

# EAS 100 – Planet Earth (Fall 2021; ATEP)

## COVID-19 PANDEMIC DISCLAIMER

University and public health policies and regulations are likely to change several times during the Fall 2021 term. These evolving regulations and policies take precedence over anything published in this syllabus. The instructor will notify students of any pertinent changes by email and in class, but students are ultimately responsible for keeping aware of new and evolving University regulations. This will not likely impact this class in a meaningful way as the course is online but may limit access to in-person meetings and laboratory materials.

### Instructor

Dr. Britta Jensen ([bjjensen@ualberta.ca](mailto:bjjensen@ualberta.ca))

3-02 Earth Sciences Building

780-492-3430

**office hours:** both in person (you **must** be fully vaccinated if you would like to meet in person and adhere to masking rules on campus) and online meetings will be by appointment, although I will be available for an open online drop-in session once a week (see below).

### Laboratory Coordinator

Darrin Molinaro ([molinaro@ualberta.ca](mailto:molinaro@ualberta.ca))

CCIS L1-272

780-996-0839

**office hours:** both in person (you **must** be fully vaccinated if you would like to meet in person and adhere to masking rules on campus) and online meetings will be by appointment. I will also be present during most lab times to ask questions as well.

### Teaching Assistants

Green - Kira Holland ([kmhollan@ualberta.ca](mailto:kmhollan@ualberta.ca))

Gold - Matthew Bolton ([bolton1@ualberta.ca](mailto:bolton1@ualberta.ca))

Blue - Jenifer Spence ([jenifer1@ualberta.ca](mailto:jenifer1@ualberta.ca))

### Lectures

Lectures are live on eClass (MWF 09:00-09:50) but will be recorded and posted afterwards. Online drop-in sessions: Mondays from 4-5pm will be a live Q&A session on Zoom to answer questions on lecture material or anything else class related. Questions can be email prior to these sessions, which will also be recorded. Zoom links for lectures and drop-in sessions will be posted on eClass

### Laboratory

Sections will meet twice weekly through Zoom (and possibly as optional in person meetings) at the following times:

Mondays: 11:00 – 11:50 am

Fridays: 10:00 – 11:50 am

All lab materials and assignments will be made available at 08:00 (8 am) on Mondays via the course eClass page, with each weekly lab assignment closing the following Friday at 18:00 (6 pm). Weekly lab materials and assignments will follow lecture topics, meaning all lab materials will have been presented in lecture (usually 1-2 weeks in advance) prior to their examination in lab.

## Calendar Description

★ 3 (fi 6) (either term, 3-0-3) Introduction to basic geological processes, such the rock cycle, plate tectonics, earthquakes, volcanism, weathering and sedimentation. Simple energy balances and interactions between radiation and the atmosphere, land, oceans, ice masses, and the global hydrological cycle. Evolution of life, biogeography, and global climate in the context of geologic time. The carbon cycle. Human interaction with the Earth. Mineral and energy resources. Not available to students with credit in EAS 101, 102 or 201 or SCI 100 (Note: Students with credit in EAS 201 may take EAS 200). [Faculty of Science]

## Course Outcomes

EAS 100 is an introductory course that focuses on the interlinked processes that formed and continue to shape the planet on which we live. After a general introduction, the course covers major systems that include the geosphere (solid Earth), hydrosphere (solid, liquid, and gaseous water), atmosphere (composition, weather, and climate), and biosphere (evolution of life, elemental cycling, impacts of humans). The primary objective of the course is to give students a broad, integrated knowledge of Earth systems science, and a foundation for those who will continue on as Earth Science majors. By the end of EAS 100 you will be able to:

- Identify the main components of the Earth's geosphere, hydrosphere, atmosphere, and biosphere.
- Describe the interactions between the geosphere, hydrosphere, atmosphere and biosphere, and the processes that modify them over geological and human time scales.
- Explain the ways in which humans interact and modify these components of the Earth system.

## Course Materials

**No required course textbook.** Lectures will be live on zoom but will be recorded and posted on e-class. Lecture slides will be posted one day before the scheduled lecture times. In addition, basic course information and supporting documentation will appear on the course eClass website.

**Required laboratory materials:** Laboratory information and exercises will be provided weekly on eClass. To access, complete, and submit laboratory work students will need internet access to eClass, the ability to print worksheets, and take and upload photographs (with any digital camera or film camera in combination with a scanner). In addition, the following items will also be beneficial to have on hand when completing lab exercises: notepaper, pens, pencils, erasers, metric ruler, protractor, and a compass (for drawing circles).

## Laboratory Assignments

**Weekly assignments:** There will be 10 laboratory assignments, each designed to give you experience working with concepts and principles introduced in lecture. Laboratory materials and assignments will be provided weekly on eClass starting September 13th, 2021. Each exercise, along with all its associated materials, will become available Mondays at 08:00 and then close the following Friday at 18:00 (6 pm) mountain time. Students may access, work on, and complete each week's laboratory materials and exercise any time during its open period. Once each week's lab exercise closes on the Friday, the lab coordinator and teaching assistants will then grade and return the exercises within the following week. Laboratory exercises will comprise 30% of a student's final course grade (10 exercises total, therefore each exercise will be worth 3% of each student's final course grade). **Students must complete all laboratory exercises to be eligible to pass the course.** If students cannot complete any of the laboratory exercises, they must contact the laboratory coordinator, Darrin Molinaro, within 48 hours of the missed assignment deadline to make arrangements.

**Geo-Scavenger Hunt Assignment:** In addition to the 10 weekly laboratory assignments, you will complete a Geo-Scavenger Hunt assignment worth 10% of your final course grade. The Geo-Scavenger

Hunt assignment requires you to venture out into your surroundings to locate, document, and describe a variety of rock samples. The Geo-Scavenger Hunt assignment can be completed any time from Monday, September 13<sup>th</sup>, 2021 to Friday, October 22<sup>nd</sup>, 2021 at 18:00 (6 pm) mountain time. *If students cannot complete the Geo-Scavenger Hunt assignment on time, they must contact the laboratory coordinator, Darrin Molinaro, with 48 hours of the deadline to make arrangements.*

As the Geo-Scavenger Hunt assignment requires students to possibly go outside to locate and photograph rock samples it is strongly recommended that students complete the assignment when weather is favourable in their locations. The window in which students can complete the assignment is large enough that weather, or other circumstances limiting students from accessing rock samples in their surroundings, will not be permitted in students seeking extensions or accommodations in completing this assignment.

### **Laboratory Meetings & Help Sessions**

Each week students will be able to attend two lab sessions, an introductory session on Mondays (11:00 to 11:50) and a help session on Fridays (10:00 to 11:50). These sessions will focus on each week's laboratory topics, and when possible optional in person meetings (following current University COVID-19 measures) will take place.

Monday lab sessions will consist of TA led introduction to the weekly lab materials. If these Monday sessions have optional in-person attendance to view on campus materials (e.g., Geo-Science Garden, North Saskatchewan River Valley, etc.) the sessions will be video recorded and posted afterwards for students unable to attend in person.

Friday lab sessions will be remote sessions held over Zoom on eClass where students can attend to discuss weekly lab topics or seek help with problems they are struggling with from TAs. These Friday sessions will not introduce any new material, and are to only act as optional help sessions where students may seek help in completing their weekly lab assignments prior to their deadline at 18:00 (6 pm) mountain time later that day.

### **Laboratory Exam**

The laboratory final exam will be integrated into the lecture final exam, resulting in a single final exam (format to be announced) on Dec 15<sup>th</sup> at 2pm.

Prior to the final exam, a sample exam containing lab style questions will be posted on eClass so that students can familiarize themselves with how lab-based questions will function on the exam.

## Laboratory Schedule

Lab Number	Topic	Dates
No Lab	None	Sept. 1 - 3
No Lab	None	Sept. 7 - 10
Lab 1	River Valley Tour/Geo-Scavenger Hunt Intro	Sept. 13 - 17
Lab 2	Maps and Topographic Profiles	Sept. 20 - 24
Lab 3	Earth Materials: Minerals and Rocks	Sept. 27 - Oct. 1
Lab 4	Mapping Geological History	Oct. 4 - 8
Lab 5	The Tectonic System	Oct. 12 - 15
No Lab	Geo-Scavenger Hunt Completion	Oct. 18 - 22
Lab 6	Solar Radiation, Atmosphere, and Oceans	Oct. 25 - 29
Lab 7	Water at and Beneath the Earth's Surface	Nov. 1 - 5
No Lab	Fall Reading Week	Nov. 8 - 12
Lab 8	Glaciers and Glaciation	Nov. 15 - 19
Lab 9	The Life and Times of Planet Earth	Nov. 21 - 26
Lab 10	Mineral Resources and the Human Footprint	Nov. 29 - Dec. 3

## Approximate Lecture Schedule

The following schedule is subject to change except the timing of midterms. **Note:** The date of the final examination is set by the Registrar and takes precedence over the final examination date reported in this syllabus.

<b>DATES</b>	<b>LECTURE TOPICS</b>
Sept. 1 - 3	<b>Introduction:</b> welcome to class, scientific method, Earth System Science, the big picture
Mon, Sep 6	<b>Labour Day (no class)</b>
Sept. 8 - Sept. 29	<b>Geosphere:</b> plate tectonics, geologic time, minerals and rocks, the rock cycle
Oct. 1	<b>MIDTERM EXAMINATION #1</b>
Oct. 4 - Oct. 8	<b>Atmosphere:</b> structure, dynamics, circulation, weather
Oct. 11	<b>Thanksgiving (no class)</b>
Oct. 13 - Oct. 15	<b>Atmosphere:</b> climate
Oct. 18- Nov. 1	<b>Hydrosphere:</b> oceans, hydrologic cycle, fresh water, frozen water (the cryosphere - glaciers, sea ice, snow)
Nov. 3	<b>MIDTERM EXAMINATION #2</b>
Nov. 5	<b>Biosphere:</b> interaction of the Earth with life, elemental cycling, evolution
Nov. 8-12	<b>Reading Week (no class)</b>
Nov. 15-19	<b>Biosphere:</b> interaction of the Earth with life, elemental cycling, evolution
Nov. 22 - Dec. 3	<b>Anthroposphere:</b> resource cycle, influence of humans on planet Earth, climate change
Dec. 6	<b>Overflow day!</b>
Dec. 15	<b>FINAL EXAMINATION (2:00 pm - 5:00 pm)</b>

## Grading

All examinations will be given a numerical score. A cumulative course mark will be calculated from those scores using the following weights:

Midterm examination #1 (50 min)	15%
Midterm examination #2 (50 min)	15%
Combined Lecture and Lab final examination (3 hrs)	30%
Geo-Scavenger Hunt assignment	10%
Laboratory assignments	30%

A final mark will be assigned based upon your overall grade for the course and the instructor's assessment of your position relative to other students in the course. Grades are unofficial until approved by the Department and Faculty.

## Missed Midterm Examination

There are no deferred midterm examinations. Students who do not write the midterm exam due to a valid and documented absence will have the weight of the midterm added to their final examination. Students must provide a valid and documented excuse to the lecture instructor for an absence *in advance* of the scheduled examination time, or they will be given a mark of zero on the missed midterm. Midterm exams will be held on **Friday, October 1** and **Wednesday, November 3 during the scheduled class period**, hosted on eClass.

For an excused absence where the cause is religious belief, a student must contact the instructor(s) within two weeks of the start of classes to request accommodation for the term (including the final exam, where relevant). Instructors may request adequate documentation to substantiate the student request.

## Deferred Final Examination

Pending final approval by the University, the three-hour **final exam** will be held on eClass at **14:00 Wednesday, December 15**.

Deferred final exams, if approved, will be held at **1:00 pm Friday, January 14, 2022**. These dates cannot be changed. The format of the re-examination does not have to be the same as the final exam. Please note that the instructor does **NOT** grant deferred final exams. A student who cannot write the final examination due to incapacitating illness, severe domestic affliction or other compelling reasons can apply for a deferred final examination. Such an application must be made to the student's Faculty office within two working days of the missed examination and must be supported by appropriate documentation or a Statutory Declaration (<https://calendar.ualberta.ca/content.php?catoid=29&navoid=7238#Attendance>). Deferred examinations are a privilege and not a right; there is no guarantee that a deferred examination will be granted. Misrepresentation of facts to gain a deferred examination is a serious breach of the Code of Student Behaviour.

A student who writes the final examination and fails the course may apply for a re-examination. Re-examinations are rarely granted in the Faculty of Science. Re-examinations are governed by [university-wide Academic Regulations](#) and [Faculty of Science Academic Regulations](#). Misrepresentation of Facts to gain a re-examination is a serious breach of the *Code of Student Behaviour*.

## Minimum Computing Recommendations

To successfully participate in remote learning in this course it is recommended that students have access to a computer and an internet connection that can support the tools and technologies the University uses to deliver content, engage with students, and facilitate assessment and examinations. Students should have access to:

- a computer which can run a currently supported version of Windows or MacOS
- Windows (Version 8, 8.1, or 10)
- Mac (Version 10.13 or higher)
- 4 GB of RAM
- 256 GB hard drive
- wired or wireless network adapter
- webcam, microphone, and speakers (or headphones/earbuds)
- a screen large enough to easily view documents and videos
- the ability to access productivity software such as Google Apps or Microsoft Office
- a reliable internet connection with sufficient bandwidth to support watching online videos, taking part in video conferences and taking online exams.

Please note: Public WiFi may not be suitable, adequate, or have appropriate security to support remote learning and assessment activities. If you would have difficulty meeting the computing recommendation for your program or course, please email the Dean of Students Office ([dosdean@ualberta.ca](mailto:dosdean@ualberta.ca)) directly to explore options and available help.

## **Student Resources for Remote Learning**

Online learning may be new to you. Check out tips for success and find out more about online learning on the [Campus Life](#) page, and specifically on the [Student Resources for Remote Learning](#) page.

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## **STUDENT RESPONSIBILITIES**

### **Safe and Healthy Learning Environment:**

Section 30.3.4(6) c of the Code of Student Behaviour states: “*No Student shall create a condition which endangers or potentially endangers or threatens the health, safety or well-being of other persons.*”

Accordingly, students with symptoms of \*any\* respiratory illness should avoid attending in-person activities for this class while they feel ill.

### **Academic Integrity**

"The University of Alberta is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Code of Student Behaviour (online at [www.governance.ualberta.ca](http://www.governance.ualberta.ca)) and avoid any behaviour which could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University."

All forms of academic dishonesty are unacceptable at the University. Any suspected offence will be reported to the Faculty of Science. Anyone who is found in violation of the Code of Student Behaviour may receive a sanction. Typical sanctions include conduct probation, a mark reduction or a mark of 0 on an assessment, a grade reduction or a grade of F in a course, a remark on the transcript, and a recommendation for suspension or expulsion.

### **Students Eligible for Accessibility Resources**

Eligible students have both rights and responsibilities with regard to accessibility-related accommodations. Consequently, scheduling exam accommodations in accordance with accessibility services deadlines and procedures is essential and the student's responsibility. Please note adherence to procedures and deadlines is required for U of A to provide accommodations. Contact accessibility services (<https://www.ualberta.ca/current-students/accessibility-resources/index.html>) for further information.

### **Academic Success Centre**

The [Academic Success Centre](#) provides professional academic support to help students strengthen their academic skills and achieve their academic goals. Individual advising, appointments, and group workshops

are available year-round in the areas of Accessibility, Communication, Learning, and Writing Resources. Modest fees apply for some services. Students who require additional help in developing strategies for better time management, study skills or examination skills should contact the Academic Success Centre ([success@ualberta.ca](mailto:success@ualberta.ca)).

### **Recording and/or Distribution of Course Materials**

Audio or video recording, digital or otherwise, of lectures or any other teaching environment by students is allowed only with the prior written consent of the instructor or as a part of an approved accommodation plan. Student or instructor content, digital or otherwise, created and/or used within the context of the course is to be used solely for personal study, and is not to be used or distributed for any other purpose without prior written consent from the content author(s).

### **Disclaimer**

Any typographical errors in this Course Outline are subject to change and will be announced in class. The date of the final examination is set by the Registrar and takes precedence over the final examination date reported in this course outline. The policy about course outlines can be found in [Course Requirements, Evaluations Procedures and Grading](#) of the University Calendar.