

# OCEA 10: Introduction to Oceanography

## Winter 2013, Mt. San Antonio College

**Course meetings:** Tuesdays, Wednesdays, Thursdays, 10:30 AM-1:10 PM

### **Who I am and how to get in touch with me:**

- Becca Walker; please call me Becca
- E-mail: [rwalker@mtsac.edu](mailto:rwalker@mtsac.edu)
- Phone: 909.594.5611 x6339
- Office location: building 60, room 1102
- Office hours: by appointment. (In other words, if you want to meet with me outside of class time, please e-mail me *with a reasonable amount of notice* and let me know when you would like to meet. I am not on campus Mondays or Fridays during winter session.)

**Course description:** Even though the majority of the Earth's surface is covered by seawater, the average person is less aware of what is happening in the ocean than what is happening on land. This winter, we will work together to answer several fundamental questions:

- Which factors control life in the ocean?
- How do we know what we know about the ocean?
- What's at the bottom of the ocean?
- How does the water in the ocean move?
- How are human activities and climate change altering the ocean?

OCEA 10 provides an introduction to the ocean environment, including geological, chemical, physical, and biological oceanography topics. **Be prepared to work hard and use your brain!** This is not a marine biology course. We will cover marine biology briefly but the majority of the course focus is geology/chemistry/physics. If you are looking for a marine biology course, sign up for BIO 20.

### **Lecture textbook:**

You need to have access to the textbook, whether that means owning, renting, sharing, using the copy in the library, etc. The latest edition is the 10<sup>th</sup> edition. There is also a Mt. SAC custom edition. Either is fine. If you have an older edition of the book, that's also fine. Just let me know which edition, and I can give you the correct page numbers for the suggested reading.

Trujillo, A.P. and Thurman, H.V., 2008, *Essentials of Oceanography (9<sup>th</sup> Edition—Custom Edition for Mt. San Antonio College)*: Pearson Prentice Hall, 534 p. ISBN 0-536-45401-9.

Trujillo, A.P. and Thurman, H.V., 2011, *Essentials of Oceanography (10<sup>th</sup> Edition)*: Pearson Prentice Hall, 551 p. ISBN 978-0-321-66812-7.

### **Work outside of class:**

This is a 3-unit class during winter intersession. Realistically, you need to budget 15-20 hours of work per week outside of class time. This includes reading, studying, attending office hours, and doing assignments.

I look forward to working with you this winter!

## Course objectives:

- **\*Learn to think critically and solve problems without being told the answer.\***
- Increase your understanding of the geology, chemistry, physics, and biology of the oceans.
- Understand how Southern California's proximity to the ocean influences its weather, economy, natural hazards, and the lives of its residents.
- Understand how the Earth's oceans, atmosphere, and glaciers influence one another, how these parts of the Earth system are changing, and how past and present civilizations have adapted to climate variability and climate change.
- Become comfortable making qualitative and quantitative observations.
- Gain familiarity reading and interpreting maps, photographs, cross-sections, graphs, and other data.
- Become aware of the impact that your actions have on the marine environment.
- Experience the workload and performance level required for success at a 4-year school.
- **Understand the concept of "accountability" as it applies to success in higher education.**
- Find out that you are capable of doing well in and enjoying a science class, even if you are "scared of science" or believe that you are "not a science person" (whatever that means).

## Course policies

1.) *Can work be made up?*

**NO. Exams, labs, homework, field trips, and in-class work cannot be made up under any circumstances.**

2.) *What is the penalty for late work?*

**NO LATE WORK IS ACCEPTED. ALL LATE WORK RECEIVES A ZERO.** Please note that most assignments are due at the beginning of class. That means that if you are late for class and try to turn in your assignment, your assignment is late, hence, no credit. I will always accept work early, so feel free to submit materials before the due date.

3.) *Do I have to come to class?*

Yes. If you miss a class meeting, you will have no idea what is going on when you return. Furthermore, every day of class during winter intersession is like a week of classes during a regular semester. Bottom line: if you are not able to attend every class meeting in its entirety, this is not the appropriate time for you to be taking the course. If you have to miss a class meeting, it is your responsibility to get caught up on what you missed. It would be a good idea to get the notes from someone in class and ask me for copies of papers that were distributed. However, if you missed turning in an assignment, doing in-class work, or taking an exam on the day that you were absent, remember that no late work is accepted, and no makeups are offered.

4.) *Do I have to be on time for class? Do I have to stay for the whole time?*

Being on time for class is important, so please plan accordingly to ensure an on-time arrival. Lack of parking is **not** a valid excuse for being late. I understand that occasionally, life happens and you may be late. If this is the case, please do not disturb the class when you enter. Class lasts from 10:30-1:10, so plan on staying for the entire time. Work, meetings, practices, appointments, etc. do not take precedence over class.

5.) *I am registered with DSP&S. What do I need to do?*

If you require accommodations (examples: extended time for exams, note-taker), please contact DSP&S (Disabled Student Programs and Services) as soon as possible to have them send me the necessary paperwork.

## Personal Conduct

### 1.) Academic honesty: *READ VERY CAREFULLY*

Being a productive member of society means embodying honesty and integrity. Cheating is a major offense that I take very seriously. Any instance or suspected instance of academic dishonesty will be reported to Student Services. You will also receive a zero on the assignment. Some examples:

Academically honest	Academically dishonest
Working with other people to complete assignments.	Copying answers from someone else's paper because you didn't finish your assignment, you didn't understand the question, etc.
Talking about answers to assignments with other people.	Listening to other people's conversations about labs and copying what they say without doing any work yourself.
Working independently during exams.	Using cheat sheets or copying answers from someone else's exam.
Using information from outside sources (books, magazines, websites) and citing where the information came from.	Using information from outside sources without citing the source of the information. (Examples: cutting and pasting from the internet. Handwriting information from the internet, books, magazines, etc. Buying a paper. Having someone else do an assignment for you.)
Accepting the consequences when you are absent and miss an exam or turning in an assignment.	Lying about why you were not in class and missed an exam or turning in an assignment.

If you have any other questions about what constitutes academic dishonesty, plagiarism, cheating, copying, etc., please ask.

### 2.) Substance policy

Possession, consumption, or being under the influence of mind-altering substances (alcohol and drugs) during class (including in-class meetings, field trips, and extra credit outings) is a violation of college policy. Any individual suspected of violating the college substance policy will be immediately removed from class. Law enforcement will be involved. Disciplinary action from the college will be taken.

### 3.) Electronic gadget policy

New this winter, I am going to try an experiment. I understand that sometimes, people have family situations that may require them to keep their cell phone turned on. I am going to allow you to keep your cell phone on during class if you need to for a legitimate reason, provided that **PHONES ARE PUT AWAY (NOT VISIBLE), SET SO THAT THEY WILL NOT MAKE NOISE, AND ARE NOT USED FOR WEB SURFING OR TEXTING DURING CLASS, EVER.** If you need to use your phone, simply leave the classroom. If you want to use a laptop for notetaking, that's fine, but you may not be online during class. Please respect the classroom community, be an adult, and don't abuse these courtesies so that they don't have to be revised.

### 4.) Asking questions and collaborative work

If you have a question about anything during or outside of class, please ask. Questions are always welcomed and respected. There is no such thing as a stupid question. If I don't know the answer, I will do my best to find out for you.

I encourage you to work together when appropriate. This may include forming study groups, working on homework together, or collaborating during class. However, make sure that the work that you turn in is your own and reflects your understanding of the material (i.e., no copying!)

5.) *The classroom community and appropriate behavior*

You will benefit substantially from this class if you choose to become a member of the learning community.

Behavior appropriate for learning community:  
behavior:

- Being alert and engaged during class.
- Feeling comfortable asking questions.
- Working hard and having fun.

Inappropriate learning community

- Sleeping or putting your head down.
- Disrespectful behavior toward anyone.
- Cell phone use

6.) *Materials, safety, and cleanup*

- *Safety:* If you get injured during class (even a minor injury), let me know immediately.
- *Cleanup:* Before you leave, make sure that your work area is as clean and organized as you found it. Leave materials in the correct order and in the proper trays/drawers.

7.) *What you can expect from me*

- I will put my best effort into my job.
- I will treat you fairly (i.e., the same as everyone else in the class) and with respect.
- I will be honest with you.
- I will notify you with as much notice as possible if there is a schedule change.
- I will return graded work as promptly as possible.

## Course Grades

You have the potential to earn 1000 points. Each person's final grade will be calculated based on the total number of points that he/she earns:

A (mastery): 895-1000 points (equivalent to 89.5%-100%)

B (above average): 795-894 points (equivalent to 79.5%-89.4%)

C (satisfactory): 695-794 points (equivalent to 69.5%-79.4%)

D (needs improvement): 595-694 points (equivalent to 59.5%-69.4%)

F (unsatisfactory): below 595 points (equivalent to below 59.5%)

I do not grade on a curve. The grade that you earn is the grade that you receive.

Exams: 35% of final grade	350 points
Exams #1, #2, and #3 = 100 points each	
Cumulative final exam = 150 points	
Geography quizzes: 5% of final grade	50 points
In-class work and problem sets: 35% of final grade	350 points
Project: 10% of final grade	100 points
Field trip: 15% of final grade	150 points
Total:	1000 points

**Exams:** There are three exams and a cumulative final exam. Your lowest exam grade of exams 1, 2, and 3 will be dropped. Exams are closed book and closed notes. You may not wear headphones or earpieces during exams. You will have from 10:30-11:55 for the exam.

**Geography quizzes:** You will have 5 geography quizzes, each worth 10 points. Quiz dates are listed on the schedule.

**In-class work and problem sets:** You will be doing a significant amount of individual and group work during class. Some of the in-class work will be formally graded, whereas other in-class work will be "graded" based on attendance (i.e., if you were in class and participated, you receive full credit. If you were absent, you receive a zero.) You will also be completing problem sets outside of class.

**Project:** More information about the project will be provided in a separate document.

**Field trip: It is department policy that you must attend the field trip to pass the course, no exceptions.** This means that even if you earn an A+ in the class but do not go on the field trip, you receive an F in the class. More information about the field trip will be provided in a separate document. If you are only enrolled in lecture with me, you have an all-day field trip on Friday, February 8. Clear your schedule now!

### Extra credit:

There will be 40-ish points (~4% extra) of extra credit offered:

- 1.) Bonus questions on exams 1, 2, 3, and final exam: up to 20 points
- 2.) Environmental awareness activity (see separate document): 20 points

## Tentative schedule in table form

week	date	Tentative schedule for today	Work due today	Suggested reading for today (Mt. SAC custom edition; 10 <sup>th</sup> edition)
1	T, Jan 8	Introduction and syllabus Where did the ocean come from? Global geography		xxiii-xxiv; 1-3; 15-18; 21-31; 490-491; 492-493. <i>xxii-xxiv; 3-5; 16-20; 23-32; 504-505</i>
	W, Jan 9	History of oceanography, tools of the trade The continental drift hypothesis Earth structure		4-12; 72-78; 18-21; 34-40 <i>6-14; 20-23; 35-40; 75-80; 506-508</i>
	Th, Jan 10	<b>Geography quiz #1</b> Plate tectonics		40-68 <i>40-70</i>
2	T, Jan 15	Plate tectonics Marine provinces		40-69; 78-95; 475-481 <i>40-70; 80-94; 459-465</i>
	W, Jan 16	<b>Exam #1</b> Marine rocks and sediments	HW #1	98-128 <i>97-125</i>
	Th, Jan 17	<b>Geography quiz #2</b> Water chemistry and salinity Deep ocean circulation		130-158; 236-240; 331-332; 495-496 <i>129-157; 222-226; 315-317; 509-511</i>
3	T, Jan 22	Primary productivity and marine food webs		379-382; 386-412 <i>349-354; 371-394;</i>
	W, Jan 23	Waves, surface currents, and tides Shoreline processes		202-223; 244-264; 276-295; 305-314; 300-304; 319-325; 332-342; 364-369; 452-464; 264-272 <i>193-207; 231-248; 261-278; 289-300; 285-288; 304-309; 317-326; 437-450; 248-255</i>
	Th, Jan 24	<b>Geography quiz #3</b> The intertidal zone Southern California coastal features Local, regional, and global atmospheric circulation		300-304; 319-325; 332-342; 364-369; 452-464; 164-187 <i>285-288; 304-309; 317-326; 437-450; 161-185</i>
4	T, Jan 29	<b>Exam #2</b> Local, regional, and global atmospheric circulation	HW #2	
	W, Jan 30	<b>Project sorting and analysis</b> Forecasting climate variability and change: a matter of survival	Beach trash	Supplemental reading will be assigned
	Th, Jan 31	<b>Geography quiz #4</b> Anomalous behavior: El Nino, La Nina, and NAO		Supplemental reading will be assigned
5	T, Feb 5	<b>Geography quiz #5</b> Slow and steady? Climate change as observed in Greenland		Supplemental reading will be assigned
	W, Feb 6	Climate's tangled web: climate modeling and greenhouse gases		Supplemental reading will be assigned
	Th, Feb 7	<i>No class: enjoy your well-deserved day off!</i>		
	<b>F, Feb 8</b>	<b>Required field trip to Crystal Cove State Park</b>	Field packet	
6	T, Feb 12	<b>Exam #3</b> Adapting to climate change	Field reports HW #3	Supplemental reading will be assigned
	W, Feb 13	Marine pollution	Project	187-198; 227-235; 315-316; 342-357; 413-419; 467-472; 484-486 <i>185-188; 215-222; 326-342; 394-401; 450-456; 469-494; 496-499</i>
	Th, Feb 14	Final exam		

This schedule of topics is subject to change and probably will change. Exam, quiz, and field trip dates will NOT change, however, so please mark those dates on your calendar.