2353 - **GEOL 31, Introduction to PHYSICAL OCEANOGRAPHY,** spring 2021

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

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Class Hours:

LAB/LECTURE: ***Tuesday and Thursday 3:45-5:05*** *online*
FINAL EXAM: ***Tuesday, June 8, 2021, at 3:30p*** *online*
Office Hours: ***Monday and Wednesday 1:30-2:45p*** *online*

Course description, objectives, and content

This course introduces students to the geological, physical, chemical, and biological aspects of th oceans. Lecture topics include plate tectonics, geography of the marine environment, marin sediments and sedimentary rocks, chemistry and physics of water and the atmosphere, waves an tides, beaches and coasts and a brief discussion on marine biology

Please be aware that this course requires constant study and attention. This is a very intensive class and definitely not an "easy" one. If you think you can study for just a day before the test, and star lagging behind, you will soon realize that it will be extremely difficult for you to make up for the los time.

In class, we will use the metric system and work with concepts from math, physics, chemistry, an biology. If you do not remember these basics, I would recommend that you review them during th first week of class, while the workload is still relatively low. If you are a non-native English speaker, b aware that the class will use a lot of technical and scientific terminology.

Student Learning Outcomes

1. Students will learn how the oceans and the ocean basins formed, the topography of the sea floor and the sediments found on the seafloor.
2. Students will gain an understanding of the Earth's coastal shorelines by developing the ski necessary to identify beach erosional and deposition features, coastal sand dunes, and lagoons. addition, students will recognize the interaction of waves and tides on a shoreline, and how t chemical and physical properties of seawater cause ocean currents.

Required Textbook

Alan P. Trujillo and Harold V. Thurman, Essentials of Oceanography, 13th edition, Pearson

This textbook is required. You need to have individual, personal access to this book. Buy it, rent it, borrow it, it is fine. Used copies and older editions are generally fine, electronic copies are also fine. If you have an older edition, you are responsible for finding the proper material on the right page on your book.

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 my webpage. Course material is supplemented with discussions of current geological news, which includes geologic hazards and recent discoveries

Grading System

The total grade will be assigned based on exams, and possible assignments, quizzes and homework. In order to be able to pass the class you will have to work on all of the assignments and take ALL four exams.

Exams - You will be tested on the materials covered during lectures, and 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 question 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 four (4) exams, which will count for **80% of the final grade**. Individual exams will be graded on a 0-100 scale for simplicity and the score will then be converted to the appropriate scale. Exams are mandatory. 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.

Homework Assignments and Quizzes – There might be a few homework assignments and/or quizzes, mostly in order to strengthen certain skills or reinforce a few concepts. The relative score will be integrated in the total 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%), unless you have an official excuse.

Method of Evaluation - The final score is out of 1000 points (from assignments, exams, quizzes)
Four exams will count for 80% of the final grade 800 points

Assignments will count for 20% of the grade 200 points

1000 points

Grading scale:

FINAL GRADE:		SINGLE EXAMS:	
A:	910 - 1000 points	A:	91 - 100 points
B:	800 - 909 points	B:	80 - 90 points
C:	700 - 799 points	C:	70 - 79 points
D:	600 - 699 points	D:	60 - 69 points
F:	599 points or less	F:	59 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 students, 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 and assignments

As a policy, there will not be make-up exams or assignments 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.
Assignments can be made up with an official excuse within a week from due date, or for 50% of their value without a note. Assignments can not be made up after one week.

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 mea
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 cut 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, and 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, and DUE DATES for assignments
It is YOUR responsibility not to miss them

Exams must be taken on the scheduled day/time on Canvas, and can only be made up if you have an official excuse

Assignments and Homework 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

Tentative schedule of lessons

(If necessary, variations will be detailed in class)

Week	Date	Topic	Book Chapter(s)	Exams
1	February 16	Introduction to Planet "Earth"	1	
	February 18	Plate Tectonics and the Ocean Floor	2	
2	February 23	Plate Tectonics and the Ocean Floor	2	
	February 25	Marine Provinces	3	
3	March 2	Marine Sediments	4	
	March 4	Marine Sediments	4	
4	March 9	**exam 1**		**exam 1**
	March 11	Water and Seawater	5	
5	March 16	Water and Seawater	5	
	March 18	*flex day, no class*		
6	March 23	Air-Sea Interaction	6	
	March 25	Air-Sea Interaction	6	
7	March 30	Ocean Circulation	7	
	April 1	Ocean Circulation	7	
8	April 6	**exam 2**		**exam 2**
	April 8	Waves and Water Dynamics	8	
9	April 13	*Spring Break, no class*		
	April 15	*Spring Break, no class*		
10	April 20	Waves and Water Dynamics	8	
	April 22	Tides	9	
11	April 27	Tides	9	
	April 29	Beaches, Shoreline Processes, Coastal Ocean	10	
12	May 4	Beaches, Shoreline Processes, Coastal Ocean	10	
	May 6	Marine Pollution	11	
13	May 11	**exam 3**		**exam 3**
	May 13	Marine Pollution	11	
14	May 18	Marine Life and the Marine Environment	12	
	May 20	Marine Life and the Marine Environment	12	
15	May 25	Biological Productivity and Energy Transfer	13	
	May 27	Animals of the Pelagic Environment	14	
		Animals of the Benthic Environment	15	
16	June 1	Animals of the Benthic Environment	15	
	June 3	The Oceans and Climate Change	16	
17	June 8	**exam 4**		**exam 4**