

Earth Sciences 1022A: Earth Rocks!
Course Syllabus: Fall, 2019

Additional course information can be found at: <https://owl.uwo.ca/portal>

Prerequisites: None **Antirequisites:** ES1070a/b, ES1081b; the former ES020, ES082a/b

Objectives of this course: This course is designed to introduce students to the “stuff” of the Earth is made of (minerals, rocks and associated materials), the significance of these materials to the understanding of the internal and external processes that shape the face of our highly dynamic planet, the many ways Earth’s processes and materials affect the lives of humans (in the context of natural resources and natural disasters such as volcanoes, earthquakes and floods), and major changes that have occurred in the Earth system over its ~4.6 billion year history.

Learning Outcomes/Expectations: Upon successful completion of this course, the student will be able to:

1. Identify and classify common minerals, rocks and other Earth materials based on their physical characteristics.
 2. Describe how these materials (in item #1) are used in the interpretation of Earth’s external and internal processes and geologic age.
 3. Integrate observational and theoretical information to explain why and how natural disasters (e.g. earthquakes, volcanic eruptions, tsunami, landslides) occur, how natural resources are formed, and how the Earth system has evolved through time.
- Note: this course may be used as an entry course for any Earth Sciences program.*

Background Required: This course is intended for (but not limited to) students registered in faculties other than Science.

Instructor: Dr. Cam Tsujita (Associate Professor); **E-mail:** ctsujita@uwo.ca; **Phone:** (519) 661-2111 ext 86740

Instructor’s Office: Biological and Geological Sci. Bldg., Rm 1064

Instructor’s Office Hours: 1:30 – 3:30 pm Mondays and Wednesdays (but feel free to make an appointment via email to Cam (at ctsujita@uwo.ca) if these times do not suit your timetable).

Lectures: Tues. & Thurs. 12:30-1:30 pm; NSC-1

Teaching Assistants: To Be Announced (refer to OWL course page for email addresses).

Textbook (E-text): Earth: An Introduction to Physical Geology, **Updated** 4th Canadian Edition (Tarbuck, Lutgens, Tsujita and Hicock, 2019) **with Mastering Geology**. Code card for E-text (with Mastering Geology) available for purchase at UWO Bookstore. You will need Mastering Geology regardless of whether or not you use the text. Sign-up instructions will be provided in the first or second class of the course.

Course Website: **Power Point slides for note-taking in lectures** are available online at <http://owl.uwo.ca/> at least one day prior to each lecture. *Please note that the first week of lectures, complete slides powerpoint lectures will be posted on OWL. Thereafter, slides will be posted in incomplete form (i.e. with some parts of the text missing) to encourage you to come to class. It is completely up to you to get the missing “blanks” if you miss any lectures from a classmate.*

Department of Earth Sciences: Phone (519) 661-3187. Fax (519) 661-3198

Email: *For all correspondence requiring prompt reply, please use ctsujita@uwo.ca* (Please include ‘ES 1022a’ in the subject line of all emails about this course. Emails without “ES 1022a” in the subject line might be deleted as spam). Please also note that Cam is less likely to respond promptly to email messages sent through OWL (so just avoid using the OWL email messaging system if at all possible).

Grade Components

Lecture Portion:

Online Quizzes (in Mastering Geology): 10%

Midterm Lecture Exam: 20%

Final Lecture Exam: 30%

Lab Portion:

Weekly Lab Assignments: 15%

Midterm Lab Test: 10% Final

Lab Exam: 15%

Note that you must pass the lab portion of the course (lab mark includes weekly lab assignments, a lab test and final lab exam) in order to **pass the course**. The **writing of all exams in the course is also be mandatory in order to pass the course** (the midterm, final, and lab final), so if you miss one or more due to illness, you **MUST** arrange the writing of a makeup exam with your instructor (and receive recommendation from Academic Counselling with valid documentation of illness or other circumstance warranting Special Accommodation in accordance with university guidelines).

Laboratory Sections:

Labs for **all lab sections** are held in the **Biological and Geological Sciences Building (B&GS) Rm. 1015**.

The times of individual lab sections are as follows (refer to your personal timetable and make sure you know which section you are scheduled for):

Lab Section 002 Tuesdays, 1:30-3:30 pm

Lab Section 003 Wednesdays, 9:30-11:30 am

Lab Section 004 Wednesdays, 11:30 am -1:30 pm

Lab Section 005 Wednesdays, 3:30-5:30 pm

Lab Section 006 Thursdays, 10:30-12:30 pm

Lab Section 007 Thursdays, 1:30-3:30 pm

Lab Section 008 Thursdays, 3:30-5:30 pm

Note: if you need to change the lab section you are currently registered in due to a timetable conflict, you **must** ask your instructor for approval. If approved, you must then confirm both your instructor and TAs of both sections of your intent to attend a different section.

Laboratory Assignments: Laboratory assignments will be provided as downloadable pdf files on OWL. **You will be required you to print out the worksheets (which will be handed in for marking).** **Note:** Labs for this course will start on the 3th week of classes (i.e., week beginning Sept. 17), so there will be no need for you to attend labs up until that week. Lab assignments will be directly handed in to presiding TA at the beginning of your next regularly scheduled lab session prior to the pre-lab presentation (you will have one week to complete each lab assignment). Lab assignments handed in late will be deducted 10% of the assignment grade for each day late.

If you miss, or anticipate missing, a lab due to medical (or other legitimate reasons), report your absence to the head (instructional) TA of the relevant lab to arrange an alternate date to complete and submit the assignment(s). If you miss a lab test/exam, report to Academic Counselling with documentation for recommendation of Academic Accommodation (if approved, arrangements for an alternate date to write a make-up test/exam. Also advise your instructor of your absence.

*Note: **There are 6 weekly labs.** Marks for all 6 lab assignments will count toward your final “weekly labs” mark. Lab assignments 1-3 are due at the end of your lab session on the same day. Lab assignments 4-6 will be due at the beginning of your lab session of the following week (if you are done early, you are free to submit your assignment to the appropriate drop box before the due date).

Course Schedule (2019)

Note: We will adhere to the schedule (below) as closely as possible. However, there may be times in which a particular lecture is longer than anticipated and may therefore “overflow” into another (e.g. if a lecture is cancelled due to unforeseen circumstances such as a “snow day,” if a longer time is needed to help everybody understand an important concept, or if an interesting discussion arises). Please be patient; we will do our very best to catch up if we do fall behind. **And just as a reminder: Do not treat the slide handouts as a substitute for attending lectures! Doing so will be almost guaranteed to result in a significantly lower mark than desired.**

Material covered on the midterm lecture exam and final exam will be entirely based on the lecture material (and you cannot rely on a textbook to make up for significant absences). Please regularly visit OWL for important announcements and updated information on the course (in the event that the following schedule is modified).

(continued on next page)

Lecture and Lab Schedule (Listed by Week)

Week	Lecture Date	Lecture Topics (and Suggested Chapter Readings in Textbook)	Online Quiz (In Mastering Geology)	Lab Topics (and Test/Exam Dates)
Week 1 (Sept. 5-6)	Thurs., Sept. 5	Lecture 1: Course Introduction	No quiz	No Labs
Week 2 (Sept. 9-13)	Tues., Sept. 10	Lecture 2: Introduction to the Earth System <i>Chapter 1: An Introduction to Geology and Plate Tectonics</i>	No quiz	No Labs
	Thurs., Sept. 12	Lecture 3: Minerals <i>Chapter 2: Minerals: The Building Blocks of Rocks</i>		
Week 3 (Sept. 16-20)	Tues., Sept. 17	Lecture 4: Igneous Rocks <i>Chapter 3: Igneous Rocks</i>	Quiz 1: Intro, Minerals (deadline: 12:30 pm, Thurs., Sept. 26)	Lab 1 – Minerals (due at the end of lab session (same day))
	Thurs., Sept. 19	Lecture 5: Volcanoes <i>Chapter 4: Volcanoes and Volcanic Processes</i>		
Week 4 (Sept. 23-27)	Tues., Sept. 24	Lecture 6: Weathering and Sedimentary Rocks <i>Chapter 5: Weathering and Soil</i> <i>Chapter 6: Sedimentary Rocks</i>	Quiz 2: Ig. Rocks, Volcanoes (deadline: 12:30 pm, Thurs., Oct. 3)	Lab 2 – Igneous Rocks (due at the end of lab session (same day))
	Thurs., Sept. 26	Lecture 7: Metamorphic Rocks <i>Chapter 7: Metamorphism and</i>		
Week 5 (Sept.30- Oct. 4)	Tues., Oct. 1	Lecture 8: Geologic Time <i>Chapter 8: Geologic Time</i>	Quiz 3: Weathering & Sed. Rocks, Met. Rocks (deadline: 12:30 pm, Thurs. Oct. 10)	Lab 3 – Sedimentary and Metamorphic Rocks (due at the end of lab session (same day))
	Thurs., Oct. 3	Lecture 9: Deformation <i>Chapter 9: Crustal Deformation</i>		
Week 6 (Oct. 7-11)	Tues., Oct. 8	Lecture 10: Earthquakes and Earth's Interior <i>Chapter 10: Earthquakes and Earth's Interior</i>	Quiz 4: Geo.Time, Deformation (deadline: 12:30 pm, Thurs., Oct. 17)	Lab Review (Labs 1-3)
	Thurs., Oct. 10	Lecture 11: The Ocean Floor <i>Chapter 11: The Ocean Floor</i>		
Week 7 (Oct. 14-18)	Tues., Oct. 15	Lecture 12: Plate Tectonics <i>Chapter 12: Plate Tectonics: The Framework for Modern Geology</i>	Quiz 5: Earthquakes Ocean Floor (deadline: 12:30 pm, Thurs., Oct. 24)	Midterm lab test (on minerals and rocks (labs 1-3 inclusive))
	Thurs., Oct. 17	Lecture 13: Mountain building <i>Chapter 13: Mountain Building and Continental Frameworks</i>		
Week 8 (Oct. 21-25)	Tues., Oct. 22	Lecture 14: Mass Wasting <i>Chapter 14: Mass Wasting: The Work of Gravity</i>	Quiz 6: Plate Tectonics (deadline: 12:30 pm, Thurs., Oct. 31)	Lab 4 – Stratigraphic Principles (due at beginning of your lab session next week)
	Thurs., Oct. 24	Midterm Lecture Exam (NS-1)		
Week 9 (Oct. 28– Nov.1)	Tues., Oct. 29	Lecture 15: Streams Chapter 15: Running Water	Quiz 7: Mountain Building, Mass Wasting (deadline: 12:30 pm, Thurs., Nov. 14 (after break))	Lab 5 – Structural Geology <i>Lab 4 due at beginning of your lab session this week.</i>
	Thurs., Oct.. 31	Lecture 16: Groundwater Chapter 16: Groundwater		

Week	Lecture Date	Lecture Topics (and Suggested Chapter Readings in Textbook)	Online Quiz (Must complete by 12:30 pm Tuesday)	Lab Topics (and Test/Exam Dates)
Week 10 (Nov. 4-8)		Fall Break – No Classes	No quiz	No Labs
Week 11 (Nov. 11-15)	Tues., Nov. 12	Lecture 17: Glaciation Chapter 17: Glaciers and Glaciation	Quiz 8: Streams, Groundwater (deadline: 12:30 pm, Thurs., Nov. 21)	Lab 6 – Geologic Maps (Lab 5 due at beginning of your lab session this week)
	Thurs., Nov. 14	Lecture 18: Wind Chapter 18: Deserts and Winds		
Week 12 (Nov. 18-22)	Tues., Nov. 19	Lecture 19: Coastlines Chapter 19: Shorelines	Quiz 9: Glaciation, Wind (deadline: 12:30 pm, Thurs., Nov. 28)	No formal lab, but Lab 6 due at beginning of your lab session this week.
	Thurs., Nov. 21	Lecture 20: Mineral Resources I Chapter 20: Mineral and Energy Resources		
Week 13 (Nov.25-29)	Tues., Nov. 26	Lecture 21: Mineral Resources II Chapter 20: Mineral and Energy Resources	Quiz 10: Wind, Coastlines (deadline: 12:30 pm, Tues., Dec. 5)	Lab Review (in preparation for lab exam)
	Thurs., Nov. 28	Lecture 22: Energy Resources Chapter 20: Mineral and Energy Resources		
Week 14 (Dec. 2-6)	Tues., Dec. 3	Catch-up period (to tie up any loose ends in lecture content)	No quiz	Final Lab Exam
	Thurs., Dec. 5	Question and Answer Period in advance of Final Exam		

Final Exam: Tentative TBA (see <https://studentservices.uwo.ca/secure/Exams/>)

Comments on Quizzes/Tests/Exams

Online (Mastering Geology) quizzes

For the purpose of encouraging everyone to stay “on track” in learning the subject matter as it is covered, online quizzes will be completed (via Mastering Geology) by students on a weekly basis. There will be a total of 10 quizzes over the course of the term. You will complete the quiz between 1:30 pm (i.e. assigned at the end of Thursday lecture time) of the week indicated above, and **12:30 the following Thursday (i.e. the deadline for the quiz)**. You can do the quiz anytime between these two times (it is highly recommended to do it *at least* one day before the deadline (in case of technical problems on the deadline day)).

Midterm Lecture Exam: Thursday, October, 24, 2019 (regular lecture room, regular lecture time).

Final Lecture Exam: The official date for the final exam will be set by the Office of the Registrar. The final exam will be cumulative, but will focus more on post-midterm material.

Midterm Lab Test: A midterm lab test on minerals and rocks (labs 1-3 inclusive) will be held during your **regularly scheduled lab session** in the week of **Oct. 14-18**.

Final Lab Exam: Held during your **regularly schedule lab** in the week of **Dec. 2-6 (you will have a full 2 hours to write this lab exam)**.

Format for Midterm and Final Lecture Exams: Both exams will consist of a combination of multiple choice, fill-in words, & short answer questions. The Midterm (Lecture) Exam will be 50 minutes long and the Final (Lecture) Exam will be 2 hours long. **Note:** Your final grade for the course will be calculated as the sum of your marks for each of the components. This mark will then be rounded to the nearest integer. No marks will be awarded for arbitrary reasons, and there will be no after-the-fact changes (e.g. 89 to 90 %). In addition, please note that you will be judged according to your performance in this course. **Marks are not awarded with reference to external requirements, like medical school entry criteria, or your personal need for a particular average.**

Attendance and Course Material Tested

Lectures and posting of lecture slides: As with any university course, attendance is very important! You are responsible

for understanding **all** material presented in the lectures, regardless of your attendance. . However, the **downloadable Powerpoint lecture slides only partially cover what will be discussed in class** (and you can be guaranteed that there will be some of this material on the exams). In other words, **do not treat the slide handouts posted on OWL as a substitute for attending lectures!**

Textbook: Note that **several of the lectures cover topics that are treated only superficially in the text.** The exams will draw from material covered in the lectures, but the readings and exercises provided in Mastering Geology will provide additional background that will aid in the understanding of the concepts. If you miss a lecture, it is up to you to obtain any missing information you require from one or more of your classmates.

Labs: All hand-in sheets for any given lab must be submitted directly to your assigned TA at the designated time (refer to “Lecture and Lab Schedule” chart above for deadlines) in order to be counted as being “on time” and, ultimately, to be marked by your TA (unless due to illness or other exceptional circumstances considered as a valid excuse by the Dean’s Office of your Faculty or Affiliated College, as discussed below). If you are anticipating that you will be absent from a particular lab period it is up to you to make special arrangements with your assigned TA to submit the assignment to him or her beforehand. **No make-up labs will be arranged for missed labs or lab assignments handed in late without recommendation of accommodation by an academic counsellor in your home faculty or affiliate college (see “in case of illness...” section below).** . In other words, late lab assignments will not be accepted for grading, so it is important for you to show up on time at the beginning of your regularly scheduled lab. Also note that it is **very important** that you **follow the instructions provided for all lab assignments and exams. Any marks lost from not properly following the instructions provided herein and in the assignment outlines themselves are non-negotiable.**

In Case of Illness or Other Serious Circumstance (i.e. What to do if you Miss an Exam or Miss an Assignment Deadline)

If you are unable to meet a major course requirement (tests/quizzes/exams) due to illness or other serious circumstances, you **must provide valid medical or other supporting documentation to the Academic Counselling team in Dean's office of your home Faculty (or Affiliate College) as soon as possible. Also, contact your instructor immediately to notify him/her of your absence and that you have arranged a meeting with Academic Counselling to present your documentation for academic accomodation.** It is YOUR responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed.

A student requiring academic accommodation due to illness, should use the Student Medical Certificate when visiting an off-campus medical facility or request a Records Release Form (located in the Dean's Office) for visits to Student Health Services. The form can be found here:

www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_illness.pdf Students who are in emotional/mental distress should refer to Mental Health@Western <http://www.uwo.ca/uwocom/mentalhealth/> for a complete list of options about how to obtain help.

Procedures for Reporting Missed Quizzes, Tests, Exams or Labs

For missed exams: If you miss a quiz, test or exam (e.g. weekly quizzes, lecture midterm, lab midterm test, final lab exam or final lecture exam) due to legitimate circumstances, please take appropriate documentation to Academic Counselling in the Dean’s office of your home Faculty or Affiliate College. University regulations on the handling of confidential student information are such that instructors cannot view such documentation; all such documentation must be handled by Academic Counselling. For a legitimate claim, your counselor will contact Dr. Tsujita directly to recommend accomodation to write a make-up exam at an alternate date. **Being ‘very busy’ or ‘I planned my vacation during that time’ are not considered valid excuses.** The deadlines in this course are set well in advance and it is up to you to manage your time in a way that allows you to meet them; you are at university and your studies are assumed to be your first priority.

For missed labs: Please note the number of students in each lab section is limited by health and safety regulations (as a consequence, make-up lab sessions for several students cannot be run). All six lab assignment will count toward your “lab assignment” mark. If you miss a lab due to a serious health or other exceptional circumstance, please bring this to the attention to one of the head (instructional) TAs and Course Instructor (Cam Tsujita) so that appropriate alternate arrangements can be made.

Additional Statements

Accomodation for Students With Disabilities: Please refer to the following link:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_disabilities.pdf

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation.

Accommodation for Religious Holidays: Please refer to the following link:
www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_religious.pdf

Exams: “Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.”

Electronic devices allowed on exams: A non-text scientific calculator may be allowed for mathematical calculations in lab and lecture exams. No other electronic devices are permitted (unless permitted by SSD under controlled conditions).

Scholastic Offences: Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:
http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

Plagiarism: It is mandated by the University that the following statement on plagiarism be added to all course outlines: “Plagiarism: Students must write their essays and assignments in their own words. Whenever students take an idea, or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major academic offence (see Scholastic Offence Policy in the Western Academic Calendar).” Cheating on exams (including both lecture and lab exams) will also not be tolerated. And **pertaining specifically to ES1022A lab assignments...** please note that although you are encouraged to work cooperatively with your classmates in the lab periods, especially in terms of discussing aspects of geologic materials and processes, it is expected that the written answers you provide in your lab assignments will be entirely your own (obvious similarities in the wording of multiple-word answers between students may be subject to academic penalty (at discretion of Instructor/TAs)).

Link to the website for Registrarial Services: <http://www.registrar.uwo.ca>

Link to learning skills services at the Student Development Centre: <http://www.sdc.uwo.ca>

And lastly...

If you have ANY problems following the course material, please make sure you come talk to Cam (or the TAs), or email us (Again, please include ‘ES 1022a’ in the subject line of all emails about this course), to go over the material with you and help you understand the concepts better. Cam’s door is always open (yes, even outside office hours), so if you are needing extra help or have questions, PLEASE SAY SO before it becomes a bigger problem (as long as Cam is in, he will be happy to talk to you). Please do not feel intimidated about asking questions about concepts you are struggling with- that’s what we’re here for!