OCEA 10/10L: Introduction to Oceanography and Oceanography Laboratory

Fall 2014, Mt. San Antonio College

Course meetings: Tuesdays and Thursdays, 8:00-11:10 AM

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

- Becca Walker; please call me Becca
- E-mail: rwalker@mtsac.edu
- Office phone: 909.594.5611 x6339
- Office: building 60, room 1102
- Office hours for fall 2014:
    - Mondays, 12:30-1:00 PM
    - Tuesdays, 2:45-3:45 PM
    - Wednesdays, 8:45-10:45 AM; 12:30-1:00 PM

    } no appointment needed; just stop by

    - additional times by appointment (translation: if you are unable to attend the office hours listed above, please contact me *with a reasonable amount of notice* and let me know when you would like to come in)

Course description: Even though most of the Earth's surface is covered by seawater (read that phrase again—it's true!), the average human has much less knowledge of what's happening in the ocean than what's happening on land. This fall, we will work together to investigate some fundamental questions about the ocean, including:
(1) How do we know what we know about the ocean?
(2) What happens at the bottom of the ocean?
(3) How does the water in the ocean move?
(4) What controls the distribution of life in the ocean?
(5) How are human activities and the climate system altering the ocean, and how will these changes affect you in your lifetime?
OCEA10/10L provides an introduction to the ocean environment, including geological, chemical, physical, and biological oceanography topics. You have chosen to take an integrated lecture/lab course this fall—good for you. Meeting for 6 hours per week will allow you to gain hands-on experience, work independently and in groups to make systematic, detailed observations, and think critically to solve scientific problems about the ocean system.

Full disclosure:
(1) This is not a marine biology course. Repeat, this is not a marine biology course. We will cover a few marine biology topics briefly, but the majority of the class focuses on the geology, chemistry, and physics of the ocean. If you want to learn about whales, sign up for BIO20.

(2) This course involves a significant amount of quantitative reasoning (i.e., using numbers and math to think about the ocean.) Regardless of your math background, I'm confident that you can handle this, but be advised that you will be working with numbers a lot in this course.

Course structure:
The format of this class may be different than what you are used to. During class, you are supposed to be talking to other people **and contributing to your group**. A quiet lab is a bad lab. If you have questions, let me know. You may have to wait a few minutes for me, so please be patient. It is my job to help you, not to give you the answers, so don't be surprised if I respond to your question with another question. I'm not doing this to annoy you—I'm trying to teach you how to think on your own. **Be prepared to work hard, use your brain, be positive, and always try your best!**

Textbook:
Trujillo, A.P. and Thurman, H.V., 2014, *Essentials of Oceanography (Custom Edition for Mt. San Antonio College)*: Pearson Prentice Hall, 578 p. ISBN 978-1-269-40466-2.

Note: I strongly recommend that you have access to an oceanography textbook, whether that means buying one, sharing one with (an)other person/people in the class, renting one, or using reserve copies in the library and/or Earth science resource room. If you have an older edition of the book, that's fine. Again, you need to have access to the book.

Lab manual:
None.

Work outside of class:
Plan on an average of 10 hours of work per week outside of class, including doing assignments, reading, studying, attending office hours, etc. 10 hours is an average. Some weeks, you will have fewer than 10 hours of work outside of class. Other weeks, you will have more than 10 hours of work outside of class.

Course objectives (what you should be able to do after taking this course):

- ***Think critically and solve problems without being told the answer.***
- Evaluate the interrelatedness of the world's oceans, atmosphere, cryosphere, and geosphere.
- Gain a deeper understanding of the geologic, chemical, physical, and biological processes that occur in the ocean.
- 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 more educated about how your actions impact the environment.
- Be aware of the amount of work and performance level necessary at a four-year school.
- ***Understand the concept of accountability as it applies to success in higher education.***
- Discover that you are capable of using math to think about scientific problems, math is everywhere, math is important, and math is doable.
- Accept 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).

SUPER, SUPER IMPORTANT! READ CAREFULLY!

Course policies:

The course policies and personal conduct standards for this class are very simple, will not change, and apply to every person in the course. It is **your** responsibility to understand and abide by the policies. If you choose not to, you need to take responsibility for your choice.

1.) Can work be made up?
NO. CELEBRATIONS OF KNOWLEDGE, LABS, QUIZZES, HOMEWORK, FIELD TRIPS, PROJECTS, AND IN-CLASS WORK CANNOT BE MADE UP UNDER ANY CIRCUMSTANCES. Please do not ask me to make up work for credit, regardless of the reason—it's not going to happen. There is no wiggle room on this.

2.) What is the penalty for late work?
For every minute that an assignment is late, 10% (ten percent) will be deducted from your grade on the assignment. End of story. Please don't ask me to accept late work from you for full credit, regardless of the reason—it's not going to happen. There is no wiggle room on this. An excellent way to avoid handing in work late is to submit it before the due date. I will always accept work early.

3.) Can I e-mail you my work?
No. Assignments will be accepted in hard copy only. This eliminates having to deal with mysterious computer issues that sometimes arise when assignments are due.

4.) Can I have someone deliver my work for me?
As long as the work is turned in on time or early, that's fine. However, if the person is late, loses the assignment, gives the assignment to the wrong instructor, etc., it is not my responsibility.

5.) 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. Parking in Lot R and walking for 10 minutes to building 60 will not kill you. Since graded work will be completed at the beginning of each class, habitual tardiness will be detrimental to your grade. 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 8:00-11:10, so plan on staying for the entire time. Work, meetings, practices, appointments, etc. do not take precedence over class.

6.) Do I have to come to class?
I don't have a formal attendance policy, but if you miss a class meeting, you will have no idea what is going on when you return. If you aren't able to attend 100%--or very close to 100%--of the class meetings, this is not the appropriate semester 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. If you miss a lab, you need to finish it outside of class and submit it by the due date. I'm happy to help you catch up. **However, if you missed turning in an assignment, doing in-class work, or a celebration of knowledge on the day that you were absent, remember that late work loses 10% for every minute that it is late, and no makeups are offered.**

7.) 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. I have a "no questions asked" policy, which means that the following will happen, no questions asked, if there is any instance OR suspected instance of academic dishonesty.

Step 1: You will receive a zero on the assignment.

Step 2: The academic dishonesty will be reported to Student Services. There will be a hearing and additional consequences handed down by Student Services.

I am not kidding!! Here are some examples of academically honest vs. dishonest behavior:

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.; letting other people copy your answers.
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, copying answers from someone else's exam, or letting someone copy your answers.
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., ask. **"I DIDN'T REALIZE _____ WAS CHEATING" IS <u>NOT</u> A VALID EXCUSE. REGARDLESS OF WHETHER OR NOT YOU THOUGHT _____ WAS ACADEMICALLY DISHONEST, THERE WILL BE CONSEQUENCES FOR ACADEMIC DISHONESTY. IF YOU'RE NOT SURE, 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

<u>Cell phones:</u> As long as everyone respects the classroom community and exercises adult behavior, here's the deal: I understand that sometimes, people have family situations that may require them to keep their cell phone turned on. For the time being, 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 this courteous cell phone policy gets abused, I will revise the policy to include NO cell phones.**

<u>Laptops/tablets/Ipads/cyborgs/whatever:</u>

If you want to use a laptop or similar gadget for NOTETAKING ONLY, that's fine. Unless specifically stated otherwise, you may NOT go online during class. **If this courteous computer policy gets abused, I will revise the policy to include NO computers.**
Music: Please don't inflict your music choices on other people. If you want to listen to music before class or during break, great, but please either use headphones or leave the room.

4.) The classroom community and appropriate behavior
You are choosing to be here. As such, the expectation is that you will be a positive and active member of the learning community. **No one wants to hear incessant whining and complaining, so please don't. No one wants to deal with abrasive, negative, or obnoxious behavior, so please don't behave that way.** Here are some other "suggestions" (i.e., requirements) about appropriate behavior for the learning community:

Behavior appropriate for learning community:	Inappropriate learning community behavior:
--Being alert and engaged during class.	--Sleeping or putting your head down.
--Feeling comfortable asking questions.	--Disrespectful behavior toward people or the environment (including littering.)
--Working hard and having fun.	--Whining and/or complaining.
--Having a positive attitude.	--Using electronic gadgets during class.

5.) Asking questions
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.

6.) Collaborative work
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!) **If I observe that someone is not contributing to his/her group and is just copying other people's work, that person will be removed from the group.**

7.) Lab materials, safety, and cleanup
- *Safety:* If you get injured in lab (even a minor injury), let me know immediately.
- *Acid protocol:* We will use dilute hydrochloric acid (HCl) this semester. It won't burn your skin in small quantities, but it will put holes in your clothing. If you use HCl on a sample, wipe it off with a paper towel when you're done.
- *Cleanup:* Before you leave, make sure that your work area is as clean and organized as you found it. Leave samples in the correct order and in the proper tray/drawer.

Lecture Grade

The lecture portion of this class is a 3-unit course. Each person has the potential to earn 1000 points. The final grade will be calculated based on the total number of points that he/she earns:

A (mastery; outstanding work):	895-1000 points (89.5%-100%)
B (above average; very good work):	795-894 points (79.5-89.4%)
C (average; satisfactory work):	695-794 points (69.5-79.4%)
D (not passing; unsatisfactory work):	595-694 points (59.5-69.4%)
F (failure; unacceptable work):	below 595 points (below 59.5%)

I don't grade on a curve. The grade that you earn is the grade that you receive.

Grade breakdown:

In-class work, preps, and problem sets: 40% of final grade	400 points
Celebrations of knowledge: 35% of final grade	350 points
Celebrations #1, #2, and #3: 100 points each	
Finals week (cumulative): 150 points	
Field notebook: 15% of final grade	150 points
Geography quizzes: 7.5% of final grade	75 points
Ocean conversation: 2.5% of final grade	25 points
Total:	1000 points

In-class work, preps, 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 didn't participate, you receive a zero.) In addition, there will be numerous outside-of-class prep exercises and problem sets designed to keep you thinking about oceanography constantly. **In-class work cannot be done early or late for any reason for credit. Problem sets and preps are subject to 10% off the grade for every minute they are late.**

Celebrations of knowledge: There are three celebrations of knowledge during the regular semester. Your lowest grade of celebrations 1, 2, and 3 will be dropped. Celebrations of knowledge last from 8:00-9:25. You will also have a cumulative celebration of knowledge during finals week. Celebrations of knowledge are closed book and closed notes. You may not wear headphones or earpieces during celebrations of knowledge. **Celebrations of knowledge cannot be taken early, late, or in an alternate location (other than DSP&S, if applicable) for ANY reason.**

Field notebook: 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 in its entirety, you receive an F in the class. Your lecture field trip is on Thursday, November 6. Clear your schedule now! You will submit a field notebook as part of the field trip. **The field trip cannot be done early, late, or in an alternate location for any reason.**

Geography quizzes: You will have 5 geography quizzes. Quiz dates are listed on the schedule.

Ocean conversation: More information about the ocean conversation is available in a separate document, but briefly, you will visit me at some point during the semester to discuss an ocean topic.

Optional extra credit:

There will be 40-ish points (equivalent to 4% added to final grade) of extra credit offered:

1.) Bonus questions on celebrations of knowledge	up to 20 points
2.) Environmental awareness activity (see separate document)	20 points

Lab Grade

The lab portion of this class is a 1-unit course. Each person has the potential to earn 1000 points. The final grade will be calculated based on the total number of points that he/she earns:

A (mastery; outstanding work):	895-1000 points (89.5%-100%)
B (above average; very good work):	795-894 points (79.5-89.4%)
C (average; satisfactory work):	695-794 points (69.5-79.4%)
D (not passing; unsatisfactory work):	595-694 points (59.5-69.4%)
F (failure; unacceptable work):	below 595 points (below 59.5%)

I don't grade on a curve. The grade that you earn is the grade that you receive.

Grade breakdown:

Lab work: 65% of final grade	650 points
Lab celebrations of knowledge: 25% of final grade	250 points
Middle of the semester: 100 points	
Finals week (cumulative): 150 points	
Field portfolio: 10% of final grade	100 points
Total:	1000 points

Lab work: You will be completing numerous lab exercises during the semester. Your lowest lab grade will be dropped. **Late labs are subject to 10% off the grade for every minute they are late.**

Lab celebrations of knowledge: There are two celebrations of knowledge for lab: one in the middle of the semester, and one during finals week (cumulative.) Lab celebrations of knowledge last for the entire class meeting. Celebrations of knowledge are closed book and closed notes. You may not wear headphones or earpieces during celebrations of knowledge. **Celebrations of knowledge cannot be taken early, late, or in an alternate location (other than DSP&S, if applicable) for ANY reason.**

Field portfolio: 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 in its entirety, you receive an F in the class. Your lab field trip is to Anacapa Island on Tuesday, November 4. Clear your schedule now! You will submit a field portfolio as part of the field trip. **The field trip cannot be done early, late, or in an alternate location for any reason.**

Optional extra credit:

There will be 40-ish points (equivalent to 4% added to final grade) of extra credit offered:

1.) Bonus questions on celebrations of knowledge	up to 20 points
2.) Environmental awareness activity (see separate document)	20 points

Grade updates for lecture and lab will be provided periodically (~once a month), but it is your responsibility to keep track of your grade.

Tentative schedule in tabular form

Week	Date	Planned topic(s) for today	Planned lab work * = includes math	Recommended reading for today
1	Aug 26	Introductions and syllabus Where did the ocean come from?		
	Aug 28	If you could drill to the center of the Earth, what would you find?	Lab 1: Finding yourself*	
2	Sept 2	**Geography quiz #1** What was Alfred Wegener thinking? What's down there? Marine provinces	Lab 2: Math. Deal with it.*	
	Sept 4	Plate tectonics: how are rocks born?	Lab 3: Ocean floor anatomy*	
3	Sept 9	Plate tectonics: will California break off?	Lab 4: Plate tectonics*	
	Sept 11	**Geography quiz #2** Plate tectonics wrap-up	Lab 5: Bathymetry*	
4	Sept 16	**Celebration of knowledge #1** Catch up if necessary		
	Sept 18	Why is water weird? Salinity, density, polarity, and thermal properties of water	Lab 6: properties of the water column*	
5	Sept 23	Why does the water look green?	Lab 7: The good, the bad, and the algae*	
	Sept 25	Ocean movement: how do waves work?		
6	Sept 29	Ocean movement: how do tides work?	Lab 8: Ocean waves*	
	Oct 2	**Lab celebration of knowledge, 8:00-11:10 AM**		
7	Oct 7	*Day off: rest up and study*		
	Oct 9	**Celebration of knowledge #2** Catch up if necessary	Lab 9: Tides and the animals they can hide*	
8	Oct 14	Why is the water murky? Marine sediments	Lab 10: Common rocks of the marine environment*	
	Oct 16	**Geography quiz #3** Erosional and depositional coastal features Longshore current, hard stabilization, beach composition		
9	Oct 21	The basics of atmospheric and surface ocean circulation	Lab 11: Tectonic history of Southern California*	
	Oct 23	Climate variability and climate change: a matter of survival The greenhouse effect		
10	Oct 28	**Geography quiz #4** The ENSO phenomenon	Lab 12: Anomalous behavior*	
	Oct 30	Slow and steady: climate fluctuations as reflected in Greenland		
11	Nov 4	**Required field trip to Anacapa Island (all day)**		
	Nov 6	**Required field trip to Dana Point (all day)**		
12	Nov 11	*No class meeting: campus closed for Veteran's Day holiday*		
	Nov 13	**Celebration of knowledge #3** Forecasting climate change	Lab 13: Systems@play*	
13	Nov 18	Temperature: a global trendsetter		
	Nov 20	Is that fish safe to eat?	Lab 14: Coral reef ecology and fisheries management*	
14	Nov 25	**Geography quiz #5** Warm with a chance of melting		
	Nov 27	*No class meeting: campus closed for Thanksgiving holiday (gobble gobble)*		
15	Dec 2	An uplifting tale of sea level change		
	Dec 4	A tale of 3 cities		
16	Dec 9	**Final celebration of knowledge, 7:30-10:00 AM**		
	Dec 11	**Final celebration of knowledge, 7:30-10:00 AM**		

Note: This schedule is subject to change (and probably will). Events in bold will NOT change, so please mark these dates on your calendar.