SP19 - GEOL 110: Earth and Space Science (21318)

Jump to Today ✎ Edit



Cumulus clouds form over the Transverse Range near Palm Springs, Ca (Kevin Marty, 2017, panorama image).

Geology 110: Earth and Space Science

Basic Course Information

Semester	**Spring 2019**	Instructor Name	**Kevin Marty**
Course Title & #	**Geology 110**	Email	**kevin.marty@imperial.edu (mailto:kevin.marty@imperial.edu)**
CRN #	**CRN: 20059 and 21318**	Webpage (optional)	**www.kevinmartyphotography.artspan.com (http://www.kevinmartyphotography.artspan.com)**
Room	**Face to Face/Hybrid**	Office	**2772**
Class Dates	Feb 11-June 7	Office Hours	TBA
Class Days	**M,W**	Office Phone #	**760-355-5761**
Class Times Units	**20059: 9:40-11:05 am** **21318: 3:30-4:55 pm** **3**	Office contact if instructor will be out or emergency	**Ofelia Duarte (Science Dept) at 760-355-6155**

Course Description

This introductory earth and space science course covers basic principles from the fields of geology, astronomy, oceanography, and meteorology. Minerals and rocks, natural processes acting at the earth's surface and within the Earth, plate tectonics, geologic time and dating, composition and motions of the Earth, solar system, phases of the moon, origin and life cycles of stars, galaxies, water movements, ocean floor, weather and climate, along with other related topics will be studied. (C-ID GEOL 120) (CSU, UC)

(more)

The Earth System is diverse and dynamic, featuring volcanoes, earthquakes, tsunamis, landslides, floods, hurricanes, tornadoes, and so on. As citizens, we want to understand what is going on in our natural world and which aspects directly affect us or are most interesting. Understanding past events helps us comprehend what has happened and begin to predict future events. With the Earth System (it's components being the Atmosphere, Hydrosphere-including ice, Biosphere, Geosphere and influences from Space or the Exosphere), we examine past events and current natural processes to understand how this past and these processes affect humans. We will examine Space, the evolution of the Solar System and how space affects Earth's systems.

Accordingly, this course looks at the processes and materials composing Earth's physical environment, for example, its landscapes, interior, air and water, and explores topics such as natural hazards and disasters, fossils, energy resources, and much more. This course also explores topics related to space, such as the evolution of stars and our solar system, and examines evidence of past impacts and the threat of impacts with space objects today. To do so, we will learn some underlying principles of the natural world, from small things like the very building blocks of matter (atoms), to large things, like the cause and effect of regional forces that build mountains (e.g., the Himalayas) and make new oceans (e.g., the Red Sea). These processes are active today on Earth, whether driven by the Sun or Earth's internal heat, and as mentioned above can culminate in earthquakes, volcanoes, landslides, ocean currents and hurricanes, all of which obviously affect humans.

Student Learning Outcomes

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Gain critical thinking skills while working on and completing weekly homework assignments which include applying methods such as Venn diagrams, rubrics, and concept maps. (ILO2)

2. Gain awareness of geological events, weather and climate patterns and oceanic circulation on a global scale and understand/evaluate why events/features occur where they do. Assessment done through various homework assignments. (ILO5)

3. Gain knowledge of geological, meteorological, astronomical and oceanic features and processes through lectures, research papers, exams and presentations. Ties to all objectives. (ILO4)

Course Objective

Upon satisfactory completion of the course, students will be able to:

1. Demonstrate a basic understanding of the nature of matter, and describe the movement of matter and energy though the natural processes on Earth.

2. Explain the character of the sediments, rocks, and minerals of which they are composed, and relate this to the rock cycle.

3. Identify and explain the major subdivisions of Earth and processes acting deep inside Earth that effect the environment at the Earth's surface.

4. Describe the time frame within which natural processes function, and learn ways geologists use to decipher Earth's history.

5. Demonstrate an understanding of the theory of plate tectonics and relate this to earthquakes, volcanoes, mountain building and the evolution of the physical world over million of years.

6. Identify the cause and effect of earthquakes and how they are measured, and the effect on people.

7. Characterize volcanic activity and identify its natural causes and impact on the environment.

8. Identify landscapes and source of sediments on the sea floor, and show the relationship between geology and ecology of the oceans.

9. Demonstrate knowledge of the dynamics of the sea by understanding near surface and deep sea circulation patterns and interaction with the atmosphere, and the composition and properties of sea water.

10. Identify the processes that effect sea level and shape the shoreline, and understand coastal environments.

11. Describe the composition and structure of the atmosphere, and examine atmospheric circulation, weather systems and storms, along with modern and past climates.

12. Describe the connection among ecology, climate and geology, and understand the character of the land surface and the agents that shape the landscape.

13. Explain the weathering process and the products of weathering.

14. Explain mass wasting and ways to avoid and prevent it.

15. Demonstrate a knowledge and understating of the role of water and wind in earth systems. Processes such as runoff, erosion, deflation and features such as stream, groundwater, and dune systems will be examined.

16. Explain the formation of glacier ice, the ways ice and ice deposits shape the landscape, and the connection between glaciers and other parts of Earth's systems.

17. Demonstrate a knowledge and understanding of the sun, the moon, the planets and other characteristics of the solar system and beyond.

Textbooks & Other Resources or Links

1) McConnell, D., and others. The Good Earth (Third/e). New York McGraw-Hill. (Available from the IVC Bookstore or online); also need to purchase the class handbook from the IVC Bookstore. Most semesters you do have the option of purchasing an eBook through McGraw-Hill's website (the link to the website and book is found as a tool in Canvas). This will also give you access to "LearnSmart" assignments which are optional yet highly recommended assignments to help you understand the material covered in class (and some of your quiz/test questions are drawn from the "LearnSmart" assignments).

Three scientific themes are emphasized throughout the text: 1) scientific literacy; 2) Earth Science and the human experience; and, 3) the science of global change. This book will help you learn earth science concepts and processes on your own and complement what we do in class.

The Key Concepts and Terms List is your guide to what is important (found at the back of your class handbook). Required reading is listed in the right column of the Lecture Schedule later on in this document.

Checkpoints are found on nearly every page in each chapter. These checkpoints consist of a wide variety of learning methods from construction of Venn Diagrams to filling in rubrics and constructing concept maps. Some of these checkpoints along with sketches are linked to your lessons and are a key component to doing well on Exams.

Course Requirements and Instructional Methods

Course Philosophy and Teaching Method: The subject of Earth Science is as vast and diverse as the natural world around us. Together, we will explore and visualize this dynamic world in a number of ways; in no way will it be a static collection of facts. Accordingly, we will concentrate on understanding natural processes and how we explore and learn things about our planet, rather

than terms and factual trivia. We will concentrate on active, inquiry-based learning and will learn how to observe, think about, and understand our place in the natural environment. The critical inquiry and observational skills that we cultivate this semester should be useful in any profession, since they give you an appreciation of how earth science processes in our natural world impact our environment and society.

It is your responsibility and obligation to complete the required readings each week and prior to any online quizzes.

Course Expectations: My role in this class is to provide a framework that includes theory, best practices, activities, and assignments for you to utilize in the development of your knowledge, understanding, and skills. I care very much how and what you learn in this class, but I believe that you are responsible for participating in learning from the activities provided. This class requires significant preparation and reading.

Course Grading Based on Course Objectives

Grades:

In this course, your grade will be based on points that you earn. There are approximately 515-545 possible points, which are written out below:

Point Distribution Summary*	Points
Evaluations: **-Two (500-750 word; double spaced) research papers (40 pts each; to be submitted online through turn-it-in for plagiarism check); and- Three Sketch/Essay Tests @ 40 pts each (questions taken from Class Handbook).** **-Geologic Artwork presented during final's week** **OR the Volcano Or Earthquake Assignment**	**200** **30 OR 60**
Weekly Journals- 10 posts (20 entries) @ 10 pts each, and occasional Journal Discussions	**100**
Chapter Quizzes (10 @ 7.5 pts each; 2 @ 15 pts each); completed through Canvas by Sunday nights; 85 pts maximum, any points earned over 85 is extra credit (grading-curve points).	**85 (up to 20 pts extra credit possible)**
Exam Homework (checkpoints, sketches) from "Class Handbook" turned in during each test (done at your own pace but due during test dates)	**~50**
Possible miscellaneous discussion boards/in-class work (such as the "Mystery of the Megaflood" video post)	**~50**
Optional LearnSmart Assignments (a way to understand the subject matter and earn extra credit)	**0 (up to 12 pts extra credit possible)**
Total Points Possible	**~515-545**

Evaluations: Research Papers (submitted through Canvas) and Sketch/Essay-type Tests (in the classroom): After every four chapters there will be an in-class evaluation consisting of 2-3 concept-sketch or essay style questions (see grading rubric under the

"Discussions" tool) AND a research paper to be submitted through Canvas for a plagiarism check (can be PowerPoint Style): **this applies to the first two evaluations** (the third one we will substitute your Geologic Artwork Assignment described below instead of a research paper). So there are 3 total evaluations, the first two are worth 80 points; the third and final evaluation is worth 40 points for the Sketch/Essay section (and the Geological Artwork Assignment is worth 60 pts)- for a semester total of 260 pts (see above table). In advance of each in-class evaluation, you will be given a list of 3-4 possible concept-sketch/essay (or Checkpoint) questions, and two of these will be on the evaluation. These questions are generally developed from the textbook "checkpoints" and sketches that are provided in your class handbooks. You will also be given a list of topics to choose from for your research papers which are due prior to the in-class evaluations.

You can make up evaluations only if you have a note from a doctor, a letter from the university regarding some university-sponsored activity, a copy of a jury summons, a police report, or some other document that can be verified. This legitimate proof for why you cannot attend class that day must be provided to the instructor as far in advance of the evaluation as possible.

Geologic Art Exhibition OR Volcano/Earthquake Assignment: The Geologic Art Exhibition would be worth 60 pts and presented at the end of the semester (in place of a research paper for your third evaluation as described above). You will work with two other classmates to create geology-themed artwork for an exhibition (presentation) during final's week (to be discussed in class)...because we may not be able to have the room for the exhibition when needed, **the alternative assignment is (your choice) either the Earthquake or Volcano Assignment (30 pts each).**

Chapter Quizzes: there are a total of 12 quizzes scheduled (one for each chapter covered) that consist generally of 15 questions (two quizzes consist of 30 questions) worth ½ point each (so the total points possible for each quiz is 7.5 pts with exception of two which are worth 15 pts). See syllabus for quiz due dates (we will discuss further in class). These quizzes are used to check your understanding of chapter material; the maximum points you can earn from these quizzes are 85 points and any points earned over 85 are extra credit (up to 105 points) to be used for your grading-curve at the end of the semester. These cannot be made up once each due date passes.

Geology Journal Entries with sketches, photos, etc., that show how geology relates to your life: The purpose of your journals is to relate science (specifically geology or earth science) to your everyday life. You are expected to make entries no less than 2x per week (on two separate days- make sure the day/date/time/location is noted). Making connections is a big part of your task; by connecting processes, features, principles of what you are learning to what you experience throughout your day, you can relate the influence of earth science on your life and become educated in understanding more of your daily experience through new perspectives.

Your creativity is important in making these connections as some will be more obvious than others (yet everything can be connected in some way). These connections should show how they influence (or affect) your daily life on a personal level. The instructor will give you 10 topics (one for each journal post- keep in mind each post requires two entries) and you are expected to come up with the remaining 10 topics (so I will give you one topic per post and you come up with the second one per post).

Your weekly entries should follow the subject matter studied each week (such as when we discuss "minerals" you should connect minerals to your life); your judgement and creativity are important in making your entries.

Please find a journal (or some type of sketchbook) that is easy to carry around (you can find relatively cheap ones at Michaels, for example...or I'm sure at Wal-mart) so you can make entries on the spot (when you are experiencing or observing something that you want to use as an entry). You can also construct your own journal (again, creativity is important; some of the best work last semester was done through journals that were constructed by students).

The above information about journals is also provided under the "Discussions" link to the left along with a grading rubric.

OPTIONAL "LEARNSMART" ASSIGNMENTS: you have the option of purchasing the eBook version of this textbook (click on the "McGraw-Hill Connect" link to the left). With the eBook you can work through "LearnSmart" activities and earn up to 12 pts extra credit.

Checkpoint/Sketch Assignments: Throughout each chapter in your textbook are “Checkpoints,” which consist of a wide variety of learning methods. Some of these checkpoints along with lecture sketches have been assimilated in your class handbook and are a study guide for each evaluation; this is also required homework that I will collect at the beginning of each evaluation (the homework that applies to that specific evaluation; for example, I will collect homework for chapter’s 1-4 at the beginning of the evaluation over chapter’s 1-4). Occasionally, there could be a take home assignment (generally worth 10 pts) that is required to be completed and

turned in the following week we meet (hardcopy). These generally require you to research a topic online and you must attend class to receive and submit the assignment.

Discussion Boards: Discussions are ways to present your viewpoint or what you have learned about a topic to the class; and to respond to your classmate's posts to further discussion on a topic. Discussions are completed through Canvas and are generally worth 10 points. Sometimes an initial as well as a response post (to classmate's posts) are required. Discussion boards are primarily used for a totally online class, so will not be used often in this class; you do, however, have a post due over the Mystery of the Megaflood due during the second week of the semester.

Field Trip: Optional, extra credit hike, to be discussed during class.

Due Dates: The above assignments have specifically defined due dates as noted in the Course Schedule (see Table below). It is your responsibility to keep up on all due dates. The instructor will not assume the responsibility of reminding you that an assignment is due or that an exam will be given.

Score/Grade Posting: All scores will be posted on Canvas. You have 7 days after a score has been posted to dispute an entry. After the 7-day period, the score stands as entered. Do not wait until the end of the semester to check your scores. Grades are not assigned by a "curve", where a certain percent is assigned "A", "B", etc. Instead, you are competing against my expectations, not your classmates, and there is no predetermined percentage of "A", "B", and "C". The exact division between letter grades will not be determined until the final points are totaled, but the grade breaks will not be raised above typical values (e.g., the A-B grade break will be 90% or lower, etc.). No items are weighted—your grade is based solely on total points received.

Dates for Withdrawals: There is a course withdrawal deadline—check the college calendar to find the course withdrawal deadline for this semester. The course withdrawal deadline is a no-tolerance policy. When the withdrawal period ends, students only have one option – a grade of F for the course.

Incomplete Grade: A mark of "I" is given only when a student who is otherwise doing acceptable work is unable to complete a course because of an illness or other situation beyond the student's control. The student is required to arrange for the completion of the course requirements with the instructor. The university does not allow instructors to assign a grade of "I" simply because a student has quit attending classes and/or completing assignments.

Attendance

- A student who fails to show up for the first class meeting can be dropped by the instructor. Should readmission be desired, the student's status will be the same as that of any other student who desires to add a class. It is the student's responsibility to drop or officially withdraw from the class. See the **IVC General Catalog (https://www.imperial.edu/courses-and-programs/catalogs-and-schedules/)** for details.
- Furthermore, students who fail to complete required activities for two consecutive weeks may be considered to have excessive absences and may be dropped.

Academic Honesty

- Plagiarism is taking and presenting as one's own the writings or ideas of others, without citing the source. You should understand the concept of plagiarism and keep it in mind when taking exams and preparing written materials. If you do not understand how to 'cite a source' correctly, you must ask for help.
- Cheating is defined as fraud, deceit, or dishonesty in an academic assignment, or using or attempting to use materials, or assisting others in using materials that are prohibited or inappropriate in the context of the academic assignment in question.
- Anyone caught cheating or will receive a zero (0) on the exam or assignment, and the instructor may report the incident to the Campus Disciplinary Officer, who may place related documentation in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action. Please refer to the General School Catalog for more information on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to, the following: (a) plagiarism; (b) copying or attempting to copy from others during an examination or on an assignment; (c) communicating test information with another person during an examination; (d) allowing others to do an assignment or portion of an assignment; (e) using a commercial term paper service.

Additional Help – Discretionary Section and Language

Help Along The Way: Many students enter this class with a bit of anxiety. Other students may have various disabilities, including test anxiety, which may make traditional classroom environments very difficult. Don't worry, almost all such students before you have

passed this course – many with very high grades! The success of many of these students, though, was in part because they attended class regularly, took advantage of my office hours, or obtained help from their peers. If you are having difficulty understanding the course work, please contact me immediately. Also, the college has learning centers, disability resource centers, and counseling centers to address the various needs of students. (see examples next):

- Learning Labs: There are several 'labs' on campus to assist you through the use of computers, tutors, or a combination. Please consult your college map for the Math Lab, Reading & Writing Lab, and Study Skills Center (library). Please speak to the instructor about labs unique to your specific program.
- Library Services: There is more to our library than just books. You have access to tutors in the Study Skills Center, study rooms for small groups, and online access to a wealth of resources.

Disabled Student Programs and Services (DSPS)

Any student with a documented disability who may need educational accommodations should notify the instructor or the Disabled Student Programs and Services (DSP&S) office as soon as possible. The DSP&S office is located in Building 2100, telephone 760-355-6313, if you feel you need to be evaluated for educational accommodations.

Student Counseling and Health Services

Students have counseling and health services available, provided by the pre-paid Student Health Fee. We now also have a fulltime mental health counselor. For information see **http://www.imperial.edu/students/student-health-center/ (http://www.imperial.edu/students/student-health-center/)** . The IVC Student Health Center is located in the Health Science building in Room 2109, telephone 760-355-6310.

Student Rights and Responsibilities

Students have the right to experience a positive learning environment and due process. For further information regarding student rights and responsibilities, please refer to the IVC General Catalog available online at **http://www.imperial.edu/index.php?option=com_docman&task=doc_download&gid=4516&Itemid=762 (http://www.imperial.edu/index.php?option=com_docman&task=doc_download&gid=4516&Itemid=762)**

Information Literacy

Imperial Valley College is dedicated to helping students skillfully discover, evaluate, and use information from all sources. Students can access tutorials at **http://www.imperial.edu/courses-and-programs/divisions/arts-and-letters/library-department/info-lit-tutorials/ (http://www.imperial.edu/courses-and-programs/divisions/arts-and-letters/library-department/info-lit-tutorials/%20)**

Anticipated Class Schedule / Calendar

Schedule for Geology 110: Earth and Space Science, Spring 2019

* All due dates and distribution of grade points is subject to change according to class needs.

**NOTE: for purposes of this class, the week begins on Mondays at 12:01 am and ends on Sundays at 11:59 pm. Day 1 is Monday and Day 7 is Sunday (and, for example, Day 4 is Thursday) each week.

Week of	Topic/Lecture/Test	Readings
Feb 11-17 (holiday Feb 15,18)	Lesson 1: Introduction to course and Scientific Method See Mystery of the Megaflood; Assign Due next Sunday (Feb 24) through Canvas Quiz Chapter 1 Due Day 7 next week (Feb 24) Sketch on familiar object (due next Monday) Complete Checkpoints/Sketches for Lesson 1(from class handbook)	Chapter 1

Feb 18-24	Lesson 2: Earth in Space Quiz Chapter's 1 Due Day 7 Complete Checkpoints/Sketches for Lesson 2 (from class handbook)	Chapter 1,2
Feb 25-Mar 3	Lesson 3: Near Earth Objects Journal Entries Quiz Chapter 2 Due Day 7 Complete Checkpoints/Sketches for Lesson 3 (from class handbook)	Chapter 2,3
Mar 4-10	Lesson 4: Plate Tectonics Journal Entries Quiz Chapter 3 Due Day 7 next week Complete Checkpoints/Sketches for Lesson 4	Chapter 4 (two week period covering Plate Tectonics)
Mar 11-17	Lesson 4: Plate Tectonics (continued) Journal Entries Quiz Chapter 4 Due Day 7 Complete Checkpoints/Sketches for Lesson 4	Chapter 4
Mar 18-24	Test 1 over Chapter's 1-4 (on Weds meeting) Journal Entries No quiz this week Turn in Checkpoints/Sketches from class handbook for Chapter's 1-4	Test 1
Mar 25-31	Lesson 5: Earthquakes Journal Entries Quiz Chapter 5 Due Day 7 Complete Checkpoints/Sketches for Lesson 5	Chapter 5
Apr 1-7	Lesson 6: Volcanoes Journal Entries Quiz Chapter 6 Due Day 7 Complete Checkpoints/Sketches for Lesson 6	Chapter 6
Apr 8-14	Lesson 7: Rocks and Minerals Journal Entries	Chapter 7

	Quiz Chapter 7 Due Day 7 Complete Checkpoints/Sketches for Lesson 7	
Apr 15-21 (Easter Wknd)	Lesson 8: Geologic Time Journal Entries Quiz Chapter 8 Due Day 7 Complete Checkpoints/Sketches for Lesson 8	Chapter 8
Apr 22-28	Spring Break	Spring Break
Apr 29-May 5	Test 2 over Chapter's 5-8 (weds meeting) Journal Entries No quiz this week Turn in Checkpoints/Sketches from class handbook for Chapter's 5-8	Test 2
May 6-12	Lesson 9: Oceans and Coastlines Journal Entries Quiz Chapter 13 Due Day 7 Complete Checkpoints/Sketches for Lesson 9	Chapter 13
May 13-19	Lesson 10: The Atmosphere Journal Entries Quiz Chapter 14 Due Day 7 Complete Checkpoints/Sketches for Lesson 10	Chapter 14
May 20-26	Lesson 11: Weather Systems Journal Entries Quiz Chapter 15 Due Day 7 Complete Checkpoints/Sketches for Lesson 11	Chapter 15
May 27-June 2 (May 27 Holiday)	Lesson 12: Climate and Climate Change Quiz Chapter 16 Due Day 7 **Weekly Assignment Due next Monday over video "Chasing Ice"** Complete Checkpoints/Sketches for Lesson 12	Chapter 16
June 3-8	Test 3 over Chapter's 13-16 Journals Due	Test 3

	Turn in Checkpoints/Sketches from class handbook for Chapter's 13-16 GEOLOGY ART ASSIGNMENT/EXHIBITION DUE THIS WEEK; OR the Earthquake/Volcano Assignment due this week.	

Course Summary:

Date	Details