Earth and Planetary Sciences 10: Geologic Principles, Winter 2020

	Instructor	TA
	Terrence Blackburn	Genesis Berlanga
Location	E&MS A108	E&MS
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Office hours	Mon 9:30 – 10:30a, Wed 1:30 – 2:30p	

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

Course hours, location: MWF, 10:40-11:45 pm, Thimann 1

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

10A: W 9:00–10:00 a **(D226)**	10B: W 4:05–5:05 pm **(D226)**

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

Course web site: On canvas

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, **Monday, February 10** (regular time)
Final exam, cumulative, **Monday, March 16, 12:00–3:00 pm**

Required text: Marshak (any edition), Earth: Portrait of a Planet

Calculator: 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.

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 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 Accommodations: UC Santa Cruz is committed to creating an academic environment that supports its diverse student body. If you are a student with a disability who requires accommodations to achieve equal access in this course, please submit your "Accommodation Authorization Letter" from the Disability Resource Center (DRC) to me privately during my office hours or by appointment, as soon as possible in the academic quarter, preferably within 1 week. I also am open to and want to encourage you to discuss with me ways I/we can ensure your full participation in this course. If you have not already done so, I encourage you to learn

more about the many services offered by the DRC. You can visit their website (http://drc.ucsc.edu/index.html), make an appointment, and meet in-person with a DRC staff member. The phone number is 831-459-2089 or email 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 and 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.

Grades/Evaluations based on:

35%	Midterm exam
30%	Assignments
35%	Final exam (plus occasional quizzes)

Presentation quizzes:
There will 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.

Presentation, Section, and Reading List

Subject to revision as the quarter progresses, updates during class presentations...

Date	Presentation/Section topics	Reading
Week 1	1. Welcome and introduction: course overview, geology overview	Prelude and Chapter 1
6-10 January	*Homework #Primer: Units, Conversions, Significant Digits*	*read handouts carefully, complete math evaluation*
	2-3. Earth origins and structure	Chapter 2
Week 2	4. Minerals	Chapter 5
13-17 January	*Discussion section: Homework 1*	
	5.-6. Plate tectonics	Chapter 3, Interlude C
Week 3	No class Monday Jan. 20	Chapter 4
20-26 January	*Discussion section: Homework 2*	
	7-8 Igneous Rocks	Interlude A, Chapter 6
Week 4	9. Sedimentary rocks	Chapter 7, Interlude B
27-31 Jan	*Discussion section: Homework 3*	
	10. Metamorphic Rocks	Chapter 8
	11. Making mountains	Chapter 11
Week 5	12-13. Rock record and geologic time	Chapter 12, Interlude D
3-7 February	*Discussion section: Midterm Review*	
	14. Rivers	Chapter 17, Interlude E
Week 6	**Midterm Exam: Monday Feb. 10 (regular class time and room)**	Covers material through: Rock record, geologic time
10-14 February	*Discussion section: Homework 4*	
	14. Rivers	
	15. Oceans, currents, coasts	Chapter 18
Week 7	No class Monday 2/17	Chapter 19
	16. Oceans, currents, coasts	
17-21 February	*Discussion section: Homework 5*	
	17. California & Santa Cruz area Geology	
Week 8	18. Groundwater	Chapter 19
24-28 Feb	*Discussion section: Homework 6*	
	19-20. Glaciers and ice ages	Chapter 22
Week 9	21-22. Earthquakes & Deep Earth structure	Chapters 10
2- 6March	*Discussion section:final review*	
	25. Earth History and Climate Change	Chapters 23
Week 10	26-27. Earth's past climate	Chapters 13 and 23
9-13 March		
Wed., March 16	**12:00–3:00 pm, Thimann 1**	
Final exam		