

Course Schedule

IMPORTANT: ALL TIMES EASTERN - Please see the [University Policies](#) section of your Course Outline for details

	Module	Readings (4th ed.)	Activities and Assignments	Due Dates	Weight (%)
Week 1	Module 1: Course Introduction		Check group membership for Discussions		
	Module 2: Earth System Science	pp. 6–39	Introduce Yourself		
Week 2	Module 3: Radiant Energy Source for the Planet	pp. 42–43; 45–63	Discussion 1	Due Sunday, May 15, 2022 at 11:55 PM	5%
			Practice Quiz 1		
Week 3	Module 4: The Greenhouse Effect and Climate Change	pp. 91; 94–107; 112–115 Watch: <i>THIN ICE: The Inside Story of Climate Science</i>	Marked Quiz 1	Due Sunday, May 22, 2022 at 11:55 PM	4%
Week 4	Module 5: Selected Temperature Controls of the Planet	pp. 119–134	Midterm 1	Due Sunday, May 29, 2022 at 11:55 PM	10%
	Module 6: Water and Climate	pp. 182–189; 203	Practice Quiz 2		

Week 5	Module 7: Atmospheric Stability	pp. 190–194; 203–204	Discussion 2	Due Sunday, June 5, 2022 at 11:55 PM	5%
			Marked Quiz 2	Due Sunday, June 5, 2022 at 11:55 PM	4%
Week 6	Module 8: Precipitation	pp. 209–216; 237–239 pp. 194–199; 203–204	Discussion 3	Due Sunday, June 12, 2022 at 11:55 PM	5%
			Practice Quiz 3		
Week 7	Module 10: The Lithosphere	pp. 347–354; 379–381 Watch: <i>Amazing Planet: Born of Fire</i>	Marked Quiz 3	Due Sunday, June 19, 2022 at 11:55 PM	4%
			Module 11: The Geological Cycle and the Rock Cycle	pp. 375–377; 355–363; 379– 381	
Week 8	Module 12: Crustal Movement and Plate Tectonics	pp. 363–375; 379–381	Midterm 2	Due Sunday, June 26, 2022 at 11:55 PM	10%
Week 9	Module 13: Fluvial Processes	pp. 452–462; 486–489 Watch: <i>An Ocean of Volcanoes</i>	Discussion 4	Due Sunday, July 3, 2022 at 11:55 PM	5%
			Practice Quiz 4		

Week 10	Module 14: Streamflow Characteristics	pp. 459–478; 486–489			
	Module 15: Fluvial Landscapes	pp. 468–478; 486–489	Marked Quiz 4	Due Sunday, July 10, 2022 at 11:55 PM	4%
Week 11	Module 16: Glaciers and Environmental Change	pp. 324–328 pp. 553–554; 558–561; 564–567			
	Module 17: Glacial Processes	pp. 534–543; 564–567	Practice Quiz 5		
Week 12	Module 18: Glacial Landforms	pp. 544–550; 564–567			
	Module 19: The Pleistocene and Environmental Change	pp. 553–558; 564–567 pp. 317–320	Marked Quiz 5	Due Sunday, July 24, 2022 at 11:55 PM	4%
Final Examination				Available from Thursday, August 11, 2022 at 12:01 AM until Friday, August 12, 2022 at 11:55 PM	40%

Contact Information

Announcements

Your instructor uses the **Announcements** widget on the **Course Home** page during the term to communicate new or changing information regarding due dates, instructor absence, etc., as needed.



You are expected to read the announcements on a regular basis.

To ensure you are viewing the complete list of announcements, you may need to click **Show All Announcements**.

Discussions

A **General Discussion** topic* has also been made available to allow students to communicate with peers in the course.

Contact Us

Who and Why	Contact Details
<p>Instructor</p> <ul style="list-style-type: none"> Course-related questions (e.g., course content, deadlines, assignments, etc.) Questions of a personal nature 	<p>Instructor: Ellsworth LeDrew ells@uwaterloo.ca</p> <p>Your instructor checks email frequently and will make every effort to reply to your questions within 24–48 hours, Monday to Friday.</p>
<p>Technical Support, Centre for Extended Learning</p> <ul style="list-style-type: none"> Technical problems with Waterloo LEARN 	<p>learnhelp@uwaterloo.ca</p> <p>Include your full name, WatIAM user ID, student number, and course name and number.</p> <p>Technical support is available during regular business hours, Monday to Friday, 8:30 AM to 4:30 PM (Eastern Time).</p> <p>IST Knowledge Base: For Students </p>
<p>Learner Support Services, Centre for Extended Learning</p>	<p>Student Resources </p>

General inquiries

extendedlearning@uwaterloo.ca

- Examination information

Include your full name, WatIAM user ID, student number, and course name and number.

*Discussions can be accessed by clicking **Connect** and then **Discussions** on the course navigation bar above.

Course Description

This is an introductory course in the study of the landscape of the Earth. We introduce the basic principles of physical geography, the “spheres” of geography including the atmosphere (air), hydrosphere (water) and lithosphere (land), and how processes in these spheres interact and interlink. Through this, we identify some of the major geographical questions of current research. We go beyond the idea that physical geography is knowledge of the names of landforms. Instead, we try to understand the formative processes, and how they have significance for human habitation of the planet, including processes of climate change and also the hazards that physical processes can cause.

This online course was developed by Ellsworth LeDrew, with instructional design and multimedia development support provided by the Centre for Extended Learning.

About the Course Author and Instructor

Course Author and Instructor — Ellsworth LeDrew



Course Author, Ellsworth LeDrew.

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I am delighted to be able to help you learn about some of the processes that shape your planetary environment. This is a personal passion of mine. I have been teaching these topics for over forty years and am always learning new things about how the processes of the environment work, how they are changing through time, and how humans are 'points of leverage' that can cause that change. But I am also learning how we can also help to manage that change.

I studied Honours Science and Geography as an undergraduate at the University of Toronto and then went to study Alpine and Arctic Climate at the Institute for Arctic and Alpine Research at the University of Colorado for my MA and PhD. For my Masters I studied microclimates on the tundra of the mountains of Colorado and for my PhD I modelled the formation of weather systems in the Eastern Canadian Arctic. After a year of postdoctoral studies at what was then the Atmospheric Environment Service in Toronto, I went to the University of Waterloo in 1977 and have been conducting research and teaching there ever since. Some of my research is on the changing polar sea ice measured from satellite imagery and how that change affects regional and global climate processes. For many years we had field camps on the ice in Lancaster Sound to the north of Baffin Island. I also spent many years in the south Pacific diving on coral reefs to determine whether coral bleaching can be quantified using satellite imagery. I got help starting this from Jean-Michel Cousteau in Fiji in the 1990's where we were the first to measure the spectral reflection of damaged corals and tie these measurements to satellites flying overhead. This was followed by several years of work in Palau, Indonesia and East Africa.

I have been very fortunate to travel to many locations over the globe in conducting my work. I have come to

appreciate how many things are interconnected globally, and how humans are a common thread in many of these processes. This is a significant lesson in this course: “What you learn here will have an impact at the far ends of the earth”. If you can apply that concept to many of the things that you pursue after finishing this course, it will have been a success.


Materials and Resources

Textbook(s)


Required

1. Christopherson, Robert W., Ginger H. Birkeland, Mary-Louise Byrne, Philip T. Giles, 2018, *Geosystems: An Introduction to Physical Geography, updated 4th Canadian Edition*, Pearson Education, Canada.

Previous editions are acceptable, however the page numbers in the course schedule will not be correct.

2. In Module 10, you will watch [Amazing Planet: Born of Fire](#)  (note: there is a \$1.99 fee to access this resource).

For textbook ordering information, please contact the [W Store | Course Materials + Supplies](#) .

For your convenience, you can compile a list of required and optional course materials through [BookLook](#)  using your Quest userID and password. If you are having difficulties ordering online and wish to call the Waterloo Bookstore, their phone number is +1 519-888-4673 or toll-free at +1 866-330-7933. Please be aware that textbook orders **CANNOT** be taken over the phone.

Course Reserves

Course Reserves can be accessed using the **Library Resources** widget on the **Course Home** page.

Resources

- Library services for [Co-op students on work term and students taking online courses](#) 

Grade Breakdown

The following table represents the grade breakdown of this course.

Activities and Assignments	Weight (%)
Introduce Yourself	Ungraded
Quizzes (5)	20%
Midterm 1	10%
Midterm 2	10%
Discussions (4)	20%
Final Examination	40%

***You must pass the Final Examination to pass the course.**

Official Grades

Official Grades and Academic Standings are available through [Quest](#)  .

Course and Department Policies

Course Policies

Final Examination Pass Policy

The final examination is worth 40% of your final grade. However, you **must** pass the final examination with 20 out of 40 to pass the class. If you do not pass the final examination, the most you can attain for the class will be 49%. What this means is that your marks will be added up and if you get more than 49%, your mark will be set to 49%.

Late Policy

Missing Assignments and Examinations: If an assignment is delayed due to a valid medical reason, personal or family emergency, etc., contact me immediately, and promptly obtain a University of Waterloo medical or counselor's note explaining the reason for your absence, degree of incapacitation, dates covered by the note, etc. Please immediately provide the scanned copy of the note to me by email (a photo with your digital device will be sufficient) and mail me the original. I need a scanned copy sent by email plus the original copy sent by snail mail.

For a delayed assignment with an approved excuse, I normally allow an extra week for completion.

If there is not a valid excuse, or the submitted excuse is not acceptable as determined by the course professor, the assignment will be assigned half marks if completed within a week of the normal deadline and zero after that. A missed examination without an approved medical excuse will be assigned zero.

Intellectual Property

Students should be aware that this course contains the intellectual property of their instructor, TA, and/or the University of Waterloo. Intellectual property includes items such as:

- Lecture content, spoken and written (and any audio/video recording thereof);
- Lecture handouts, presentations, and other materials prepared for the course (e.g., PowerPoint slides);
- Questions or solution sets from various types of assessments (e.g., assignments, quizzes, tests, final exams);
and
- Work protected by copyright (e.g., any work authored by the instructor or TA or used by the instructor or TA with permission of the copyright owner).

Course materials and the intellectual property contained therein, are used to enhance a student's educational experience. However, sharing this intellectual property without the property owner's permission is a violation of intellectual property rights. For this reason, it is necessary to ask the instructor, TA and/or the University of Waterloo for permission before uploading and sharing the intellectual property of others online (e.g., to an online

repository).

Permission from an instructor, TA or the University is also necessary before sharing the intellectual property of others from completed courses with students taking the same/similar courses in subsequent terms/years. In many cases, instructors might be happy to allow distribution of certain materials. However, doing so without expressed permission is considered a violation of intellectual property rights.


Please alert the instructor if you become aware of intellectual property belonging to others (past or present) circulating, either through the student body or online. The intellectual property rights owner deserves to know (and may have already given their consent).

Communication

All communication with students must be through either the student's University of Waterloo email account or via Learn. If a student emails the instructor or TA from a personal account they will be requested to resend the email using their personal University of Waterloo email account.

University Policies


Submission Times

Please be aware that the University of Waterloo is located in the **Eastern Time Zone** (GMT or UTC-5 during standard time and UTC-4 during daylight saving time) and, as such, the time that your activities and/or assignments are due is based on this zone. If you are outside the Eastern Time Zone and require assistance with converting your time, please try the [Ontario, Canada Time Converter](#) .

Accommodation Due to Illness

If your instructor has provided specific procedures for you to follow if you miss assignment due dates, term tests, or a final examination, adhere to those instructions. Otherwise:

Missed Assignments/Tests/Quizzes

Contact the instructor as soon as you realize there will be a problem, and preferably within 48 hours, but no more than 72 hours, have a medical practitioner complete a [Verification of Illness Form](#) .

Email a scanned copy of the Verification of Illness Form to your instructor. In your email to the instructor, provide your name, student ID number, and exactly what course activity you missed.



Further information regarding Management of Requests for Accommodation Due to Illness can be found on the [Accommodation due to illness](#)  page.

Missed Final Examinations

Your faculty determines academic accommodation; therefore we advise you to speak with your professor if you anticipate being unable to fulfill academic requirements due to illness or other extenuating circumstances.

Further information about Examination [Accommodations](#)  is available in the Undergraduate Calendar.

Academic Integrity

In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect, and responsibility. **If you have not already completed the online tutorial regarding academic integrity you should do so as soon as possible.** Undergraduate students should see the [Academic Integrity Tutorial](#)  and graduate students should see the [Graduate Students and Academic Integrity](#)  website.

Proper citations are part of academic integrity. Citations in CEL course materials usually follow CEL style, which is based on APA style. Your course may follow a different style. If you are uncertain which style to use for an assignment, please confirm with your instructor or TA.

For further information on academic integrity, please visit the [Office of Academic Integrity](#) .

Turnitin

Turnitin.com: Text matching software (Turnitin®) may be used to screen assignments in this course. Turnitin® is used to verify that all materials and sources in assignments are documented. Students' submissions are stored on a U.S. server, therefore students must be given an alternative (e.g., scaffolded assignment or annotated bibliography), if they are concerned about their privacy and/or security. Students will be given due notice, in the first week of the term and/or at the time assignment details are provided, about arrangements and alternatives for the use of Turnitin® in this course.

It is the responsibility of the student to notify the instructor if they, in the first week of term or at the time assignment details are provided, wish to submit the alternate assignment.

[Turnitin® at Waterloo](#) .

Discipline

A student is expected to know what constitutes [academic integrity](#) to avoid committing an academic offence, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about “rules” for group work/collaboration, should seek guidance from the course instructor, academic advisor, or the undergraduate Associate Dean. For information on categories of offences and types of penalties, students should refer to [Policy 71 - Student Discipline](#) . For typical penalties, check [Guidelines for the Assessment of Penalties](#) .

Appeals

A decision made or penalty imposed under [Policy 70 - Student Petitions and Grievances](#) , (other than a petition) or [Policy 71 - Student Discipline](#) , may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to [Policy 72 - Student Appeals](#) .

Grievance

A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read [Policy 70 - Student Petitions and Grievances](#) , Section 4. When in doubt please be certain to contact the department's administrative assistant who will provide further assistance.

Final Grades

In accordance with [Policy 46 - Information Management](#) , Appendix A - Access to and Release of Student Information, the Centre for Extended Learning does not release final examination grades or final course grades to students. Students must go to [Quest](#) to see all final grades. Any grades posted in Waterloo LEARN are unofficial.

AccessAbility Services

[AccessAbility Services](#) , located in Needles Hall, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodation to lessen the impact of your disability, please register with AccessAbility Services at the beginning of each academic term and for each course.

Accessibility Statement

The Centre for Extended Learning strives to meet the needs of all our online learners. Our ongoing efforts to become aligned with the [Accessibility for Ontarians with Disabilities Act \(AODA\)](#) are guided by University of Waterloo accessibility [Legislation](#) and policy and the [World Wide Web Consortium's \(W3C\) Web Content Accessibility Guidelines \(WCAG\) 2.0](#) . The majority of our online courses are currently delivered via the Desire2Learn Learning Environment. Learn more about [Desire2Learn's Accessibility Standards Compliance](#) .

Use of Computing and Network Resources

Please see the [Guidelines on Use of Waterloo Computing and Network Resources](#) .

Copyright Information

UWaterloo's Web Pages

All rights, including copyright, images, slides, audio, and video components, of the content of this course are owned by the course author and the University of Waterloo, unless otherwise stated. By accessing this course, you agree that you may only download the content for your own personal, non-commercial use. You are not permitted to copy, broadcast, download, store (in any medium), transmit, show or play in public, adapt, or change in any way the content of these web pages for any other purpose whatsoever without the prior written permission of the course author and the University of Waterloo, Centre for Extended Learning.

Other Sources

Respect the copyright of others and abide by all copyright notices and regulations when using the computing facilities provided for your course of study by the University of Waterloo. No material on the Internet or World Wide Web may be reproduced or distributed in any material form or in any medium, without permission from

copyright holders or their assignees. To support your course of study, the University of Waterloo has provided hypertext links to relevant websites, resources, and services on the web. These resources must be used in accordance with any registration requirements or conditions which may be specified. You must be aware that in providing such hypertext links, the University of Waterloo has not authorized any acts (including reproduction or distribution) which, if undertaken without permission of copyright owners or their assignees, may be infringement of copyright. Permission for such acts can only be granted by copyright owners or their assignees.

If there are any questions about this notice, please contact the University of Waterloo, Centre for Extended Learning, Waterloo, Ontario, Canada, N2L 3G1 or extendedlearning@uwaterloo.ca.