

The Earth's Dynamic Interior

Instructor: Alan Rempel, 108 Volcanology, 541-346-6316; geol10x@uoregon.edu
Office Hours: Wednesday: 11:00 to 12:00 and 1:30 to 3:00
Lecture: Tuesday/Thursday: 10:00 to 11:20 (CRN 12613), 100 Willamette Hall
2:00 to 3:20 (CRN 12621), 282 Lillis Hall
Discussion: 47 Columbia Hall (basement, south end)
Lecture Text: Marshak, S., *Essentials of Geology*, 5th edition (required, UO Bookstore)
Homework/Lab Packet for Discussions (required, UO Bookstore)
i-clicker: Required for graded in-class questions, at UO Bookstore if you don't already have one from a previous class

Learning Outcomes:

Students will gain a basic understanding of the evidence behind the dominant scientific theories for the processes and events leading to Earth formation and structure.

Students will be familiar with the primary evidence that led to the development of the theory of plate tectonics and be able to describe its consequences for dynamic processes (e.g. volcanic eruptions, earthquakes, mountain building) that continue to shape Earth's surface environment.

Students will be able to describe common observational techniques that are used to differentiate between common minerals and the processes leading to the development of igneous, sedimentary and metamorphic rocks.

Students will gain a basic understanding of the observations and techniques used to assign absolute and relative dates to past geologic events and to infer properties and processes deep within the Earth.

Readings

Readings for the lecture are from the Marshak text. Used copies should be available at the UO Bookstore as well as at Smith Family Bookstore and probably via the internet too. Please note that we will be using the 5th edition, but the older (possibly less expensive) 4th edition is nearly identical. Readings for the Discussion Sections are from the required Homework/Lab Packet that *must be purchased* at the UO Bookstore.

Science Literacy Program:

The SLP (scilit.uoregon.edu/) supports General Education courses that promote student-centered teaching and communication of science where students are empowered to consider scientific approaches to societal issues and have the opportunity to learn how to process and critique scientific information. Geology 101 is one of the fall 2017 SLP courses.

Accommodations:

Please notify me if there are aspects of the instruction that result in barriers to your participation. You may also wish to contact the Accessible Education Center in 164 Oregon Hall (aec.uoregon.edu) at 346-1155 or uoaec@uoregon.edu.

TENTATIVE SCHEDULE

<u>Date</u>	<u>Subject</u>	<u>Reading</u>	<u>Discussion</u>
Sept 26 28	Welcome, class logistics, & tour of what's to come Earth origin <u>Discussion 0</u> : meet your GTF, register clickers	Prelude Ch. 1	Introduction
Oct 03 05	Plate Tectonics Plate Tectonics II <u>Discussion 1</u> : Tectonics	Ch. 2 Ch. 2	Exercise 1
10 12	Minerals Igneous Rocks <u>Discussion 2</u> : Minerals	Ch. 3, Interlude A Ch. 4	Exercise 2
17 19	Volcanic Processes I Volcanic Processes II <u>Discussion 3</u> : Igneous Rocks	Ch. 5 Ch. 5	Exercise 3
24 26	Sedimentary Rocks and Processes Metamorphic Rocks & Processes <u>Discussion 4</u> : Sedimentary Rocks	Ch. 6, Interlude B Ch. 7	Exercise 4
Oct 31	Midterm (through Sedimentary Rocks & Processes)	n/a	
Nov 02	Midterm Discussion, Geologic Time/Dating I <u>Discussion 5</u> : Metamorphic Rocks	Ch. 10	Exercise 5
07 09	Geologic Time/Dating II Crustal Deformation I <u>Discussion 6</u> : Plate Tectonic/Rock Cycle	Ch. 10 Ch. 9, Interlude C	Exercise 6
14 16	Crustal Deformation II Earthquakes and Seismology I <u>Discussion 7</u> : Geologic Maps	Ch. 9 Ch. 8	Exercise 7
21 23 21	Earthquakes and Seismology II No Class – Thanksgiving Holiday <u>Homework 8</u> : Geologic Time (due at the beginning of lecture)	Ch.8	Exercise 8
28 30	Geophysics Review, Catch-Up <u>Discussion 9</u> : Earthquake Seismology	Interlude D	Exercise 9

*Combined final exam, both lecture sections:
5:00 p.m., Wednesday, December 6, 150 Columbia Hall
Please mark your calendars!*

Materials on class Canvas site

All materials for this class, including the syllabus, the lecture Powerpoint presentations, the Homework/Discussion section exercises, and answer keys for the Homework/Discussion section exercises will be posted on the class Canvas site. Exam answer keys will not be posted, but the correct answers will be printed on your Scantron answer sheets which your GTF will return to you. Hard copies of the exam questions sheets will be available in boxes in the Discussion Section room (47 Columbia Hall) shortly after the exam is administered.

Homework and Discussion Sections

There will be no graded exercises during Week 1 but be sure to attend nonetheless to meet your classmates and your GTF, learn his/her 'rules of the road' and grading policies, and learn about the use of i-clickers for the in-class questions.

For the remainder of the term, Discussion Section exercises will normally consist of two components, a reading/homework assignment that you must complete *before* coming to your scheduled Discussion period, and a hands-on lab exercise you must complete *during* the scheduled hour. The one exception will be Week 9 (Thanksgiving week) for which there will be only a reading/homework assignment, with no corresponding lab exercise. There will not be time to do both the reading/homework *and* the lab during any of the Discussion periods so it is essential that you do the reading/homework before arriving at your scheduled section. **Both portions of the exercise are due at the end of the Discussion Section meeting.** Your GTF will grade your assignment, post the grade on the class Canvas site, and return your assignment during the next week's Discussion meeting. Answer keys for the assignments will be posted on the Canvas site. Please look at the answer keys and review your work. This will help you study for the exams. Check your posted grades often to make sure that there are no discrepancies. If you find a homework/lab grade error, contact your GTF and get the matter cleared up—*this must be done within a week of your exercise being returned to you.*

Grading

Your final course grade will be calculated by weighting your performance as follows:

In-class i-clicker questions	15%
Homework/lab exercises	32%
Midterm Exam	23%
Cumulative Final Exam	<u>30%</u>
	100%

I grade on a curve with the aim of a preponderance of B and C grades, comparatively fewer A and D grades, and, hopefully, very few F or NP grades. I set the B/C boundary at the class average, or mean. Unless you can demonstrate that an error was made in grading your work, final grades are just that—final. There will always be students who miss a letter grade cut-off by just a tiny amount and I am unwilling to nudge students over such a cut-off unless a demonstrable grading error provides the missing 'tiny amount'. I am also unwilling to nudge the boundary, as this will simply result in a new set of students in the same predicament.

During exams you will not be allowed to have electronic devices of any kind. Turn off your cell

phones when you come in to the room. Be sure to bring a photo ID card (UO ID, driver's license).

You must take your midterm with the section for which you are registered.

The final exam will be administered to both sections simultaneously, in a special combined final exam, from 5:00 to 7:00 p.m. on Wednesday, December 6, in 150 Columbia Hall.

Your grades will be posted in the Grades section in Canvas after every exam or homework/lab assignment has been completed. Please check regularly to make sure everything is correct. You will have just one week from when graded assignments or exams are returned to you to dispute a grade.

Hints for the Class:

The class will go by quickly so try to keep on top of it. Read the assigned material prior to the lectures and Discussion Section meetings.

To succeed in the class you must take your own notes. In preparing for the midterm and final exams, I recommend that you go through each Powerpoint presentation, slide-by-slide, and make written notes about what each slide was meant to convey. It would also be a good idea to write out a definition for every new term introduced and go back and re-answer all of the i-clicker questions. I will post these, with the correct answers underlined, several days prior to the midterm and final exams. You will see some of these i-clicker questions again on exams.

Expectations and policies on late work and academic dishonesty

Make-up exams will only be given in exceptional circumstances and only if I am notified of the need before the exam is given to the main group. If you know you will not be able to make your regularly scheduled Discussion Section, you *may* be able to make arrangements to attend a different one by contacting both your regular GTF and the GTF who teaches the section you propose to attend instead. This is not guaranteed, however.

I am completely intolerant of academic dishonesty and will prosecute fully anyone caught engaged in such activities. I encourage you to work together and discuss the homework/lab assignments. However, never turn in word-for-word verbatim answers on your assignments that have been copied from your neighbor. Also, never copy text directly from the Discussion manual and submit it as your own work—this is plagiarism. You must either present such statements within quotation marks with an appropriate reference, or (preferably) restate the concept in your own words.

Graded in-class questions (i-clickers required)

To thoroughly understand a subject such as Geology you must attend class regularly, arrive on time and stay for the full 80-minute period. To encourage you in this regard, 16 lectures will have graded in-class questions, administered through the use of required 'i-clickers' (available at the UO Bookstore). Each lecture's i-clicker questions will be worth 1 percentage point toward your final course grade so it is essential that you remember to bring your 'i-clicker' to class. I will discard your lowest day's score before calculating your final score for these in-class questions; this may correspond to the one absence I will allow without loss of points. There will also be no i-clicker questions during Week 1, midterm day, or Thanksgiving holiday. After each lecture, your score on these questions will be uploaded to the Grades section on the Canvas site—please make a habit of checking regularly to make sure your records are in order; this is *your* responsibility. Your performance on these in-class questions will amount to 15% of the total course grade; this is *A LOT!!*

How do I register my i-clicker?

To receive credit for your answers to in-class questions you must register your clicker on the class Canvas site. To do so, first open Canvas and log-in. Choose 'Courses' from the top bar and click on Geology 101 from the list of classes available to you this term. Choose 'i-clicker' from the choices available along the left hand side of the screen and follow the step-by-step instructions. Should you have difficulties please consult with the Student Help Desk for Canvas in the Knight Library. **You must register your i-clicker by the end of Week 1 as graded questions will begin on Tuesday of Week 2.**