GEOB 102
OUR CHANGING ENVIRONMENT: CLIMATE AND ECOSYSTEMS
Winter Term 2 (Jan-Apr), 2020-21

Instructors
Dr. Ian McKendry - Climate (1st half of the term)
Student hours: TBA (see Canvas for times & link to join)
Dr. Nina Hewitt - Ecosystems & biogeography (2nd half of the term)
Student hours: TBA (see Canvas for times & link to join)

Teaching Assistants: Marion Nyberg, Will McVean, Tin Satriawan, Lauren Smith
TA Student hours: Your teaching assistant will be available to answer questions during your lab section every week.

Course Email: geob.102@ubc.ca

SCHEDULE
Lectures: Monday & Wednesday lectures will be recorded (and asynchronous), Friday class will be held synchronously (10 - 10:50 AM, Vancouver time), and recorded for those who cannot attend. See below for more details about course structure.

Labs: Scheduled laboratory times are opportunities for students to meet with teaching assistants to get help with the four scheduled assignments and the course material. Attendance is *strongly* recommended. Please attend the lab section that you have registered for.

COURSE DESCRIPTION: This course provides an introduction to two areas of the Geographical Sciences: climatology and biogeography. **Climatology** is the study of the heat and moisture states of the Earth's surface and atmosphere. **Biogeography** is the study of the distribution and dynamics of organisms and their environments. Our approach will be an Earth Systems one, emphasizing not just major discernible features, but underlying processes, energy flows and cycles. Specific topics include atmospheric structure and composition, global wind patterns, severe weather and climate systems; soil profiles, processes and classification; and ecosystems and biomes. A major objective of this introductory course is to provide you with an understanding of the foundations of Geographical Sciences. This will allow you to better appreciate the environment around you and enable you to critically evaluate the implications of changes on the physical, natural environment.

LEARNING OBJECTIVES
- Develop a scientific understanding of earth's atmospheric and biological systems
- Examine the specific processes that operate in and among these systems
- Appreciate the role of humans in shaping, and being shaped by, these systems
- Develop and improve basic skills of numeracy, graphical representation and interpretation
- Critically evaluate environmental information in the news and other (e.g., social) media

LEARNING MATERIALS
Course text: Students are mainly evaluated based on the material contained in the lectures. However, in a first-year science course, background reading is necessary to solidify and expand upon scientific concepts. **The adopted textbook** is:
- Arbogast et al. 2018. "Discovering Physical Geography", 1st Canadian Edition, Wiley. (Chaps 2-11)

The custom e-text with relevant chapters is available via the UBC bookstore in **e-book format** ($ 50; ISBN: 9781119797180), which we encourage you to use to save on paper and resources.
* NB: you will not find the e-book through the regular bookstore course link. Please access it via the red-button at the top of the course materials listings, OR directly via this link:
https://campusebookstore.com/AccessCodes/AccessCodeBrowse.aspx?CODEID=34433&bookseller_id=16

There are also a small number of affordable **paper course kits** ($ 60; ISBN: 9781119485872) available on a first come first serve basis. They may be accessed via the regular bookstore course materials listing.

Alternatively, **you may use any** of the following texts, for which the core material is the same (so if you have access to a copy, go ahead and use it. (The key is to actually *read and study* whichever text you can access!)

- "Living Physical Geography" (2nd edition) by Gervais, Macmillan Publishing (Chapters 1-12)
    - This text was used last term, so if you have access to a used/shared copy, we encourage you to use it! GEOB 103 (landforms) is currently using *different sections* of this text.
- "Physical Geography" (5th edition, Canadian Version) by Strahler and Archibold, J Wiley, Toronto.
- "Geosystems" (any Canadian edition) by Christopherson, Byrne *et al*. Pearson.

NOTE: The Arbogast text is listed at the bookstore as "optional" because you may alternatively choose one of these other options. **A textbook that includes any of the above is required!**

Course Website: All other course materials (slides, recordings, assignments and tests/quizzes) will be available on Canvas. Students are responsible for checking the website regularly to participate fully in the course and for course updates.

GETTING HELP WITH THE COURSE:
If you have questions pertaining to lecture material we encourage you to bring your questions to your TA during your lab section or to Student Hours with the professors. You may also post questions on the relevant discussion board in Canvas and a TA or professor will respond. E-mail should not be used to ask questions about the course materials.

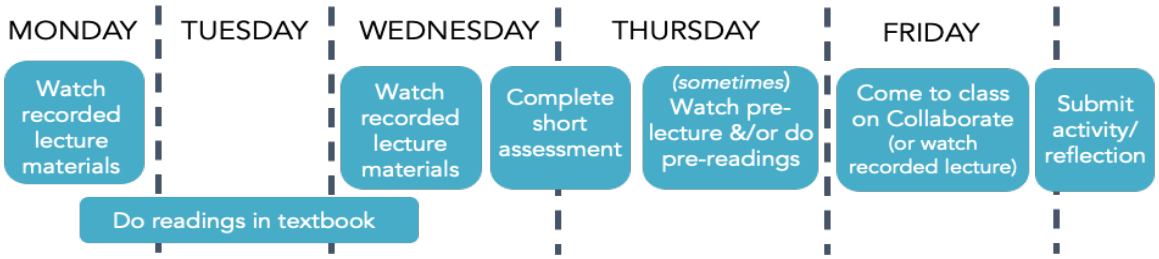
All questions about missed assignments, missed exams, requests to write an examination at Access & Diversity, and other practical concerns about the course should be directed to the course email: geob102@ubc.ca. We will check the course email regularly during business hours. Remember that email is a formal and public method of communication. Do not write anything that you do not want on the permanent, public record.

COURSE STRUCTURE & EVALUATION

1. LECTURES & PARTICIPATION: Much of the learning in this course will take place through engaging with materials presented in a lecture-style format. Each week, we will have a series of short recorded lectures that will be available to watch, divided into Mondays and Wednesdays. As much as having a structure is helpful, we encourage you to watch these lectures during the scheduled lecture time on each day (or schedule your own).

   On Fridays (see schedule in Weekly Modules), we will have a synchronous class that will (on 8 of these) include an activity that you engage in with small groups. The activity may include review, videos, current events related to the course, or a short lecture segment. We encourage you to **attend all** Friday sessions as they treat testable material, but will also record and post the

session for those who cannot due to time zone constraints. At the end of the session you will submit answers to discussion questions and/or a short reflection (due Mondays at 10 AM). You will receive credit for completing the activity in a manner that meets with the exercise expectations. You need complete and **submit just 7** of the 8-9 activities for **8%** of your grade.



2. WEEKLY/BI-WEEKLY QUIZZES: quizzes will be held on Canvas for a time-limited period. Quizzes are designed to 1) test your knowledge, and 2) help you stay engaged and prepared for the term's exams. There will be a total of 7 quizzes occurring between Weeks 2 and Week 13, due on Thursdays just before midnight (11.59 pm) Pacific Time. There will be no quizzes during the week of the midterm or, typically, during weeks when labs are due; additional pauses will be announced the week of. Please ensure you check announcements and the weekly modules with schedule to determine whether you have a quiz. Quiz Grading: Your lowest quiz score will be dropped (best 6 of 7).

   Planning: We encourage you to complete the quizzes on Wednesdays after watching the lectures, and *preferably, before 5 pm* on the due date.
   Note: should you choose to wait until after 5 pm Pacific Time on the due date, you agree to accept the consequences of any technical issues you encounter with the quiz platform. We are only able to respond to messages received prior to 5 pm. Note also: There are no makeups – If you neglect to complete a quiz by the due date, you will forfeit that quiz. If this happens just once, all of the remaining (6) completed quizzes will count toward your quiz grade.

3. LABS & ASSIGNMENTS: Your lab section is an opportunity to interact regularly with a smaller group of students, and we will work to foster developing a learning community in these sessions. Labs are intentionally scattered throughout the day to make attendance possible from (we hope) anywhere in the world.

   To further your understanding of earth's systems, you will complete **four written lab** assignments. The scheduled laboratory times are opportunities for the students to meet with teaching assistants to get assistance. We strongly recommend you attend each week. Your TA will provide you with full instructions on how to complete each lab, facilitate working in small groups to go through the lab, and answer questions that arise. Please **use the lab session to ask any questions** you may have.

4. EXAMS: You will take 2 exams to assess your mastery of the learning objectives. Exams will be available for a 24 hour period, and you will have a time-limited period to complete each once you have started. Additional details of exams, including format, study topics and tips, will be provided on Canvas within 1 week of each exam. The first exam will be during the halfway mark of term (see schedule – week 6-7). The second exam will fall during the normal exam period.

Evaluation

Assignments (4 worth 6 percent each)	24%
Engagement with lecture material (weekly or bi-weekly activities) - participation only (Submit 7 of the 8-9 or so activities; see weekly schedule for dates)	8%
Weekly quizzes in Canvas (Best 6 of 7)	18%
Exams on lecture material (2 x ~60-70 minutes; worth 22 and 24 percent, respectively). The first will be during term; the second, during the April exam period.	50%
TOTAL	100%

COURSE POLICIES

Learning online (aka Netiquette): Regarding mutual respect in an online community: We ask you to be respectful and professional - don't write anything you wouldn't say in class. All writing on online forums/discussions, in-class chat sessions, and emails must reflect mutual respect among users. These are public methods of communication. Do not post anything you do not want to be made public. As with all academic writing, these should have correct spelling, grammar, and style. Online participation and active engagement in discussions and break out groups are essential parts of an online learning community. We encourage you to turn on webcams if you feel safe and comfortable doing so. If not please consider adding a profile picture. More on Netiquette can be found here.

Policies on missed assignments and exams:

Due dates for the assignments, quizzes, weekly/bi-weekly activities, and exams are fixed. **Late quizzes and activities will not be accepted**, so plan ahead to submit yours on time. Assignments will be deducted 10% per day. Extensions will not be granted, except for medical or compassionate reasons. If you anticipate needing an extension on an assignment, please email us.

Furthermore, if you missed an assignment for the first time and the course is still in-progress, speak with the instructor immediately to find a solution for your missed coursework. If this is not the first time you have requested concession or classes are over, fill out Arts Academic Advising's online academic concession form immediately, so that an advisor can evaluate your concession case. If you are a student in a different Faculty, please consult your Faculty's webpage on academic concession, and then contact your instructor if appropriate.

During the term, a midterm test will be held on February 26, and a final exam during the April exam period (TBA). Each exam will be available on Canvas for 24 hours, however, you will have a limited amount of time (typically 60-80 minutes) to complete the exam once you start it. Please allow enough time to read the instructions and complete the code of conduct pledge. The final exam is scheduled by UBC. Students who miss the Final Exam will need to obtain an academic deferral from their faculty to sit an alternate exam that will be scheduled and supervised by Enrollment Services. A make-up test for the midterm will be held only under situations of serious medical circumstances. You must notify the instructor immediately if this is the case. In fairness to students who write the test on time with limited study time, makeup tests may be more challenging.

Academic honesty: Plagiarism and cheating may be punished by failure of the assignment, exam or course. Examples of plagiarism, defined as using someone else's work as your own, and cheating include but are not limited to:

- using the same words, phrases, or ideas from a source without citations
- copying and pasting material from the internet, class slides, or textbook (key words, sentence fragments, or paragraphs) on an assignment or exam
- submitting the same answers as another student on an assignment, even if you worked together. You cannot work with other students on exams.

All submitted work *must* be in your own words. If you have questions about what qualifies as plagiarism or cheating, ask the professor or TA's. "I didn't know it was plagiarism" is not a valid excuse. For more on this, see the Syllabus and Course Information module on Canvas.

Please make sure to watch this video on Academic Integrity. More information on academic honesty is also available through that link.

Engagement in synchronous and asynchronous lectures
It is important that you watch asynchronous lectures as they are assigned and attend synchronous meetings. Since we don't meet in person during class time it may be tempting to procrastinate watching lectures, but unwatched lectures will pile up quickly and will make it difficult to take weekly quizzes, participate in activities, and complete assignments. It has been demonstrated that students who attend classes not only achieve better grades, but have a better understanding and enjoy course content better. This is particularly true in an online introductory science course such as this, where the content will be novel to you, and we will move quickly through material on a wide range of topics. To succeed, you will need to be actively engaged, take good notes, keep up with lectures and text readings, and reach out to the teaching team if you need help. Try to address questions you have on the subject matter at the appropriate time rather than waiting until just before the exams for clarification.

Policy for students representing UBC, BC or Canada (at academic or sports events): We fully support students involved with official organizations and teams that travel during the term; however, with this privilege comes additional responsibility. You are responsible for providing formal documentation identifying the organization you represent and potential schedule conflicts with this course. In the event that you are travelling and unable to attend an exam, you must schedule a secondary exam before you depart.

Personal Pronouns: Canvas now allows users to display their personal pronouns (e.g., she, he, they) next to their name throughout the platform. Displaying your pronouns can help make sure instructors and students use the right pronouns when referring to you. You can also look for that information about other people to ensure you use the right words for other people, which helps create an inclusive and welcoming climate online. To choose a set of pronouns to display, go to Account then Settings and then to Edit Settings. Canvas currently limits users to one set of pronouns. For technical questions, please fill out a ticket at https://web.it.ubc.ca/forms/isf/. For broader questions about pronouns, check out the Gender Diversity FAQ from the Equity & Inclusion Office or contact trans.inclusion@equity.ubc.ca

University Policies: UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious observances. UBC values academic honesty and students are expected to

acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions. Details of the policies and how to access support are available on the **UBC Senate website**.

Statement from UBC for students taking this course abroad: During this pandemic, the shift to online learning has greatly altered teaching and studying at UBC, including changes to health and safety considerations. Keep in mind that some UBC courses might cover topics that are censored or considered illegal by non-Canadian governments. This may include, but is not limited to, human rights, representative government, defamation, obscenity, gender or sexuality, and historical or current geopolitical controversies. If you are a student living abroad, you will be subject to the laws of your local jurisdiction, and your local authorities might limit your access to course material or take punitive action against you. UBC is strongly committed to academic freedom, but has no control over foreign authorities (please visit http://www.calendar.ubc.ca/vancouver/index.cfm?tree=3,33,86,0 for an articulation of the values of the University conveyed in the Senate Statement on Academic Freedom). Thus, we recognize that students will have legitimate reason to exercise caution in studying certain subjects. If you have concerns regarding your personal situation, consider postponing taking a course with manifest risks, until you are back on campus or reach out to your academic advisor to find substitute courses. For further information and support, please visit: http://academic.ubc.ca/support-resources/freedom-expression

GEOB 102 Schedule of Lectures, Labs and Readings

DATES	**LECTURE TOPICS**	READINGS (Arbogast et al.) **Equivalent readings** from **Strahler & Archibold** are shown in blue font; Readings from **Gervais** in green font
Week 1: Jan 11-15	Introduction to the course; Earth as a rotating planet; Solar energy, seasons; Earth's Atmosphere;	Chapter 2, Chap 3 S&A Chap 2 (pp. 29-35) Gervais Chap 1.4; Chap 3.2 & 3.4; 2.1- 2.5
W2: Jan 18-22	Energy balances and radiation; Air temperature	Chap 5, pp. 90-4; Chap 4 S&A Chap 3&4 (pp. 40-63; 69-72) Gervais Chap 3.3; 3.1, 3.5
W3: Jan 25-29	Global climate change (cont. Week 5); Pressure, wind and the global circulation system	Chap 5, pp. 94-108; Chap 9, pp. 239-46 (skim 230-9; review Chap 4, pp. 68-70); S&A Chap 4 (72-99) Chap 6, 112-30; 137-9; (skim 130-7) S&A Chap 5&6 Gervais Chap 7.1 & 7.3; 5.1, 5.2; 4.1-4.3
W4: Feb 1-5	Atmospheric moisture: The water cycle, clouds and precipitation	Chap 7 S&A Chap 6 Gervais Chap 4.4-4.6
W5: Feb 8-12	Weather: Fronts, severe weather	Chap 7 S&A Chap 6 Gervais Chap 6.1-6.6
Feb 15-19	Study Week	
W6: Feb 22-26	Global climate systems; Climate Change revisited **Friday: TERM TEST**	Chap 8, 9, pp. 212-29 S&A Chap 7; Gervais Chap 5.1; 7.1-7.5

W7: Mar 1-5	Soil properties and processes: Soil formation and horizon development	Chap 11 S&A Chap 19 (458-89) Gervais Chap 11.1-11.3
W8: Mar 8-12	Soil classification and major soil types; Soil management and conservation; Intro. to Biogeography: Ecosystems, food webs and cycles of Carbon and Nitrogen	Chap 11; Chap 10, pp. 249-54; And read: S&A Ch 20 pp. 498-507 Gervais Chap 7.3, 8.6 (p. 253-255)
W9: Mar 15-19	Species distributions: Physical and biological influencing factors; Disturbance and succession	Chap 10 p. 260-2; 265-8; *And read*: S&A Chap 21 pp. 519-32 Gervais Chap 5. Chap 8.0 (pp. 229-230); Chap 8.3 - 8.5, 8.6 (just p. 256)
W10: Mar 22-26	Evolution, speciation; Biodiversity and extinction Friday: Biodiversity activity	Speciation: https://opentextbc.ca/conceptsofbiologyopenstax/chapter/speciation/ Gervais Ch. 8.2 (pp. 237-239), pp. 255-256 (taxonomy), 8.7 (pp. 257-260); For Friday: Read Ch. 8.6
W11: Mar 29-31 Friday Holiday	Dispersal and colonization; The Quaternary and biogeographic range changes; Jump Dispersal and Invasive Species	*Read*: S&A Chap 21, pp. 533-41 (W 10 folder); Gervais Ch. 8.1
W12: Apr 7, 9 Monday Holiday	Population Growth and Dynamics Biogeographic realms; Terrestrial biomes: forests; savanna; grasslands and steppe; true desert, tundra; Climate Changes	Chap 10, pp. 255-64; 269-75 S&A Chap 22 (547-64; 572-8); Chap 20 (500-3; 515-6) & 21 (528-9; 532; 536) Gervais Chap 9.0-9.4; 9.5
W13: Apr 12, 14	Biogeographic realms, continued; Wrap up; Review	

LAB	**LAB TOPIC**	LABS RUN Mon – Thurs:	DUE Friday (midnight):
LAB 1	Energy Budgets and Temperature	Week of Jan 18-21 (TAs in lab Jan 25-28*)	Jan 29
LAB 2	Weather and Precipitation	Week of Feb 1-4 (Office hrs Feb 8-11)	Feb 12
LAB 3	Soils and Classification	Week of Mar 1-5 (Office hrs Mar 8-11)	Mar 12
LAB 4	Biogeography: Disturbance and Succession; Species ID	Week of Mar 15-18 (Office hours Mar 22-25)	Mar 26

* TA's will be in the Collaborate Ultra "rooms" the **weeks following each lab run** to answer lab questions.