

## Earth and Planetary Sciences 10: Geologic Principles, Winter 2019

	Instructor	TA	TA
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<b>Office hours/</b>	Mon and Tue 11-12/	Mon 12-1/E&MS	Tue 1:20-3:20/
<b>Location</b>	E&MS A209	D250, Tue 10-11/ E&MS A340	E&MS TBD

Additional office hours by appointment. Please e-mail first.

**Course location, days, times: Thimann 1, MWF, 2:40-3:45**

**Discussion Section hours, location (section is *required* for all students):**

10A: Tue 5:00-6:00 <i>E&amp;MS D226</i>	10C: Wed 10:30-11:30 <b><i>NOTE: E&amp;MS D250</i></b>
10B: Tue 6:15-7:15 <i>E&amp;MS D226</i>	10D: Fri 1:00-2:00 <i>E&amp;MS D226</i>

*Please remain in the discussion section for which you are enrolled, except by permission.*

***Sections begin during FIRST WEEK of classes!***

**Course web site:** <http://es.ucsc.edu/~afisher/Courses/Eart10>

login and password required – these will be provided in class

**Assignments:** regular reading before each presentation/discussion section, six homework exercises, due **one week** after being handed out, final presentation in section.

**Exams (both closed-book):** Midterm exam, **Weds 2/13** (regular time)  
Final exam, cumulative, **Tue 3/19, 4:00-7:00 pm**

**Required text:** Marshak, 2018 (6th edition), Earth: Portrait of a Planet

Note: You may use previous edition, but I might not have references in notes and problem sets to the right page numbers and figures!

**Calculator:** Please bring a calculator to discussion section. Your calculator should be capable of displaying and using "*scientific notation*." Ask for help if you are not sure what this means. *You may not use a telephone, iPad, or computer calculator on tests!*

**Expectations:** You will be treated as responsible adults and are expected to offer the same courtesy to your instructor and teaching assistants. You may demonstrate that you deserve respect by (1) attending all presentations and discussion sections, (2) arriving on time and being prepared, (3) asking questions in class, section, and office hours, (4) completing the reading and being ready to discuss it, (5) completing and turning in all assignments on time, and (6) cooperating with your class colleagues in figuring out how to complete the homework, but turning in your own work.

**Special Accomodations:** Notify the instructor *immediately* about any accommodations you may need (e.g. for physical or learning disabilities, other issues). The campus Disability Resource Center can provide you more information. See <http://drc.ucsc.edu/>.

**Dates/deadlines:** You are expected to take examinations at the times listed. Exceptions will be made only under *extreme* circumstances, generally arranged in advance. Missing an exam without prior arrangement and without appropriate justification will result in a score of **zero** for that exam – **there will be no make-up exams or assignments**. Discussion section problem sets must be turned in at the start of section during the following week. Late problem sets will have points deducted, as discussed by your TA at the first discussion section.

**Learning Outcomes Anticipated for Those Enrolled in Eart10:**

- Familiarity with the scientific method, forming and testing of hypotheses.
- An understanding of the Earth's basic composition, from atoms to minerals to rocks to the overall structure of the planet.
- An understanding of the major classes of rocks and the processes that create them.
- An understanding of the theory of plate tectonics and how it explains much of the geologic record, as well as earthquake and volcanic hazards.
- Comprehension of how Earth scientists reconstruct past events and how they know when the events occurred. This includes knowing that the Earth is very, very old.
- A basic grasp of geologic hazards, what causes them, in what locations.
- An understanding that the Earth provides many resources that permitted the development and survival of human civilization.
- An appreciation of natural processes that create landforms and geological structures.
- Competence manipulating numbers using basic algebra and geometric considerations.
- Factoids and amazing stories with which to amuse and annoy your friends and family!

**Grades/Evaluations** based on:

25%	Midterm exam
40%	Discussion section <i>attendance</i> and <i>assignments</i>
35%	Final exam (plus occasional quizzes)

**Presentation quizzes:**

There may be occasional pop quizzes as part of the regular presentations. Those who are not present will lose all points associated with the quizzes.

**Cheating:** Plagiarism and cheating of other types will be dealt with severely, beginning with a zero on the illegitimate test or assignment. Such cases will also be referred to academic preceptors for possible disciplinary action. Please see this document (section 102.00) for more information: <https://deanofstudents.ucsc.edu/student-conduct/student-handbook/pdf/100.0-code-of-student-conduct.pdf>

**Presentation, Section, and Reading List**  
Subject to revision as the quarter progresses...

Date	Presentation/Section topics	Reading
<b>Week 1</b> 7 Jan – 11 Jan	1. Welcome and introduction: course overview, geology overview <i>Discussion section #1: Units, Conversions, Significant Digits</i> 2-3. Earth origin and structure	Chapter 1 <i>read handouts carefully, complete math evaluation</i> Chapter 2
<b>Week 2</b> 14 Jan – 18 Jan	4-5. Minerals – Part 1, Part 2 <i>Discussion section #2: Homework 1</i> 6. Plate tectonics and the rock cycle, Part 1	Chapter 5 Chapter 3 (and skim 4)
<b>Week 3</b> 21 Jan – 25 Jan <b>MLK Day: 16 Jan</b>	7. Plate tectonics and the rock cycle, Part 2 <i>Discussion section #3: Homework 2</i> 8. Igneous Rocks – Part 1	Chapter 3 (and skim 4) Interlude A, Chapter 6
<b>Week 4</b> 28 Jan – 1 Feb	9. Igneous Rocks – Part 2 10. Sedimentary rocks <i>Discussion section #4: Homework 3</i> 11. Metamorphic Rocks	Interlude A, Chapter 6 Chapter 7 (skim Interlude B) Chapter 8, Interlude C
<b>Week 5</b> 4 Feb – 8 Feb	12. Making mountains 13. Rock record and geologic time – Part 1 <i>Discussion section #5: Review for Midterm</i> 14. Rock record and geologic time – Part 2	Chapter 11 Chapter 12, Interlude E Chapter 12, Interlude E
<b>Week 6</b> 11 Feb–15 Feb	15. Rivers and floods <b>Midterm Exam, 13 Feb (reg time/room)</b> <i>Discussion section #6: Homework 4</i> 16. Oceans, currents, coasts – Part 1	Chapter 17, Interlude F <i>Covers material through: Rock record, geologic time</i> Chapter 18
<b>Week 7</b> 18 Feb–22 Feb <b>Pres' Day: 18 Feb</b>	17. Oceans, currents, coasts – Part 2 <i>Discussion section #7: Homework 5</i> 18. Groundwater	Chapter 18 Chapter 19
<b>Week 8</b> 25 Feb – 1 Mar	19. The atmosphere, climate 20. Weather and deserts <i>Discussion section #8: Homework 6</i> 21. Glaciers and ice ages	Chapter 20 Chapters 20 and 21 Chapter 22
<b>Week 9</b> 4 Mar – 8 Mar	22-23. Earthquakes – Part 1 and 2 <i>Discussion section #9: Presentations</i> 24. Global tectonics	Chapter 10 Chapter 4, Interlude D
<b>Week 10</b> 11 Mar – 15 Mar	25. Earth resources: energy and minerals 26. Earth History and Climate Change <i>Discussion section #10: Presentations</i> 27. Climate Change	Chapters 14 and 15 Chapters 13 and 23 Chapter 23
<b>Final exam</b>	<b>Tue 3/19, 4:00-7:00 pm, Thimann 1</b>	