Weather Station webpage at:  
**[Weatherstation.uwinnipeg.ca](http://Weatherstation.uwinnipeg.ca)**

**COURSE DESCRIPTION:**

This course examines climatological processes at all scales (e.g., micro to macro), to arrive at an understanding of how and why climates vary spatially and temporally. It surveys the characteristics of the global climate system; but pays particular attention to the Northern Hemisphere and North America. Laboratory exercises involve the analysis and presentation of climatological data.

**COURSE OBJECTIVES:**

Through this course students should gain an appreciation of statistical climatology, which describes the average and the range of weather conditions, physical climatology, which deals with energy and moisture exchanges and related atmospheric processes, dynamic and synoptic climatology, which examine atmospheric systems and their motions, and applied climatology, which uses climatology to address real world problems. Students should acquire some understanding of the climate of the Canadian Prairies.

## **LABORATORIES:**

The labs in Climatology are considered integral parts of the course and will be presented as such. Therefore, it is the responsibility of the student to attend all scheduled labs and to complete the assignments as required. Information on laboratory procedures will be discussed during the first lab session.

If you are not registered in a lab section, or if you wish to change lab sections, you must contact your instructor during the first week of classes. Lab section changes will be considered only if space permits.

It is imperative that all students attend their scheduled lab sections regularly. Labs in this course begin the week of **September 11**. Labs are held in **Room LOCK 5L25**.

## **GRADING PROCEDURE:**

Lab Assignments 30% (6 labs at 5% each)  
Midterm Theory Test 30% (2 Tests at 15% each)  
Final Theory and Lab Exam (combined) 40%  
Total 100%

**Final grades** will be assigned based on accumulated scores from the above components. The following numeric grading system provides guidelines only for the separation of letter grades in this course. The University does not have a standardized numerical grade conversion scale for each letter grade. The boundaries may be adjusted at the request of the Geography Department Review Committee or University Senate.

<b>%</b>	<b>90-100</b>	<b>84-89</b>	<b>80-83</b>	<b>75-79</b>	<b>70-74</b>	<b>65-69</b>	<b>55-64</b>	<b>50-54</b>	<b>&lt;50</b>
<b>Grade</b>	<b>A+</b>	<b>A</b>	<b>A-</b>	<b>B+</b>	<b>B</b>	<b>C+</b>	<b>C</b>	<b>D</b>	<b>F</b>

## **TEST/EXAM POLICY**

If you miss a test or exam, you must contact your instructor immediately. Proof of illness or exceptional circumstances is required before alternate arrangements can be made. Vacation travel is not an acceptable reason.

The makeup test/exam will occur **within 5 school days** of the missed date. In the event of illness this deadline will be **within 5 school days** from the “**return to work**” date noted on the medical certificate. It is the student’s responsibility to schedule the makeup exam. Failure to schedule within the defined timeline will result in a grade of zero (0) for that test/exam.

The **Final Theory Exam** must be written as scheduled in the 2023-24 Fall/Winter Timetable; alternate dates will not be considered. If you have a Final Theory Exam conflict (i.e., two final exams on the same date and time), or if exceptional circumstances prevent you from writing the exam as scheduled, you must contact Academic Advising immediately, otherwise, you must write

the final exam as scheduled. Please refer to section 9d, of Regulation and Policies in the 2023-24 Course Calendar link: (<http://www.uwinnipeg.ca/index/calendar-calendar>).

### **Lab Assignments:**

Detailed instructions for the assignments as well as marking schemes will be given on Nexus and through lab assignment handouts. All assignments should be submitted on-line through **dropbox** in the **Nexus webpage** and must be completed by individual students. **Assignments sent as email attachments will not be accepted.**

### **Penalties (For Late Submission of Lab Assignments):**

Lab assignments will be accepted until five days after the submission date with 5% of the total mark of the assignment being deducted each day from the mark achieved (weekends and holidays are considered as normal days). Work submitted 6 days late or more will not be accepted.

**There will be NO make-up work or bonus material of any kind.**

### **Voluntary Withdrawal**

Please note the deadline date for voluntary withdrawal from this course is **Monday, November 13, 2023**. You must formally withdrawal from a course. If you simply stop going to classes, you may receive an “F” on your transcript and loss of tuition credit.

Students are encouraged to see the instructor before withdrawal to discuss matters pertaining to the grades. Withdrawing before this date does not necessarily result in a fee refund.

### **Electronic Device Policy**

Please be considerate: **Deactivate** all cellular telephones, personal pagers, watch alarms, and any other device that may emit irritating noises during zoom lectures, including muting your device when not speaking. You may have your video on or off.

### **Attendance Policy**

Students are encouraged to attend all classes and to participate in class discussions. Please note that lectures may cover materials not given in the textbook and in lecture notes.

## **IMPORTANT DATES:**

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Tuesday, September 5  
Monday, September 11

Lectures begin for the 2023 Fall Term.  
First week of Climatology Lab.

Saturday, September 30

Truth and Reconciliation Day– University closed.

**Friday, October 6 at 11:30**

**Midterm Theory Test #1**, (class time).

October 7-15  
Monday, October 9

Fall term Reading Week – no lectures or labs.  
Thanksgiving Day - University closed.

Sunday, November 5

Daylight Saving Time ends – turn your clock back one hour!

**Wednesday, November 8 at 11:30**  
Saturday, November 11

**Midterm Theory Test #2**, (class time).  
Remembrance Day – University closed.

**Monday, November 13**

**Final date to withdraw without academic penalty.** Please note that withdrawing before the VW date does not result in a fee refund.

**Monday, December 4, 2023**

**Lectures end for the 2023 Fall Term.**

**December 7-20, 2023**

Final Exam Period

**Final Exam (Date TBA)**

Please check <http://www.uwinnipeg.ca/exam-schedules/> for final exam time-online.

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## **TOPICS FOR DISCUSSION:**

The following table outlines the topics to be covered during the lectures. Due to time constraints or conditions beyond the instructor's control, all topics may not be covered. Also, the instructor reserves the right to alter the topics and the order of presentation.

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### **Topics**

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**Introduction to climatology:** Scales in climatology Sub-fields of climatology, Climate system components, Atmospheric composition.

**Climate controls:** Forcing, responses and feedbacks, Climate archives.

**Atmospheric heating/cooling:** Heat and mass exchange terms.

**Radiation and global energy balance:** Radiation laws, Global radiation and energy budgets, Solar constant and extraterrestrial radiation, Greenhouse effect, Role of clouds in cooling/warming the earth.

**Energy, matter, and momentum exchanges near the surface:** the soil-atmosphere system, Planetary boundary layer, wind profile, Thermal stratification and deep ocean circulation.

**Mass balances:** Water balance and Hydrological cycle, Aridity index, World climates.

**Global temperature and precipitation:** Temperature and precipitation anomalies

**Causes of climate change:**

- **Natural causes** (Orbital variations (Milankovitch cycles), Solar output variations, Volcanic activity, ENSO events, El Niño and La Niña, Teleconnections)
- **Anthropogenic climate change** (Atmospheric aerosols, Ozone depletion, Greenhouse effect and Urban heat island)

**Applied climatology:** climate impacts, and climatic data.

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## **Ongoing Guidelines & Regulations**

1. A permitted or necessary change in mode of delivery may require adjustments to important aspects of course outlines, like class schedule and the number, nature, and weighting of assignments and/or exams.
2. Students can find answers to updates and frequently asked questions related to COVID-19 here: <https://www.uwinnipeg.ca/covid-19/index.html>.
3. When it is necessary to cancel a class due to exceptional circumstances, every effort will be made to inform students via University of Winnipeg email (and/or using the preferred form of communication, as designated in this outline).
4. Students have the responsibility to regularly check their University of Winnipeg e-mail addresses to ensure timely receipt of correspondence from the University and/or their course instructors ([j.binyamin@uwinnipeg.ca](mailto:j.binyamin@uwinnipeg.ca)).
5. Please note that withdrawing before the VW date does not necessarily result in a fee refund.

6. Students may choose not to attend classes or write examinations on holydays of their religion, but they must notify their instructors at least two weeks in advance. Instructors will then provide opportunity for students to make up work or examinations without penalty. A list of religious holidays can be found in the 2023-24 Undergraduate Academic Calendar.
7. Students with documented disabilities, temporary or chronic medical conditions, requiring academic accommodations for tests/exams or during lectures/laboratories are encouraged to contact Accessibility Services (AS) at 204.786.9771 or <https://www.uwinnipeg.ca/accessibility-services/> to discuss appropriate options. All information about a student's disability or medical condition remains confidential.
8. Reference to the appropriate items in the Regulations & Policies section of the Course Calendar, including Senate appeals and academic misconduct (e.g. plagiarism, cheating) <https://www.uwinnipeg.ca/academics/calendar/docs/regulationsandpolicies.pdf>. Instructors should become familiar with the procedures for dealing with alleged academic misconduct at <https://pace.uwinnipegcourses.ca/sites/default/files/pdfs/publications/Academic%20Misconduct%20Procedures.pdf> and <https://www.uwinnipeg.ca/institutional-analysis/docs/policies/academicmisconduct-policy.pdf>
9. All students, faculty and staff have the right to participate, learn, and work in an environment that is free of harassment and discrimination. The UW Respectful Working and Learning Environment Policy may be found at <https://www.uwinnipeg.ca/respect/>.
10. **Regulations, Policies, and Academic Integrity.** Students are encouraged to familiarize themselves with the Regulations and Policies found in the University Academic Calendar at <https://www.uwinnipeg.ca/academics/calendar/docs/regulationsandpolicies.pdf>. Particular attention should be given to subsections 8 (Student Discipline), 9 (Senate Appeals), and 10 (Grade Appeals). Please emphasize the importance of maintaining academic integrity and the potential consequences of engaging in plagiarism, cheating, and other forms of academic misconduct. Even unintentional plagiarism is a form of academic misconduct. Similarly, uploading essays and other assignments to essay vendor or trader sites (filesharing sites that are known providers of essays for use by others who submit them to instructors as their own work) is a form of misconduct, as it involves aiding and abetting plagiarism. An updated and expanded U of Winnipeg library site outlining principles of Academic Integrity can be found at <https://library.uwinnipeg.ca/use-the-library/help-with-research/academic-integrity.html>.
11. Important information is outlined in the Academic Misconduct Policy and Procedures: <https://www.uwinnipeg.ca/institutional-analysis/docs/policies/academic-misconduct-policy.pdf> and <https://pace.uwinnipegcourses.ca/sites/default/files/pdfs/publications/Academic%20Misconduct%20Procedures.pdf>.

## **12. Academic Integrity and AI Text-generating Tools**

Students must follow principles of academic integrity (e.g., honesty, respect, fairness, and responsibility) in their use of material obtained through AI text-generating tools (e.g., ChatGPT, Bing, Notion AI). If an instructor prohibits the use of AI tools in a course, students may face an allegation of academic misconduct if using them to do assignments. If AI tools are permitted, students must cite them. According to the MLA (<https://style.mla.org/citing-generative-ai/>), “you should

1. cite a generative AI tool whenever you paraphrase, quote, or incorporate into your own work any content (whether text, image, data, or other) that was created by it
2. acknowledge all functional uses of the tool (like editing your prose or translating words) in a note, your text, or another suitable location
3. take care to vet the secondary sources it cites”

If students aren’t sure whether or not they can use AI tools, they should ask their professors.

**13. Respectful Learning Environment.** Students are expected to conduct themselves in a respectful manner on campus and in the learning environment irrespective of platform being used. Behaviour, communication, or acts that are inconsistent with a number of UW policies could be considered non-academic misconduct. See the Respectful Working and Learning Environment Policy (<https://www.uwinnipeg.ca/respect/respect-policy.html>) and Acceptable Use of Information Technology Policy (<https://www.uwinnipeg.ca/institutional-analysis/docs/policies/acceptable-use-of-information-technology-policy.pdf>). More detailed information is outlined in the Non-Academic Misconduct Policy and Procedures (<https://www.uwinnipeg.ca/institutional-analysis/docs/student-non-academic-misconduct-policy.pdf> and <https://www.uwinnipeg.ca/institutional-analysis/docs/student-non-academic-misconduct-procedures.pdf>).

**14. Copyright and Intellectual Property.** Course materials are the property of the instructor who developed them. Examples of such materials are course outlines, assignment descriptions, lecture notes, test questions, and presentation slides—irrespective of format. Students who upload these materials to filesharing sites, or in any other way share these materials with others outside the class without prior permission of the instructor/presenter, are in violation of copyright law and University policy. Students must also seek prior permission of the instructor/presenter before, for example, photographing, recording, or taking screenshots of slides, presentations, lectures, and notes on the board. Students found to be in violation of an instructor’s intellectual property rights could face serious consequences pursuant to the Academic Misconduct or NonAcademic Misconduct Policy; such consequences could possibly involve legal sanction under the Copyright policy <https://copyright.uwinnipeg.ca/basics/copyright-policy.html>



- 15. Research Ethics.** Students conducting research interviews, focus groups, surveys, or any other method of collecting data from any person, including a family member, must obtain research ethics approval before commencing data collection. Exceptions are research activities done in class as a learning exercise. For submission requirements and deadlines, see <http://www.uwinnipeg.ca/research/human-ethics.html>
- 16. Privacy.** Students should be reminded of their rights in relation to the collecting of personal data by the University (<https://www.uwinnipeg.ca/privacy/admissions-privacy-notice.html>), especially if Zoom is being used for remote teaching (<https://www.uwinnipeg.ca/privacy/zoom-privacy-notice.html>) and testing/proctoring (<https://www.uwinnipeg.ca/privacy/zoom-test-and-exam-proctoring.html>).
- 17. Indigenous Student Services.** Indigenous students seeking additional supports, academic or other, are encouraged to contact the Aboriginal Student Services Centre (ASSC). The ASSC offers a variety of support services, and was created to maintain a safe, educational and culturally sensitive environment for all Aboriginal students (First Nation, Metis and Inuit) as they pursue their academic studies at The University of Winnipeg. More information can be found at: <http://www.uwinnipeg.ca/assc/>.