

# GEOLOGY 10    Introductory Geology

Lectures: M through Th, 10:30 -11:20am, S-32

Labs: T and W, 1:30-4:20pm, S-15

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Office Hours: M through Th, 11:30 – 12:20 pm

Everything you need to know about this class – i.e. the same information as in this syllabus, AND MORE – can be found on the CLASS WEBSITE at:

[mrcgeoastro.com/geol10/index.html](http://mrcgeoastro.com/geol10/index.html)

Marek sure to bookmark it and refer to it whenever you have questions!

## Textbooks:

### **For Lecture:**

You can use either the 3<sup>rd</sup>, 4<sup>th</sup>, or 5<sup>th</sup> edition of: Essentials of Geology by Steve Marshak.

### **For Lab:**

Get a new copy of the Geology 10 Laboratory Manual by Hay, Harding, and Cichanski (available from the De Anza Bookstore)

## Our Goals This Quarter:

You'll be learning a lot about how the Earth works this quarter. You'll also learn a lot about how a large college course like this works. Here are some specific things I want to help you do; I hope that doing these things enables you to become a more scientifically aware citizen, and gets you excited about science no matter what your eventual path in life!

1. When someone proposes a *hypothesis* as to how the Earth works, *evaluate* that hypothesis using something called the *scientific method* – this is a way of thinking about the world, which minimizes the chances of getting fooled.
2. The Earth is an ever-changing system, and it's a good idea to be able to track those changes, and to *predict* future changes, using data and observations.
3. Changes in the outer part of the Earth (which we refer to using terms like *crust* and *lithosphere*) aren't just about making predictions, they're also about *determining geologic history*. As a geologically literate person, you'll want to be able to do this by examining the world at a variety of scales, from rocks that would fit in your hand to maps and datasets covering large regions of the Earth.
4. As a scientifically knowledgeable citizen, it is desirable for you to be able to analyze the *impact* that the Earth has on humanity; this includes both natural hazards and the availability, use, and distribution of the Earth's resources.

## GRADING

### Step 1:

You take various tests and quizzes, and the final exam.

Test 1	200pts
Test 2	200 pts
Test 3	200 pts
Lab Quiz 1	100 pts
Lab Quiz 2	100 pts
Lab Quiz 3	100 pts
FINAL EXAM	400 pts

### Step 2:

I drop the lowest midterm and the lowest lab quiz.

-200 pts = **400 pts of midterms**

-100 pts = **200 pts of lab quizzes**

There's no way I'm gonna drop **this** one...

### Step 3:

I calculate the final grade.

Your final percentage =

The points you earned, after dropping lowest scores as described at left

DIVIDED BY...

1000 possible points

I then round your final percentage to the nearest whole percent, and use the following grading scale:

89-100	A
79-88	B
68-78	C
57-67	D
<57	F

### Notes:

1. A percentage like 88.7% rounds to 89, so it's an A.
2. If your final percentage is in a "grey area", such as 88.3%, I'll evaluate your field trip write-up, to decide whether or not to 'bump you up'.
3. If something causes you to miss a test or quiz, that will be the one you drop.
4. I'm afraid my schedule won't allow me to give you a final at a different time in order to fit your vacation. You'll need to plan around the final – *you may want to tell family members about this before they buy non-refundable plane tickets.*

## Geology 10 Class Rules and Guidelines

During the first few weeks of class, I will collect state-mandated class attendance data using a sign-in sheet and/or seating chart.

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### ADDING THE CLASS:

*If you add the class, make sure that your add code has worked, and that you have been properly added to the class.* If not, it is your responsibility to check with the Admissions/Records office to find out how this can be corrected. After the end of Week 2, the College CAN NOT process a late add, and you could find yourself not enrolled and not receiving a grade for the course, if you're not registered

### DROPPING THE CLASS:

I would like to see everyone complete the course, earn a good grade, and become excited about science. However, the realities of life sometimes get in the way.

You should assess your situation realistically throughout the quarter.

If you decide to drop the class, you must do so by the final date to drop with a "w", or you risk receiving an "F" if you haven't earned enough points to pass the class.

Also - and this is very important - ASKING FOR AN INCOMPLETE GRADE WILL NOT WORK AS A WAY AROUND THE FINAL DROP DATE! I can only assign an Incomplete in a few, very specific situations. For example, if you miss the Geology 10 field trip, you will get an "I" grade, and that grade will get cleared up after you go on the field trip the following quarter. But if it's after Week 8, and you realize you should have dropped, and someone in Counseling or Admissions and Records tells you to ask me for an Incomplete, it is VERY UNLIKELY that the situation will actually warrant one! "I" grades cannot be given for missing a large fraction of the work in the course.

### CLASS ENVIRONMENT:

Remember that we have all chosen to be in this class. We should thus have an environment that fits this choice.

Talking to your neighbor(s) while I'm lecturing, reading non-course material in class, doing outside homework, and using wireless devices of any kind\* are not allowed in class, and may result in dismissal for the remainder of the class period.

\*this means you won't be able to use the calculator on your cell phone during tests and quizzes. You'll need to get a separate calculator if you want to use one on tests and quizzes.

### TESTS:

- After you start working on a test, you must hand it in before leaving the room.
- If you arrive late for a test or quiz, you won't be given extra time to finish it.
- On tests and quizzes, once the first person has turned it in and left the room, no further latecomers will be given tests.

NOTICE: Cheating on any exam or project is grounds for a failing grade in the class and a permanent note to a student's file. "Cheating" is defined (in this course) to be an effort by a student to obtain a grade by any means other than demonstration of that student's individual achievement in mastering the class material and/or fulfilling terms of a project.

Further grounds for expulsion from the class include any activity which interferes with others' ability to benefit from the class (such as chronic distracting behavior) of which degrades the classroom's function or environment.

## **GEOLOGY 10 Lecture Schedule, Fall 2019 Day Class**

Important: Dates of TESTS are fixed, but the lecture topics (shown in *italics*) are tentative. For example, we may or may not cover "Oil Geology" on Oct. 17<sup>th</sup>, depending on how quickly we cover the preceding material. Each test covers the material since the last test. Final Exam is comprehensive - it covers the whole quarter.

For reading assignments, go to: [mrcgeoastro.com/geol10/calendar.html](http://mrcgeoastro.com/geol10/calendar.html)

		MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SAT.
Wk 1	Sep	23 Introduction, Goals, Procedures	24 Earth's origin and layers	25 Mineral Properties	26 How atoms work; Atoms and bonding	27	28
Wk 2	Oct	30 More chemistry of minerals	1 Mineral classes and silicate minerals	2 Igneous rocks: Texture, compositions, and origins	3 Melting and crystallization	4	5 Last day to add
Wk 3	Oct	7 <b>TEST 1</b>	8 Volcanoes	9 Review Test 1	10 Volcanic Hazards	11	12
Wk 4	Oct	14 Weathering and Erosion	15 Origin of sed. rocks, Sed. structures	16 More sedimentary structures, Chemical sed. rocks	17 Oil Geology	18	19
Wk 5	Oct	21 Metamorphic Rocks	22 Relative Dating, Unconformities	23 More Unconf's, Correlation	24 Isotopic Dating	25	26
Wk 6	Oct/Nov	28 <b>TEST 2</b>	29 Rock deformation, Fault terminology	30 Review Test 2	31 Dip-slip faults	1	2
Wk 7	Nov	4 Strike-slip faults, Folds	5 Earthquakes: Faults and elastic rebound	6 Earthquakes: Measurement and magnitudes	7 Earthquake Hazards	8	9
Wk 8	Nov	11 <b>HOLIDAY</b>	12 Earth's Interior: Core, Mantle, and Crust	13 Continental Drift, Paleomagnetism	14 Ocean Basins and Seafloor Spreading	15 Last day to drop with a W	16
Wk 9	Nov	18 <b>TEST 3</b>	19 Convergent Plate Boundaries	20 Review Test 3	21 Groundwater Basics	22	23 <b>Field Trip (also 11/24)</b>
Wk 10	Nov/Dec	25 Transform Plate Boundaries	26 Streams 1	27 Streams 2	28 <b>HOLIDAY</b>	29 <b>HOLIDAY</b>	30 <b>HOLIDAY</b>
Wk 11	Dec	2 Groundwater Contamination and Cleanup	3 Caves and Karst	4 Glaciers: Formation and Flow	5 Glaciers: Landforms and Deposits	6	7
Wk 12	Dec FINALS	9	10	11	12 <b>FINAL EXAM</b> 9:15 - 11:15 am	13	14

## Geology 10 LAB schedule, Fall 2019 Day Class

Wk 1	<b>NO LAB THIS WEEK</b>
Wk 2	Mineral identification
Wk 3	Rock textures
Wk 4	Rock identification
Wk 5	<b>Quiz on rock and mineral I.D. * + Lab on geologic time</b>
Wk 6	Topographic maps
Wk 7	Seismology
Wk 8	Quiz on geologic time, topo maps, and seismology + Lab on geologic maps
Wk 9	Lab on folded rocks (anticlines and synclines)
Wk 10	<b>NO LAB THIS WEEK</b>
Wk 11	<b>Quiz on geologic maps, cross-sections, and folded rocks + Lab on plate tectonics</b>

\*The lab quiz on rock and mineral I.D. (Week 5) is open-lab-book. The other three lab quizzes (and the lecture tests and the final) are closed-book, closed-notes.

To find out what's on the lab quizzes, go to: [mrcgeoastro.com/geol10/what2know.html](http://mrcgeoastro.com/geol10/what2know.html)

**IMPORTANT INFORMATION ABOUT THE REQUIRED FIELD TRIP IS ON THE  
NEXT PAGE**

# FIELD TRIP

**NOTE:** There is a version of this page on the web at:

[mrcgeoastro.com/geol10/fieldtrip.html](http://mrcgeoastro.com/geol10/fieldtrip.html)

It has links to help you get to the field trip stops, such as [maps](#) and [dash-cam videos](#). It has other important information, too... make sure you visit that web page!

**Make sure you read and examine ALL of the information on this page! Scroll down to the bottom and read everything, and go to the web version of this page, and examine all of the clickable links. Do these things before you ask me a question about the field trip. Your question is very likely to be answered somewhere on this page, or on the web version of it, listed above.**

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**Fall 2019, sections 01 and 02: You will go on EITHER Saturday Nov 23, OR Sunday Nov 24.**

You can go on whichever day suits your schedule best.

Here's the deal with the field trip:

- The 4-year schools, such as the Cal State and UC schools, make us require you to participate in the field trip, in order for them to accept your credits. No field trip, no transferable credits for you!
- Until 2008, De Anza College was able to afford buses for the field trip. Students used to meet at school on the morning of the trip, and the buses would take them on the trip.
- Unfortunately, the late-2000s / early 2010s California budget crisis put an end to the buses. The College decided it could no longer afford buses. Your instructor wishes this were otherwise, but there is nothing they can do about this.
- So, we'll meet at 10am on the day of the field trip at Stop 1. This is along Skyline Blvd (a.k.a. CA Hwy 35), near the Hayne Rd. exit from Interstate 280. SEE THE WEB VERSION OF THIS PAGE FOR DIRECTIONS!
- If you are unable to make it to the field trip (e.g. if you are sick that day), you'll finish the rest of the course, and temporarily get an Incomplete grade, until you go on the field trip with the next quarter's class. At that time, your grade will be changed to the grade you earned from your tests and quizzes.

## **Field Trip sites – Our temporary outdoor classrooms:**

In order to understand the Earth and its history, geologists don't just work in a laboratory or in front of a computer – they go out and study the Earth first-hand.

We'll study the geologic history of the Bay Area and the methods of geologic field work at four sites, which are shown in the Google Maps and What3Words links on the web version of this page. They are: Skyline Road, Mussel Rock, Montara State Beach, and the Seal Cove / Moss Beach neighborhood.

For this class, De Anza College has adopted these public places as temporary outdoor classrooms. You will be responsible for commuting to these temporary outdoor classroom sites, just as you would normally commute to class in Cupertino.

We'll start doing geology at 10am at Stop #1, and we should finish our work at Seal Cove / Moss Beach by 4pm.

## **Liability Release:**

On the web version of this page, a link will show you the liability form you'll have to sign in order to go on the trip and get credit for the class. It will have words like "voluntary" on it, which will make you ask "Wait... what? What's this about voluntary? Does it mean I don't have to go?" Nope. If you want to pass the class, you have to go on the trip. When the Risk Management office first started requiring these forms, I asked about this, and I was told that "registering for the class = volunteering to go on the field trip." So, if you look at the form (linked from the web version of this page) and you're sure you don't want to sign it, then you shouldn't register for this class.

**Student Learning Outcome(s):**

- \*Apply the principles of scientific methodology to evaluate hypotheses on how the earth works as an integrated system.
- \*Use data and observations to track and predict changes in the Earth system resulting from dynamic Earth Processes.
- \*Use observations from the crust and lithosphere of the Earth to determine geologic history at hand-sample, outcrop, local, and regional scales.
- \*Apply scientific methodology and geologic principles to analyze the impact of the Earth system on humanity, from specific natural hazards and the availability, use, and distribution of Earth resources.