GEOG*2110 – CLIMATE AND THE BIOPHYSICAL ENVIRONMENT – Credit 0.5

Asynchronous Classes: Monday & Wednesday 4:30 – 5:20
Synchronous Classes: Friday 4:30 – 5:20, See CourseLink for Class Meeting details
Instructor: Laura J. Brown (laura@uoguelph.ca)
Office Hours: Tuesdays 1:30 - 3:30
Graduate Teaching Assistants: Rachel Young and Anabela Bonada
Office Hours: TBA, See CourseLink

Prerequisites: GEOG*1300 or GEOG*1350

REQUIRED TEXT

The Second Edition is acceptable, but page numbers and chapters are slightly different. There is also an eBook available from the publisher for a significantly discounted price; see here for details.

CALENDAR DESCRIPTION
"The interrelationships between the atmosphere, lithosphere, hydrosphere, and biosphere to produce distinct physical landscapes (climates, soils, vegetation). Emphasis on the role of climate and the flows of energy, water, and biogeochemicals."

OVERVIEW
This course is the second in a sequence of four related courses in Physical Geography. The first-year courses (GEOG*1300/1350) laid the foundations by introducing the processes and resulting patterns in the physical environment. This course (GEOG*2110) will examine the history of the Earth's climate, the important patterns of climatic variability, the role that people have played in modulating the Earth's climate, and the challenges and opportunities that ongoing climatic change will pose. The remaining two courses in this sequence include GEOG*3110, which provides a detailed overview of biogeography – the study of plants and animals' distribution across the Earth's surface. The final course in the sequence is GEOG*4110 Environmental Systems Analysis – which synthesizes concepts of biogeography, hydrology, geomorphology, and climatology.

LEARNING OBJECTIVES
This course aims to introduce and enhance the University of Guelph's learning objectives and the Department of Geography, Environment & Geomatics. Specifically, in this course, students will:

- Develop a comprehensive literacy of climatological concepts as they apply to current environmental issues.
- Critically and independently evaluate diverse sources of knowledge and approaches pertinent to the basic principles and tools of paleoclimatology
- To learn and apply the fundamental quantitative techniques for the analysis of climate data
**CourseLink Page**
There is a course webpage on CourseLink, GEOG*2100 (01) W21 – Climate and the Biophysical Environment. To access our class webpage, use your central account ID and password. The same login ID and password that you use to access your University of Guelph e-mail and WebAdvisor. CourseLink can be accessed from the University's homepage, and I bookmark it in my browser for easy access.

On the CourseLink page, you will find class announcements, the micro-lectures and lecture notes, lab assignments, weekly quizzes, discussion forums, grades and the link to our synchronous class.

**Overview of Course Content and Organization**
Dates for labs and tests are firm. Otherwise, the following schedule should be assumed to be provisional depending on how long it takes to get through the course material. This is the first time I have taught the course, so I'm still working out the fine details.

<table>
<thead>
<tr>
<th>Wk.</th>
<th>Date</th>
<th>Topics</th>
<th>Readings</th>
<th>Lab Schedule</th>
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<tbody>
<tr>
<td>1</td>
<td>Jan. 11 - 15</td>
<td>0&amp;1: Introduction to Course</td>
<td>Chapter 1 &amp; 2 to pg. 38</td>
<td>Excel Self-guided</td>
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<td></td>
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<td>Climate science and Earth's climate system</td>
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<td>2</td>
<td>Jan. 18 - 22</td>
<td>2: Sources of climate data, climate models</td>
<td>Chapter 2 pg. 38 on &amp; 3</td>
<td>Lab 1</td>
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<td>3</td>
<td>Jan. 25 - 29</td>
<td>3: CO₂ in rocks and Climate, Plate tectonics</td>
<td>Chapter 4 &amp; 5</td>
<td>Lab 1 due</td>
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<td>4</td>
<td>Feb. 1 - 5</td>
<td>4: Greenhouse to Icehouse</td>
<td>Chapter 6 &amp; 7</td>
<td>Lab 2</td>
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<td>5</td>
<td>Feb. 8 - 12</td>
<td>5: Orbit and solar radiation and Monsoons</td>
<td>Chapter 8 &amp; 9</td>
<td>Lab 2: due</td>
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<td>Feb. 15 - 19</td>
<td><strong>Reading Week</strong></td>
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<td>6</td>
<td>Feb. 22 - 28</td>
<td>6. Insolation and Ice sheet growth and decay, Tracking atmospheric gases</td>
<td>Chapter 10 &amp; 11</td>
<td>Lab 3</td>
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<td>7</td>
<td>Mar. 1 - 5</td>
<td><strong>Midterm Exam</strong></td>
<td>Chapter 12</td>
<td>Lab 3: due</td>
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<td>7. Interactions within the climate system and feedbacks</td>
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<td>8</td>
<td>Mar. 8 - 12</td>
<td>8. Glacial Max., Fire and Ice</td>
<td>Chapter 13 &amp; 14 to pg 276</td>
<td>Lab 4</td>
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<td>9</td>
<td>Mar. 15 - 19</td>
<td>9. Deglaciation, Millennial Oscillations</td>
<td>Chapter 14 276 on &amp; 15</td>
<td>Lab 4: due</td>
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<td>10</td>
<td>Mar. 22-26</td>
<td>10. Preindustrial climate, last 1000 years</td>
<td>Chapter 16 &amp; 17 to pg. 345</td>
<td>Lab 5</td>
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<td>11</td>
<td>Mar. 29 -31*</td>
<td>11. ENSO, proposed causes CC, since 1850</td>
<td>Chapter 17 pg 34 on &amp; 18</td>
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<td>12</td>
<td>Apr. 5 - 9</td>
<td>12. Recent warming and future Climate</td>
<td>Chapter 19 &amp; 20</td>
<td>Lab 5: due</td>
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<td>Apr. 12</td>
<td>Review</td>
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<td>Apr. 19-23</td>
<td><strong>Final Exam</strong> online</td>
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We will cover each topic through a combination of asynchronous micro-lectures, textbook readings, and synchronous classes and discussions.

Each week students will complete an online review quiz based on the lecture material, discussions and assigned readings for that week; students are responsible for preparing and completing these quizzes in the time frame stipulated.

There are five 1-hour lab sessions that students must attend. These lab sessions will be run through the Microsoft Teams platform.

**EXPECTATIONS**
Students are expected to take notes from the textbook readings and the micro-lectures and synchronous classes to supplement the posted lecture material. All quizzes, tests and final exam questions will be based on these notes micro-lectures, readings, synchronous discussions and lab material.
COURSE NOTES
I will post the slides I use in my micro-lectures on CourseLink so you can follow along and take notes.

COURSE EVALUATION

The final grade will be assessed from weekly review Quizzes completed online (10%), five Lab Assignments (5% each, 25% total), and two tests, a Midterm (25%) and the Final exam (40%). Quizzes are based on information presented in asynchronous micro-lectures and discussed in weekly synchronous meetings. The midterm is in week seven and covers the lecture material presented in the first half of the course. The final exam is focused primarily on the second half but has some cumulative content and a lab component. It is scheduled during the second week of the university exam period. Both exams are online, and more details will be provided on CourseLink.

In summary:

<table>
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<th>Component</th>
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<tr>
<td>Quizzes</td>
<td>10%</td>
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<tr>
<td>Labs</td>
<td>25%</td>
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<td>Mid-term</td>
<td>25% online exam – March 1</td>
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<tr>
<td>Final Exam</td>
<td>40% online exam - Apr. 19-23</td>
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Students with a documented conflict for any tests need to see me at least two weeks before to arrange an alternative time. There is no guarantee that this will be accommodated, but ensuring that you address the issue several weeks in advance will certainly assist the process.

*Weekly Review Quizzes – worth 10%, completed online*

The weekly review quizzes are an incredible opportunity for students to review and 'test' themselves on the relevant material at a relatively frequent pace. These quizzes, in total, are worth 10% of the final grade in the class. They are used to incentivize timely engagement with the course material one more time. So if you read the assigned readings before you watch the micro lectures, take helpful notes of the reading and lecture material, participate in the synchronous class, review your notes each week that is approximately six points of engagement with the material. Adding the quiz makes it seven points. Furthermore, the quiz questions help me to gauge student comprehension and usually reflect the most important or challenging ideas and concepts covered during that week. Finally – quiz questions are often re-used on the exams – so in case you needed one more reason to pay attention to them, they will likely help you out with the tests.

The lowest three quiz grades are dropped before the Quiz component of your final grade is calculated. I do this to cover instances where quizzes are missed due to losing track of time and missing the deadline, computer or internet issues, or illness. Therefore, there are no extensions or second attempts. If you do all of your quizzes, then the lowest three scores are dropped, so if you have an opportunity to identify concepts or ideas that need further work to understand without it affecting your final grade.
**Lab Assignments – 5% each, 25% total**
These assignments are an opportunity for you to demonstrate to us that you understand key concepts. More details about these assignments will be presented at the beginning of each scheduled lab period by your GTA. Your lab assignments are due one week after your scheduled lab before midnight. For example, if you are in Section 101, your labs are scheduled for Wednesday at 3:30, and your lab is due the following Wednesday before midnight.

Your assignments must be submitted through Dropbox on CourseLink. Late assignments (without prior approval by your GTA) will be penalized at a rate of **10%** of the assignment's value per day. This course uses Turnitin to help encourage academic integrity.

Extensions must be requested in advance and will be evaluated by the GTAs on a case-by-case basis. Additional detailed information on assignments, midterms, final exam Instructor or Department Policy on Late or Missed Assignments is available in the Undergraduate Calendar

Your GTA handles all lab related questions and grading.

**COMMUNICATION**
This course uses CourseLink, Teams and Zoom as the primary tools for communication and distribution of course materials.

Following university regulations, all e-mail correspondence will be sent to your University of Guelph e-mail address. I usually respond to student inquiries within 24-36 hours during University Business hours. I also do not reply to messages from off-campus e-mail addresses because they are often spam or phishing scams (indeed, the University forbids it). Keep in mind this is a professional environment, and your messages should reflect this. For example, I do not normally answer e-mails that begin "Hey," or "Yo Prof" or include texting lingo.

**University of Guelph Policy Statements:**

**E-mail Communication**
As per university regulations, all students are required to check their <uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students.

**When You Cannot Meet a Course Requirement**
When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor (or a designated person, such as a GTA) in writing, with your name, id#, and e-mail contact. See the undergraduate calendar for information on regulations and procedures for Academic Consideration.

**Drop Date**
Courses that are one semester long must be dropped by the end of the last day of classes; two-semester courses must be dropped by the last day of classes in the second semester. The regulations and procedures for Dropping Courses are available in the Undergraduate Calendar.
Copies of out-of-class assignments
Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

Accessibility
The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required, however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to book their exams at least 7 days in advance, and not later than the 40th Class Day.

More information: [www.uoguelph.ca/sas](http://www.uoguelph.ca/sas)

Academic Misconduct
The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

[The Academic Misconduct Policy is detailed in the Undergraduate Calendar.](#)

Recording of Materials
Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

Resources
The [Academic Calendars](#) are the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs.
Disclaimer
Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings and academic schedules. Any such changes will be announced via CourseLink and/or class e-mail. All University-wide decisions will be posted on the COVID-19 website [https://news.uoguelph.ca/2019-novel-coronavirus-information/] and circulated by e-mail.

Illness
The University will not require verification of illness (doctor's notes) for the fall 2020 or winter 2021 semesters.