

## OCN 101 - OCEANOGRAPHY Lecture/Lab

FALL 2009

This section of Oceanography lecture is part of an integrated, 4-unit, lecture-lab course (Class #70413). You must attend both the lecture and the lab. The lecture meets Tuesdays & Thursdays, 11 am–12:20 pm and the lab meets Tuesdays, 1 – 3:50 pm.

Instructor: Dr. L. Yon  
Office: NS 110-C  
Office Hours: Mon. & Wed., 1:00 – 3:00 PM;  
Tues. & Thurs., 4:00 – 4:30 PM; or by appointment.  
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### Course Objective:

Oceanography 101 combines the traditional lecture-lab format into one course. Instead of attending a lecture class with 60 other students and then a lab of 25 students, many of whom would not be in your same lecture section, you will have the same classmates for lecture and lab. Because of this structure, there will be a variety of activities and discussion topics that cannot be accommodated in the traditional course format. As a survey course, the content of this course provides a foundation in science by examining the basic geological, chemical, physical, and biological aspects of the world's oceans. This course is an interdisciplinary course and therefore covers a wide variety of subject matter. Because of the diversity of the subject matter, it is not possible to cover all areas with equal emphasis or in a comprehensive manner. Students successfully completing this course will have a basic understanding of the dynamic nature of the world's oceans and an appreciation of the delicate balance that exists between the oceanic system and humans.

### Lecture Textbook and Other supplies:

Required Text: Essentials of Oceanography, Trujillo & Thurman, 9<sup>th</sup> Edition (2008)

The required textbook for this course is an excellent resource but should not be used as a substitute for class attendance. The attached reading and exam schedule outlines the topics to be covered in each class meeting. **It is highly recommended that textbook readings be completed prior to discussing the topic in class.** It is very important for you to keep up on the reading assignments. Textbooks should be brought to each class meeting for easy reference to important figures and diagrams.

### Other Supplies:

You may wish to have on hand a few colored pencils or colored markers for highlighting information in the textbook or for classroom drawings. Also, the study of Oceanography is heavily tied to the geographic distribution of ocean phenomenon. It is critical that you be familiar with the basic distribution of the world's landmasses and ocean basins. I will be referring to specific sites as examples of oceanographic processes and you will be responsible for this information. For the geographically underprepared, you may wish to invest in an inexpensive (though up-to-date) atlas as a resource beyond the textbook.

### Class Attendance and Work Expected:

This is a 4-unit lecture-lab course transferable to a CSU or UC school and therefore the expectations for learning are the same as those at a CSU or UC school. As in most any entry-level course, you will essentially be expected to learn a whole new vocabulary centered on the scientific description of the oceans and its processes. Traditionally, students are expected to spend at least 3 hours studying for each hour of in-class time (more time if science "isn't your subject!").

Lectures will follow the text in general subject matter but material will be presented which is supplemental to required text readings. A significant part of class time may include films and slides related to concepts you will be expected to understand. Exam material will be taken from class lecture material and discussions of assignments.

**Please note that you are responsible for everything covered or assigned in classroom sessions. Notes for sessions missed must be obtained from other students.**

Although I am here to facilitate your learning, it is each student who determines his or her own grade. In order to do well in class, you will need to attend class regularly. Although your attendance will not be directly factored into your grade, your grade will reflect your attendance. I encourage you to ask questions in class, but unnecessary talking will not be tolerated. Such behaviour is disruptive to the class and interferes with students who are in the class trying to learn the material. If you have a question, please don't have a conversation with your neighbor, raise your hand and ask me.

As a courtesy to your fellow students and to me, I expect you to arrive on time for class meetings and to arrive prepared for the class session. Also, I realize that some of you may have very busy schedules, but please, if you are extremely tired, go home and take a nap there, not in class!

Please note that assignments are collected and handouts will be available for you to pick up at the beginning of class. Should circumstances make you late for class, please enter the classroom quietly and quickly take a seat. Please do not interrupt me or the class by walking to the front to collect something or hand something in once I have started class. Also, please do not start putting your books/papers away before I have dismissed class...such behavior is disruptive to the class. Please do not eat and/or drink in class – it not only distracts you but is disruptive to your neighbors as well. Cell phones and pagers are also considered disruptive and must be turned off during class time. **Students disrupting the class will be asked to leave the classroom and may be subject to removal from the course for repeat offenses.**

### **Grades:**

Grades for OCN 101 reflect the traditional distribution of course units: the lecture portion of your work constitutes 75% of your final grade while lab work accounts for 25% of the final grade. Details on the points associated with the lab portion of this course are covered in a later section of this syllabus. For the lecture portion of your grade, grades will be based on student comprehension as demonstrated on six quizzes, a cumulative final exam, and class assignments. The final exam accounts for approximately 20% of your lecture points. The quizzes account for approximately 60% of your lecture points. Your lowest quiz score will be dropped and thus will not adversely affect your grade. Since a low score may represent an absence, there will be no make-ups on the quizzes. In the event of an emergency, provisions for taking a quiz may be made only if I am notified prior to the scheduled quiz. **Please note that you are limited to one "emergency" per semester and that you must make up the quiz before graded quizzes are returned to the class.** All quizzes may contain any combination of the following: multiple choice, matching, true-false, sketches or drawings, definitions, and short essay questions. Scantron forms (#882-ES) are required. Study outlines and review questions for each quiz are posted on the class web site.

Class assignments will be given throughout the duration of the course and will constitute approximately 20% of your lecture points. Some assignments may be completed in class; others may require work outside of the classroom. There will be specific instructions for each assignment. All assignments and due dates are announced in class and posted on the class web site. Assignments are considered due at the beginning of the class on the day specified. In the event of an emergency, work may be handed in late. Please note that I must be notified beforehand and completed work must be submitted before graded assignments are returned to the class. Information associated with these assignments is considered part of the course content and may appear on quizzes.

At the end of the course, all points (from both lecture and lab) will be added together and compared to the total points possible on a percentage basis. Grades will be based on the following scale:

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|----------------|--|
| 90% = A        | ⇒ Student has a superior understanding of the topic.                     |
| 80% = B        | ⇒ Student has an accurate grasp of the topic.                            |
| 65% = C        | ⇒ Student has an acceptable, but commonplace understanding of the topic. |
| 55 % = D       | ⇒ Student has only a limited understanding of the topic.                 |
| Below 55 % = F | ⇒ Student has little or no grasp of the topic.                           |

Extra credit exercises/points may be assigned at my discretion and is dependent upon overall class performance. Extra credit points may not be made up – you must be present in class to participate and to receive the points.

### Academic Honesty:

Please note that committing any type of academic fraud is a very serious offense and that cheating and plagiarism are not tolerated in any of my classes. This class will be conducted in accordance with the Palomar College "Student Code of Conduct" and the basic standards of academic honesty. If I have reason to believe that plagiarism or cheating has occurred, you will receive a zero grade for the work in question. You will also be reported to the Director of Student Affairs. For your information, please note the following:

- ★ **Plagiarism** is using someone else's ideas or work without acknowledging them as a reference.
- ★ **Cheating** involves the copying someone else's work on a quiz, test, or homework question. It also includes intentionally or unintentionally giving or receiving help during an exam, using unauthorized information sources during an exam, or removal of an exam from the classroom.

### Students with Disabilities

If you have a disability that requires some accommodation, please speak with me and provide official documentation within the first two weeks of class. Reasonable accommodation will be made.

### Add-Withdrawal Information:

Only students who are officially registered may participate in this class. If you are given a permission code to add this class, you must officially add the class prior to the next class meeting. If you have difficulty using eServices to add, please notify me immediately. **The deadline for adding any class or using a permission code to add is Sept. 6, 2009. Under no circumstance will students be allowed to add this class after the add deadline.** The following table summarizes the Add/Drop time schedule:

Through Sept. 23	Sept. 24 through Oct. 17	Oct. 17 through the end of the semester
Visit Student eServices to drop classes. The instructor's permission is not required. No notation or grade will appear on your record. <b>Last day to qualify for a refund is Sept. 6, 2009.</b>	Visit Student eServices to drop classes. An instructor's permission is not required. A "W" will appear on your record.	No drops are allowed. An evaluative grade (A, B, C, D, F) must be given. Note: Incompletes are given only in documented cases of extenuating circumstances such as an accident or medical concern.

\* Please note that it is the student's responsibility to initiate the procedure of withdrawing from a course by filing the proper information with administration; I can not do this for you. The instructor's signature is not required and you may withdraw through the 8<sup>th</sup> week of the semester. Although you officially do not need to inform me of your withdrawal, I would appreciate the chance to talk to you before you do so.

**Please remember that I am here to help you learn the material!  
Please do not be afraid to ask questions!**

## TENTATIVE READING AND EXAM SCHEDULE - OCN 101 – Fall 2009

Section 70413, Tues. & Thurs., 11:00 am – 12:20 pm, Room NS-131

<u>Week #</u>	<u>Week of:</u>	<u>Lecture Topic</u>	<u>Relevant Chapters</u>
1	Aug. 25	Course Overview Introduction to Planet “Earth”	Introduction Chapter 1
2	Sept. 1	Introduction to Plate Tectonics	Chapter 2
3	Sept. 8	Plate Dynamics	Chapter 2
4	Sept. 15	<b><i>Quiz 1 - Chapters 1 &amp; 2(selected portions)</i></b> Plate Tectonics and Marine Provinces	Chapters 2 & 3
5	Sept. 22	Marine Provinces (cont.) Marine Sediments	Chapter 3 Chapter 4
6	Sept. 29	<b><i>Quiz 2 – Chapters 2, 3, &amp; 4</i></b> Chemical/Physical Properties of Sea Water	Chapter 5
7	Oct. 6	Air-Sea Interaction	Chapter 6
8	Oct. 13	<b><i>Quiz 3 - Chapters 5 &amp; 6</i></b> Surface Ocean Circulation	Chapter 7
9	Oct. 20	Deep Ocean Circulation	Chapter 7
10	Oct. 27	<b><i>Quiz 4 - Chapter 7</i></b> Wave Dynamics and Wind Waves	Chapter 8
11	Nov. 3	Tides Tsunamis	Chapter 9 Chapter 8
12	Nov. 10	<b><i>Quiz 5 - Chapters 8 &amp; 9</i></b> Coastal Oceanography	Chapter 10
13	Nov. 17	Tuesday, Ocean Institute Boat Trip Thursday, Coastal Oceanography	See Lab Manual, p. 225 Chapter 11
14	Nov. 24	Tuesday, The Marine Habitat Thursday, No Class, Happy Thanksgiving!	Chapter 12
15	Dec. 1	Biological Productivity <b><i>Quiz 6 - Selected portions of Chapters 10, 11, 12, &amp; 13</i></b>	Chapter 13
16	Dec. 8	Pelagic and Benthic Marine Communities Special Summary Topic - El Niño/La Niña	Chapters 14 & 15 Hand-outs

**CUMULATIVE FINAL EXAM:** Tuesday, Dec. 15<sup>th</sup>, 10-11:50 am

## **Oceanography Lab Manual and Other Supplies:**

Required Lab Manual:

*Laboratory and Field Exercises in Oceanography*, 6<sup>th</sup> Edition, Deen, Trujillo, and Yon (2009)

Please note that, as a lab manual, pages in the book will be written on and torn out. As a result, there are no used copies of the lab manual available (do not buy a used copy from a former student of the class). The lab manual must be brought to all class meetings including field trips (lack of a lab manual will result in points being deducted from your grade).

In the introductory reading for each lab, there is a list of required supplies needed to complete that week's lab assignment. The following is a list of required supplies that you will need during the semester:

- Several #2 pencils with erasers (Lab exercises are to be completed in pencil.)
- Several colored pencils or markers (fine-tipped)
- Ruler (metric system is best)
- Calculator (basic algebra functions)
- Clipboard (optional, but handy on field trips)
- Pencil sharpener (optional, but handy on field trips)

## **Class Attendance and Etiquette:**

**Attendance is an absolute requirement for the successful completion of the lab.** Late reports or “make-ups” will not be accepted. You will be allowed to attend another lab section once per semester only with instructor approval (not all labs cover the same material in a given week). Even if you miss a lab, you are responsible for any missed work. In addition, it is your responsibility to get any notes or assignments from another student for any missed class (see me only if you need clarification of the material). If you miss a lab session before a field trip, consult this schedule and see the lab manual for directions and meeting time. If you are unsure, please contact me!

As a courtesy to your fellow students and to me, I expect you to arrive on time for class meetings. Should circumstances make you late for class, please enter the classroom quietly and quickly take a seat. Please note that points are deducted when tardiness occurs on a regular basis. Also, note that points are deducted for disruptive behavior. Cell phones and pagers are considered disruptive and must be turned off during class time.

## **Lab Procedures:**

Before coming to class, you must read the background material for the designated lab in the lab manual so that you are able to complete the lab within the 3-hour lab period. As part of your preparation, be sure you make a note of the supplies you will need to bring to the lab session.

At the beginning of the lab session, there will be a 10-point quiz covering the material from a previous in-class lab session and/or a field trip report due (also worth 10 points). Please note that if you arrive late for class, you will have less time to complete the quiz! Arriving late also means that you may miss important announcements (especially regarding field trips) and introductory comments regarding the lab exercise for the day. I usually take some time to explain the work that you will complete in the lab and include some tips and helpful hints to assist you in successfully completing the lab exercise. Your attention during this time is expected...you should not begin work on the lab exercise until instructed to do so. Points may be deducted from the lab for not following directions.

All in-class lab exercises are completed in lab groups of two persons. Field trips will have specific group instructions associated with each trip; please arrive on time to receive those instructions. All exercises must be done neatly and legibly in pencil. Basic algebra knowledge is essential: be sure to show your work by setting up the problem when any mathematical computation is required. You may find that your lecture notes and lecture book are valuable resources in the lab. Please note that you shouldn't leave the lab with any wrong answers to the questions in the lab exercise. However, I am not here to simply give out correct answers. My job is to help you figure out the answer for yourself (that's part of the reason why you work with a lab partner!). There might not always be a single “right” answer to a question. Oftentimes, it is how one views the question and interprets the data that's important in arriving at an answer. Don't be afraid to do interpretation but remember that you'll need to justify your answer.

All the lab exercises are lengthy but if you have prepared well and have come to work hard in lab, you will be able to finish the lab within the 3-hour lab period. There will not be an official break during the lab, but you can take a short break once the introductory portion of the lab session has been completed. Please note that food is not allowed in the classroom. For some labs, however, you may have closed drink containers. Also, please note that if you socialize with your lab partner or neighbors too much during the lab time, you won't be able to finish the lab in the 3-hour lab period and points will be deducted.

When your group has completed the lab exercise in class, you must check out with me before leaving. You will be assigned 10 points for the work done in lab if it is satisfactory. Points will be deducted if you are taking too long to complete the lab due to not following directions, goofing off in lab (too much socializing), or because of your lack of preparation. If you finish early and your work has been checked out, you are free to leave.

### **Field Trip Procedures:**

For the field trips, we will meet in the field at a designated time instead of meeting in class. Some flexibility in meeting times is essential so that we can match good low tides. The field trips start and end in the field. Consult the lab manual for locations. Each field trip will last for approximately 2 hours in the field.

The field trips are opportunities to apply some of your knowledge and to observe oceanographic phenomena in action. Come prepared to work (not people watch or surf), take notes, and to learn (that's the whole idea!). Although no students have been seriously injured on any field trip in the past, there is always the potential of being injured while in the field. Please dress appropriately, act responsibly, and obey the instructor at all times. Please note that failure to comply with class or school policies can result from your removal from the class.

If the weather looks threatening on a day that is scheduled for a field trip, you may want to check with me before going out to the field trip site. Generally, the weather has to be really bad for the field trip to be canceled (light rain is not a reason to cancel a trip!). On the day of a field trip, I will make a determination at least 2 hours before the lab time and leave a message on my voice mail. If a field trip is canceled, we will meet in the classroom and do an alternate lab instead. Please note that for this reason, slight adjustments may be made to the lab topic schedule.

Each field trip will have specific instructions for the field trip report or worksheet. If a hand-out is given with fill-in blanks, the answers should be neatly written or typed in the space given. All answers should be thoughtful, concise, and written in complete sentences. If you are directed to do an essay-style report, the content should be well-organized into paragraphs using complete and concise sentences. Words should be accurately spelled and proper punctuation should be used. The report must be typed; 12-point type, double spacing, and 1-inch margins. Reports are not group projects; please complete your own work. Reports are due at the beginning of class; they should be ready to hand in as you walk into class. If you are absent, please make arrangements for the report to be delivered to me before the start of class.

### **Grading (Tuesday Lab – Section 70413 – OCN 101 Lab):**

The completion of each lab exercise or attendance at field trips is worth a maximum of 10 points, except for the Marine Institute Advanced Floating Lab which is worth 30 points. Reports, worksheets, and quizzes are worth a maximum of 10 points each. The lowest of your lab scores (up to 20 points) will be dropped in computing final grades. This may represent any missed lab and quiz/report except for the Marine Institute Advanced Floating Lab.

Points for this lab course will be earned as follows:

15 Lab sessions @ 10 points each	= 150 points
2 Field trip reports @ 10 points each	= 20
4 Field trip worksheets @ 10 points each	= 40
6 Quizzes @ 10 points each	= 60
Ocean Institute Advanced Floating Lab	= <u>30</u>
	SUBTOTAL 300
Missed Lab (possible 20 points)	- <u>20</u>
TOTAL POSSIBLE (subject to change)	= 280 points

The lab session points include attendance at class meetings, field trips, and as well as any take home work. Points may be deducted for any of the following reasons: Excessive tardiness, verbatim copying of lab answers, failure to bring the required lab equipment, failure to complete the pre-lab reading, not following lab procedures, lab work done in pen, failure to show math work, inappropriate behavior or malicious conduct in the lab or on field trips.

Your points earned in lab counts for 25% of your overall course (OCN 101) grade. Please don't hesitate to contact me if you have any questions or concerns about the course or your performance in the course.

### Oceanography 101 Lab Topic Schedule – Tuesdays, 1:00 – 3:50 PM

Semester Week Number	Calendar Date	Topic	Lab Manual Page Number
1	Aug. 25	Introduction to Marine Charts	3
2	Sept. 1	Imaging the Sea Floor	13
3	Sept. 8	Plate Tectonics and Sea Floor Features	27
4	Sept. 15	<i>Field Trip: Batiquitos Lagoon, Carlsbad<sup>1</sup></i>	187
5	Sept. 22	Marine Sediments	43
6	Sept. 29	Mountains to Monsoons	57
7	Oct. 6	*Properties of Sea Water	65
8	Oct. 13	Global Winds and Ocean Currents	79
9	Oct. 20	Investigating Ocean Waves	109
10	Oct. 27	Tides and Tidal Charts	125
11	Nov. 3	<i>Field Trip: Coastal Erosion, Del Mar<sup>1</sup></i>	175
12	Nov. 10	Coastal Navigation	157
13	Nov. 17	<i>*Field Trip: The Ocean Institute, Advanced Floating Lab, Dana Point Harbor<sup>2</sup></i> Boat departs at 12:30 PM (returns at 5 PM)	225
14	Nov. 24	<i>Field Trip: Birch Aquarium at Scripps, La Jolla<sup>2</sup></i>	233
15	Dec. 1	<i>Field Trip: Tide Pools, Encinitas<sup>2</sup></i>	221
16	Dec. 8	<i>*Field Trip: Marine Fish Hatchery, Carlsbad<sup>2</sup></i>	209
<sup>1</sup> These field trips require a report due the following week. Instructions for reports are given during the field trip. Please note, if you do not attend a field trip, you cannot write a report! <sup>2</sup> These field trips require a worksheet to be submitted at the end of the field trip. *Please note that the Properties of Sea Water lab, the Ocean Institute Floating Lab, and the Marine Fish Hatchery field trip have special dress code requirements: close-toed and flat-heeled shoes are required to be worn for health and safety reasons. Any student who attends without proper footwear will not be allowed to participate in the lab activity.			

Please note that there are these approximate costs involved for the field trips:

- Marine Institute Advanced Floating Lab: \$40.<sup>00</sup>
- Birch Aquarium at Scripps: \$ 5.<sup>00</sup>
- Your own transportation (carpooling recommended).

The cost for the Marine Institute Advanced Floating Lab is payable at the Palomar College Cashier's Office (A-2). I will announce the beginning of sign-ups (usually the 9<sup>th</sup> week of classes) and give specific directions for sign-ups at that time.

Welcome aboard and smooth sailing!

