

4134 - **GEOL 5, HISTORICAL GEOLOGY with lab** – spring 2021

Professor: Dr. **Alessandro Grippo**, Ph.D.

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Webpage: <http://grippo.pazsaz.com>

Class Hours:

LAB/LECTURE: Tuesday and Thursday 5:15-8:20 *online*

FINAL EXAM: Thursday, June 10, 2021, at 3:30p *online*

Office Hours: Monday and Wednesday 1:30-2:45p *online*

Course description

This course is an introduction to the history of Earth and its evolution including surface environments, atmosphere, oceans, and life. Sedimentary rocks are studied for stratigraphic relationships, environmental indicators, and biologic significance to reconstruct the geological and biological evolution of Earth over time. Numerical methods, like geochronology, are also employed to assign absolute ages to past environments. The combination of both relative and numerical methods to the study of plate tectonics and geologic structures will allow the student to understand how Earth history is reconstructed. A particular emphasis is placed on the study of North American sequences.

Course objectives

Upon completion of this course, the student will be able to:

- Explain the sequence of the most important events, geological and biological, that have characterized the history of our planet.
- Comprehend, explain, and put in perspective the dynamics of present day change.
- Apply the theory and the working principles of the tools that are used in the reconstruction of the history of our planet.

Student Learning Outcomes

- Students will be able to use principles of relative and absolute age dating to decipher the geologic history of a setting
- Students will be able to communicate the linkages between major events in the evolution of Earth's surface conditions and life throughout Earth's history

Textbooks

- Lecture: 1 - Steven M. Stanley, Earth System History, 4th edition, W. H. Freeman & Co., New York
2 - J. R. Nudds and P. A. Selden, Fossil Ecosystems of North America, 1st edition, University of Chicago Press
- Lab: 1 - Brice Levin Smith, Laboratory Studies in Earth History, 10th edition, McGraw Hill.

All three textbooks are required. You need to have individual, personal access to these books. You do not need to own them if you do not want to buy them, but you need to be able to have independent access during class hours, and of course while studying in preparation of tests, labs, and quizzes. Buy them, rent them, borrow them, paper or electronic, but get access to them!

Used and older copies of the two lecture textbooks are generally fine. If you have an older edition, you will be responsible for finding the proper material on the right page on your book. But when it comes to the Lab manual, be aware that its pages are detachable and used copies might be missing consistent parts. Also, you need the actual 10th edition, or pages and exercises will not match. Many students during previous semesters bought used copies of the lab manual that were missing most of the exercise pages; as a

consequence, they were left without the proper exercise pages and study materials. It is your responsibility to have a complete set of copies before the lab exercise.

Required Materials

Lecture: all lectures will be conducted online via Canvas chat. Students should always have access to Canvas. I will post relevant information, quizzes, exams on Canvas

Exams: exams will be online only (on Canvas), at the time of class and for the duration of the class only. Absolutely no calculators, tablets, computers, electronic translators, mp3 readers, earphones or any electronic device are allowed.

Recommended Computer Skills and Technology Requirement

This class will be taught online using Canvas, but you will still need access to a computer to work with some of the resources I made available on my website (<http://grippo.pazsaz.com>). The web page is fully accessible from both PC- and Mac-based operative systems, and optimized for Firefox. Please be aware that SMC has taken down all of their faculty web pages, and I had to transfer all of my files on a private server using a commercial domain. If you encounter any broken link, any mistake, or anything essential that does not work properly, I would be grateful if you could please let me know as soon as possible.

Methods of Presentation

Lecture and Discussion. I will be going over information that is in the textbook by using PowerPoint slides that are available on my website. I will be using Canvas of course and will be providing you with the relative links on my webpage. Course material is supplemented with discussions of current geological news, which includes geological hazards and recent discoveries.

Grading System

The total grade will be assigned based on exams, labs, assignments, quizzes, homework, and class participation. In order to be able to pass the class it is strongly recommended that you work on all of the assignments and take ALL exams. If you do not take ALL exams, you will not be able to pass the class.

Exams - You will be tested on the materials covered during lectures, labs, in assigned readings (and videos when pertinent). The exams will include a mix of multiple choice, short essay, true-false, figure and map interpretation, yes/no, and short-answer questions. The exams will include questions from BOTH lecture and lab. Sample questions taken from actual exams can be found online on my web page (<http://grippo.pazsaz.com/question.html>). All exams are non-cumulative and will contain questions for extra credit. This will be the ONLY form of extra-credit for this class.

There will be two mid-term exams (**10% of the grade each**) and one final, cumulative exam, divided in two parts (**20% of the grade**). Individual exams will be graded on a 0-100 scale for simplicity and the score will then be converted. The time allowed for an exam is 90 minutes. If you miss any single exam, you will not be able to pass the class. Exams are closed-books; do not use texts, notes, calculators or dictionaries of any sort; absolutely no cell phones, iPods, iPads, blackberries, headphones, Bluetooth or any other kind of electronic device.

Labs - As a rule, there will be a lab on every Thursday the class meets; sometimes we may switch to Tuesdays (changes will be announced in Canvas); occasionally, we will be working on more than one lab, in order to reach a total of at least 15 different ones. Labs will count for **50% of the grade**. Lab work is strictly individual and not group work. If a student is found copying a lab rather than working personally on it, she/he will get a 0 (zero) on that lab. Please note: it is important that you work on all of your labs. You can make up a lab for full score after the due date and within a week only if you have a doctor's note, a jury duty note, a police note or any other official document that can justify your absence. If you cannot provide such proof, you can still make up the lab for 50% of its value if you turn it in within a week. After

one week you can still work on it for practice but no points will be assigned. Individual labs will be graded on a 0-20 scale.

Homework Assignments – There might be a few homework assignments, mostly in order to strengthen certain skills or reinforce a few concepts. The relative score will be integrated in the quizzes score. Homework must be **turned in at due time**, no exceptions. Late homework will be accepted only as a partial fulfillment of class requirements within the first week (50%).

Weekly Quizzes will be given to the class, usually on Tuesdays and with at least one week advance notice. Quizzes will be mostly (but not only) on assigned readings from "**Fossil Ecosystems of North America**". Overall, quizzes, home assignments and homework will count for **10% of class grade**. Since quizzes are scheduled ahead and are a small part of the work load, there are **no make-ups** for quizzes. But, I will give you one extra quiz to make up for one absence.

Method of Evaluation - The final score is calculated out of 1000 points (from assignments, exams, quizzes, labs, participation)

Two mid-term exams will count for 20% of the final grade	200 points
The final, cumulative exam will count for 20% of the grade	200 points
Lab assignments will count for 50% of the grade	500 points
Quizzes, home assignments, participation will count for 10% of the grade	<u>100 points</u>
	1000 points

Grading scale:

FINAL GRADE:	A: 901 - 1000 points	SINGLE EXAMS:	A: 90 - 100 points
	B: 801 - 900 points		B: 80 - 90 points
	C: 701 - 799 points		C: 70 - 79 points
	D: 601 - 699 points		D: 60 - 69 points
	F: 600 points or less		F: 60 or less

Academic integrity and policies

The academic honesty policy of Santa Monica College will be strictly enforced at all times.

Students with disabilities

I encourage students requesting disability-related accommodations to contact Disabled Student Services as soon as possible. I will work with you and the Center for Students with Disabilities to provide appropriate and reasonable accommodations. An early notification of your request for test-taking and/or other accommodations is necessary to ensure that your disability related needs are addressed appropriately; testing accommodations cannot be applied retroactively. DSPS office is located in the Admissions/Student Services Complex, Rm 101, and the phone numbers are (310) 434-4265 and (310) 434-4273 (TDD).

Campus Emotional Support for Students

Over the course of the semester you may face difficult circumstances beyond your control, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down or depressed, or having difficulty concentrating. These challenges may create barriers to learning or may make it difficult for you to meet some of the course requirements. If you or someone you know is suffering these or other similarly difficult circumstances, please reach out for support. The staff and faculty of Santa Monica College want you to succeed academically and care about your wellbeing. You may contact the College's Center for Wellness and Wellbeing (LA 110, 310-434-4503), which provides short-term mental health services, community referrals, and a 24/7

emotional support line for students, 800-691-6003. Or, if the situation is an emergency, you may contact the SMC Police Department (310-434-4000 or the SMC LiveSafe app). Please contact me if you want to discuss which SMC service or support might be best for you.

International Students

As an international student, you are subject to a variety of rules and obligations. One of them is that you must maintain a certain number of units. In the past, a few students chose to be enrolled in the class but not to participate in it, even accepting a failing grade, as long as they could stay enrolled. Please, do not abuse the system, and be aware that you will be treated as any other student: you can be dropped from the class for lack of attendance like any other students, and you would have to face the consequences of your choices. Be responsible.

Emergency Preparedness

The safety of students at SMC is a priority. Please note that emergency procedures are posted in every classroom. Also, procedures for various emergencies are delineated on the SMC website: <http://www.smc.edu/StudentServices/EmergencyPreparedness/Pages/Emergency-Preparedness.aspx> Take time to familiarize yourself with these procedures now, when knowledge of what to do is the most effective.

Make up exams

As a policy, there will not be make-up exams unless there is a medical or legal reason; in all cases, a note from a doctor, a hospital, a court, or the police is required. If you know you will be missing a class for a religious holiday, it is YOUR responsibility to let me know as soon as possible, and in any case at least two weeks before the day you will be absent. In case you need to take a make-up test, the test will be in a different format, and will consist in a series of short essay questions.

Some basic tips on how to succeed in this class

1. The first and most important point is: if you do not understand something, ask questions, ask me to repeat. You are here to learn and the professor is there to help you in this process.
2. Time spent in class is used to learn about the subject, so do not waste it. Education is always worth investing in, even if your ideal major is different. The more you know the more you will be able to defend your ideas in society.
3. Give yourself adequate study time per week for each one unit of a course. Review notes as soon as possible after lecture in order to finish incomplete diagrams and sentences while you still remember what they mean.
4. If you are having difficulties with the course, ask me for help or advice early in the semester. Do not coast through most of the course and then, with a week or two remaining in the term, ask me what you can do to improve your grade. I strongly urge you to seek help if your first exam grade indicates you are doing poorly.
5. An ethical note: looking at a fellow student's paper during an exam is cheating; using crib notes is cheating. Consequences of cheating will be an automatic "F" and a report filed with the Office of the Vice President for Student Affairs and Dean of Students.
6. Do not be late to class.
7. Coming to class and taking notes is essential for passing the class. Historically, those who do not come to class, fail the class.

Biographical Sketch of Alessandro Grippo, Ph. D.

Dr. Grippo is an Associate Professor of Geology in the Department of Earth Sciences at Santa Monica College, where he has been teaching since 2001, while still a graduate student at the University of Southern California.

He has taught all general education courses offered at SMC, Physical Geology, Oceanography, Earth History/Historical Geology and Field Geology; in addition, he taught the same or similar classes, an Environmental Geology, at other colleges in the greater Los Angeles area; senior level and graduate classes in Sedimentology, Stratigraphy, Field Geology, and Natural Disasters; and also an advanced 500-level seminar in Stratigraphy, his specialty and research focus.

He keeps on working on different scientific projects, presenting his work at international meetings (from the US, to the UK, Italy, France and Canada). His research interests as a scientist include stratigraphy and sedimentology, oceanography, geomorphology, regional geology and global and climate change. In particular he is doing research on how to extract and process information about environmental change and ancient climates from the sedimentary rock record.

Dr. Grippo obtained his Philosophy Doctor degree from the University of Southern California (USC) in Los Angeles by discussing astronomically-related climate change through a geological and mathematical analysis of a sedimentary rock record from the Cretaceous Period. Between his M.S. and his Ph.D. he has been working in the oil industry as an exploration and well-site geologist. During his years at SMC he was also a NASA-JPL faculty fellow. He is also currently an external field instructor for the Desert Institute at Joshua Tree National Park, where he leads different field explorations of the Mojave desert, from Death Valley to Joshua Tree itself.

As a reminder

We have FIXED APPOINTMENTS for exams, labs and quizzes.
It is YOUR responsibility not to miss them

Exams must be taken on the scheduled day/time, and can only be made up with an official excuse

Labs can be made up only if done within a week from due date for full credit with an official excuse, for only ½ credit otherwise

Quizzes cannot be made up if not taken within the 30 minutes allowed on due date. An extra quiz will be given to make up for an absence or a low grade

As a rule (with exceptions denoted below):
- every Tuesday there is either a quiz or an exam

- every Thursday there is a lab

Tentative schedule of lessons (If necessary, variations will be detailed in class)

Week	Date	Topic	Book Chapter(s)	Exams
1	February 16	Introduction; Plate Tectonics	1 – 2 – 8	
	February 18	Plate Tectonics	1 – 2 – 8	
2	February 23	Chemistry review. Minerals and Rocks	2	
	February 25	Diversity of Life	3	
3	March 2	Environments and Life	4	quiz 1
	March 4	Labs 1 and 2		
4	March 9	Sedimentary Environments	5	
	March 11	Lab 3		quiz 2
5	March 16	exam 1		EXAM 1
	March 18	<i>flex day, no class</i>		
6	March 23	Correlation & Dating of the Rock Record	6	quiz 3
	March 25	Lab 4		
7	March 30	Correlation & Dating of the Rock Record	6	quiz 4
	April 1	Lab 5		
8	April 6	Evolution & the Fossil Record	7	quiz 5
	April 8	Lab 7		
9	April 13	<i>Spring Break, no class</i>		
	April 15	<i>Spring Break, no class</i>		
10	April 20	exam 2		EXAM 2
	April 22	Lab 6		
11	April 27	Plate Tectonics	8	quiz 6
	April 29	Lab 8		
12	May 4	Plate Tectonics	8	quiz 7
	May 6	Lab 9		
13	May 11	Continental Tectonics and Mountain Chains	9	quiz 8
	May 13	Labs 10 and 11		
14	May 18	Major Chemical Cycles	10	quiz 9
	May 20	Labs 12 and 13		
15	May 25	The Hadean, Archean and Proterozoic Eons	11 – 12	quiz 10
	May 27	Labs 14 and 15		
16	June 1	exam 3, part 1 (non-cumulative)		EXAM 3/1
	June 3	Labs 16 and 17		quiz 11 (EC)
17	June 8	<i>finals week, no class</i>		
	June 10	exam 3, part 2 (cumulative)		EXAM 3/2