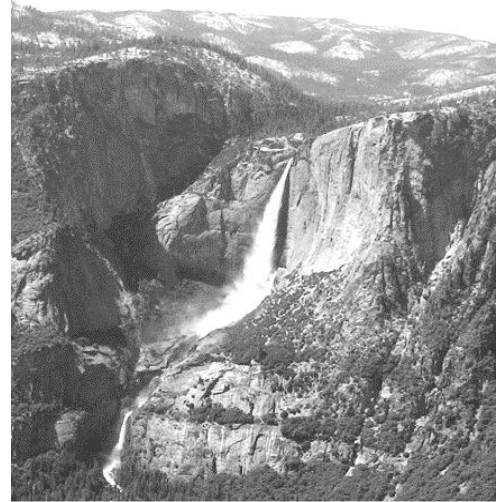


# Earth Science (Lecture)

## Mount San Antonio College Course Syllabus & Outline – Fall 2018



Instructor: **Dr. Mark Boryta** Office: 60-1102  
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Office Hours: 60-1102	<u>MW</u> : 8:30-9:30am <u>TR</u> 9:30-10:30am	<i>or by appointment</i>
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Class Meets: M&W, 8:00 – 9:25 a.m. in 11-2324

Class Web Page: <http://faculty.mtsac.edu/mboryta/geol8.html>

**COURSE DESCRIPTION:** Fundamental principles of geology, oceanography, weather/climate, and astronomy. Participation in a field trip is *required*.

**REQUIRED TEXT:** Lutgens et al., Foundations of Earth Science 7/8/MtSAC edition, available for rent!

**FORMAT:** Class will consist of group discussions, in-class activities and lectures; multimedia presentations and videos will aid visualization. Study Guides and some assignments will be on the Internet. Participation in field trip is an essential part of this course!

**COURSE MEASURABLE OBJECTIVES:** After taking this course, students should be able to:

1. Describe the geologic, meteorologic, oceanographic, and astronomic processes that affect the Earth today.
2. Synthesize inter-relationships between geologic, meteorologic, oceanographic and astronomic processes.
3. Analyze global plate tectonics and its influence on the formation and occurrence of minerals, rocks, earthquakes and volcanoes, continents and oceans, and their physical features.
4. Describe and classify essential minerals and rocks that compose the Earth's crust.
5. Analyze atmospheric circulation patterns, their influence on ocean circulation (surface currents, waves, upwellings, etc.), and the physical and chemical factors affecting local and regional weather and climate.
6. Describe the origin and composition of Earth's atmosphere and how physical and chemical differences between air masses create clouds, precipitation, lightning and thunder, hurricanes, and tornadoes.
7. Describe the origin and nature of the solar system (planets, moons, asteroids, meteoroids, comets) and other astronomic features (stars, galaxies) beyond Earth's solar system.
8. Apply scientific terminology and methodology to analyze the natural processes affecting the Earth.

**GENERAL INFORMATION:** Every day you interact with the natural world around you. You can't help making decisions that affect both it and yourself. To make your interactions positive, you must have an understanding of the material presented in this class. Please help make this YOUR class by asking questions pertaining to the subject matter at any time, in class or by e-mail (lengthy discussions or questions about material beyond the scope of this class may need to be postponed/resumed at another time).

**COURSE REQUIREMENTS:** I assume that you have made the choice to sign up for this class because *you want to understand* more about your place in the world around you. In order to take full advantage of *your* educational opportunity, here are some things you can do and skills you should have or work on:

1. First, if this class seems difficult for you, seek help from me AS SOON AS YOU CAN. **I am here to help!**
2. **Come to each and every class, on time;** this is a college-level class, and we will cover material that is not in your book.
3. **READ AND UNDERSTAND the assignments prior to coming to class.** Don't just read it! ("College level rigor" is defined as a *minimum of three hours of work per week per unit of credit*, including class time).
4. **TAKE PART IN CLASS!** This class is for YOU, so try to answer and ask questions!
5. **Take good notes** on the important concepts as you read and as you pay attention in class. If you've read the text ahead of time, you'll know how to spell new words and you won't have to write everything down! It may help you to **rewrite your notes** after each class.
6. **STUDY the illustrations!** "A picture is worth a thousand words" applies to your textbook.
7. **Attempt the review questions** and be familiar with the Key Terms for each chapter.

8. **Start studying now** for the next exam! The best ways to do that are to

- a) download the study guide from the Internet, and
- b) involve yourself in a study group.

9. Finally, if this class seems difficult for you, seek help from me AS SOON AS YOU CAN. **I am here to help!**

**ASSESSMENT:** Your grade will be based on your **understanding** of course material as assessed by (nearly) weekly quizzes, activities, 3 exams (including a comprehensive final), and a field trip. Extra credit exercises *may* be offered at various times throughout the semester, but these will NOT make up for otherwise poor performance!

**HOMEWORK:** It is essential that you do work as assigned outside of the classroom. Quizzes and class discussions will rely on your having become familiar with the terminology and concepts!

**QUIZZES:** About every week STARTING WEEK #2 there will be a short multiple-choice quiz during class. These will *not* be announced; **no makeup quizzes will be given**. You will need a #2 pencil and **SCANTRON Card** (Form #815-E) to complete each quiz. Each quiz will be worth 10 points, and will cover material since the last quiz.

**ACTIVITIES:** There will be various in-class and outside activities throughout the semester; these will be worth various points. Activities will include such things as presentations and reports. More information will come separately...

**EXAMS:** There will be two exams and a COMPREHENSIVE FINAL EXAM. These will involve some combination of multiple-choice, true/false, and short answer/essay. For these you will need to bring a **calculator**, a **#2 pencil** and a **SCANTRON Card** (Form 882). Exam dates are noted on the Outline; those dates will NOT change, but the exam content will reflect class progress.

If you **must** miss *one* exam (**NOT INCLUDING THE FINAL – don't miss that!!**) for a verifiable medical emergency or death (CHECK WITH ME), you *may* be able to make it up for fewer points before it is handed back to the class. Legitimate excuses **MUST** be verified; excuses such as "I had a cold," "I overslept" or "I couldn't get a ride" don't qualify as legitimate!

**FIELD TRIP:** Participation in a field trip is required; there may be several choices, for which details will be available later. The field trip will involve a full day of moderate hiking. You can earn up to 50 points for **actively participating** in a field trip and **turning in** the assignment that's given, but **if you do not fulfill the field trip requirement, you will get an "F" in the class!**

**This semester's trip is on \_\_\_\_\_, \_\_\_\_\_.** (TBD)

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**ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES:** If you have special needs, please let me know as soon as possible so that I may assist you to be successful in this class. MtSAC will make reasonable environmental and academic adaptations that promote students' access and equitable participation. Students whose condition, either permanent or temporary, that may be impacted by environmental and/or academic barriers are strongly encouraged to approach their faculty and the disability office at the beginning of the term to discuss possible adaptations. DSP&S (Disabled Student Programs & Services) is located in the Student Services Building (9B), lower level closest to the west entrance. You may contact them at (909) 274-4290 (Voice) or 909-895-6634 (Video Phone for American Sign Language users).

**ELECTRONIC DEVICE POLICY:** Electronic devices (cell phones, laptops, translators, etc. – calculators okay!) **may not be used in class AT ANY TIME**, unless, of course, instructed to do so. If you text in class or your cell phone goes off in class, you will be **penalized 10 points** and your cell phone will be confiscated until the end of class! (Breaks too!)

**ATTENDANCE:** **It is important to come to class.** Reading the book does not affect your understanding of the material in the same way that interacting with others in class will; besides, some of the material we will cover is not found in your book. Since you chose this class over others, I will assume that you intend to be here, and if you miss a class then a real emergency has occurred. **As long as it is not an exam day, you need not bring an excuse, but you cannot make up a quiz** under any circumstances. If something is due, you must still turn it in on time; give it to a classmate or **e-mail it to me**.

Attending class means doing more than filling a seat. This is YOUR class, and YOU can get out of it what YOU put into it. You should have enough respect for yourself (YOUR time is valuable!) that you take every advantage of this opportunity to learn as much of this interesting and very important material as you can. Furthermore, you should not be disruptive – **don't let your cell phone go off**, don't show up late or unprepared, don't snore, etc. You should always respect your peers.

**Attendance Regulations:** Roll is taken at the beginning of class each day. Starting with the SECOND week of class (\_\_\_\_\_), you will be marked TARDY if you come in during roll but after your name is called, and you will be marked ABSENT if you are not present during roll. This means that even if you come in "only" 5 minutes late, you'll be marked *absent*! Furthermore, if you leave class early, you will be marked absent. **Excessive tardiness/absence will result in your grade being lowered - by one letter for every 2 absences!**

**DROP POLICY:** You should read the College Attendance, Drop and Withdrawal Policies (find them in the Schedule of Classes). In this class, if you missed the field trip, are not passing the class and/or are marked absent for **one exam or more than 4 classes** by the final drop date, I may drop you (unless you have cleared your circumstances with me). However, **DO NOT expect** me to drop you – if you are no longer attending class, you should take the initiative to drop or you may receive a grade of F! Remember, these rules are in place to help YOU succeed! Below are important drop deadlines for the current semester:

Last Day To: Is:	Add the Class <b>Sep 7</b>	Withdraw w/ Refund <b>Sep 7</b>	Withdraw w/ NO Refund and no "W": <b>Sep 9</b>	Withdraw <b>Nov 2</b>
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**Cheating:** Of course cheating is not tolerated. **A student who plagiarizes or cheats in any way shall fail the course, and** a letter will be written and placed in the student's file in Student Services. **DO NOT** turn in work that is not your own. **Just don't do it!**

Your grade in this course will be determined from my assessment of your understanding of the material, based on the total number of points you earn as a percentage of the total expected:

- Mastery: **A** = >90%
- Solid: **B** = 80 - 89%
- Basic: **C** = 70 - 79%
- Partial: **D** = 60 - 69%
- Insufficient: **F** = <60%

**HELLO, ROCKITEERS! THIS WEEK'S ROCKIT SCIENCE: CAN YOU SIT ON A CHAIR?**

THE ATOMS THAT MAKE UP **EVERYTHING** ARE MOSTLY EMPTY. LIKE **WELL** OVER 99.9% EMPTY.

**ATOM**  
ELECTRON SHELL      NUCLEUS  
EMPTY SPACE

IF EVERYTHING IS MADE OF MOSTLY **EMPTY SPACE**, WHY DON'T WE JUST PASS THROUGH OTHER OBJECTS? OR THE FLOOR?

**WHOOPS!**

**ELECTROSTATIC REPULSION**

THAT'S BECAUSE LIKE CHARGES REPEL, SO THE ELECTRONS IN DIFFERENT ATOMS PUSH THOSE ATOMS APART.

SO, IF YOU ARE SITTING ON A CHAIR, AT THE ATOMIC LEVEL, YOU ARE ACTUALLY HOVERING JUST **ABOVE** IT.

I ALWAYS SAID SITTING IS HARDER THAN IT LOOKS.

YOU COULD SAY WE DON'T ACTUALLY TOUCH **ANYTHING**.

06/29

I'M NOT TOUCHING YOU. DOES THIS BOTHER YOU? I'M NOT TOUCHING YOU ...

**MOM!**

Special thanks to Dr. Marc Rayman of NASA

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Richard

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**Reading Assignments:** The following is a **TENTATIVE** schedule indicating the order of topics and the textbook chapters to be covered. You should come to class having read *and understood* the material well enough that you are prepared to discuss it!

## i Earth Science Time !

Date	Tuesday Topic	Read	Date	Thursday Topic	Read
8/28	Introduction/Overview; Scientific Method	1	8/30	Minerals and their Properties	1
9/4	Mineral Properties; Atoms and Chemical Bonds	1	9/6	Atoms & Chemical Bonds	1
9/11	Igneous Rocks and Processes	2, 7	9/13	Igneous Rocks and Processes	2, 7
9/18	Weathering and Sedimentary Rocks	2	9/20	Weathering and Sedimentary Rocks	2
9/25	Metamorphic Rocks	2	9/27	<b>Exam #1</b> on Chap 1, 2 and 7	
10/2	Geologic Time	8	10/4	Geologic Time; Plate Tectonics	8, 5
10/9	Plate Tectonics; Earthquakes	5, 6	10/11	Earthquakes	6
10/16	Oceans, Currents and Sediments of the Sea	9	10/18	Waves, Coastal Features	10
10/23	Waves, Coastal Features	10	10/25	Heating the Atmosphere/Global Climate Change	11
10/30	Heating the Atmosphere	11	11/1	Heating the Atmosphere	11
11/6	<b>Exam #2</b> on Chap 5, 6, 8, 9, 10		11/8	Atmosphere in Motion	13
11/13	Atmosphere in Motion	13	11/15	Severe Weather	14
11/20	Origins of Modern Astronomy	15	11/22	<b>Thanksgiving Day – NO CLASS</b>	
11/27	Solar System	15	11/29	Beyond the Solar System	16
12/4	Beyond the Solar System	16	12/6	Catch Up / Review	

**Comprehensive Final Exam:** includes ALL chapters that were covered, and will be **worth about 200 points**; it will be on \_\_\_\_\_, Dec \_\_\_\_\_ at \_\_\_\_\_ in Rm 11-2324 (Homework: Fill in the blanks using, e.g., the Schedule of Classes or: \_\_\_\_\_)

(day)                      (date)                      (time)                      [www.mtsac.edu/schedule/schedules/2018\\_Fall\\_final\\_exam\\_sked.pdf](http://www.mtsac.edu/schedule/schedules/2018_Fall_final_exam_sked.pdf)

## i Earth Science Time !