GENERAL INFORMATION

ALOHA!
Like In and Out, these course guidelines are what this course is all about. Make sure you read these guidelines very carefully. There might be more extra credit lurking within these pages. But hurry...extra credit ends at the end of Day Three.

MY TEACHING PHILOSOPHY: 1) Put students first; 2) Always be prepared; 3) Never give up, never surrender. I do my best to follow these principles every day.

WHAT I EXPECT FROM YOU: 1) A desire to learn because you understand the importance of education to your family, your future, and your happiness; 2) The motivation to learn how to learn because knowing how to learn secures your place in the world as a skilled and thoughtful and independent human being (not ruled by the opinions of others); 3) Respect towards me and your classmates because everyone is doing the best they can given their level of awareness, because not everyone has had the same opportunities in education and life, and because a world in which people respect each other is a kinder, safer, and more beautiful place to live and love. I hope you will do your best to follow these principles, learn from them, and make them a part of your life.

COURSE SYNOPSIS: Oceanography encompasses physics, chemistry, and geology, as well as biology, but the emphasis is on the physics of the ocean. This is primarily a physical science course. You are now a physics student. Post it on SnapChat.

COURSE DIFFICULTY: Many of my students find the material in this course very difficult. But, by taking this course and successfully passing it, my students are prepared for anything they take at a four-year college and beyond. The skills and ways of understanding learned in this course can be applied to your career and your personal life. Adopting successful habits of mind and learning how to learn anything are key outcomes of my approach to teaching. And challenging students to be all that they can be is my sworn duty. No pain, no gain.
**BASIC SKILLS**: If you are enrolled in basic skills reading, math, or English, please contact me before proceeding with this course. Only about 15% of basic skills students pass this class because they are not prepared to study at a college level. If you're willing to work extra hard, then you should be okay. But an online class is brutal for any student, much less a student who isn't all that into college.

**TECHNOLOGY**: I expect that everyone enrolled in this course knows how to use a computer and the Internet. I also expect that you know how to use a word-processing program, and how to save or export a document as a .doc, .docx, .rtf, or .pdf. Even Pages for the Macs can export Word files. You'll also need to come up to speed with Blackboard and Turnitin, if you aren't already familiar with them. If you don't know how, please be willing to learn. You'll find lots of help on the internet, especially YouTube. Heck, you can even email a classmate to ask for help and make a new friend!

**ACADEMIC HONESTY/COLLEGE POLICIES**: All college, district, state and federal policies, guidelines and regulations apply to this course. The Fullerton College Catalog and the Class Schedule contain a number of important policies and guidelines. Check them out. You may purchase copies of these publications at the campus bookstore, or you may read them online at the Fullerton College website, [http://www.fullcoll.edu/catalog](http://www.fullcoll.edu/catalog). Students are urged to review the FC Catalog policy on Academic Honesty. If you are caught cheating, you will receive a zero for that assignment or exam. Repeated offenses have stronger penalties. If you believe that cheating is wrong, email me with the statement, "Cheating only hurts me," and I will give you one point extra credit.

**TURNITIN**: We use turnitin.com because it helps you to become a better writer and a better thinker. Revise your work if you see a high similarity percentage. Turnitin is meant to help you, not punish you.

**NO COPYING OR QUOTING**: I do not allow students to copy or quote other works in this course. Use your own words always. This policy applies to everything you submit, including participation assignments, homework, exams, extra credit, and anything else you submit for credit. Copying or paraphrasing a single sentence from another student, Wikipedia, any other source, and even yourself will result in a zero for the entire assignment or exam. Using images, figures, or other forms of multimedia that are not your own is also prohibited.

**ATTENDANCE REQUIREMENTS**: All students must attend the first class or they will be dropped as a no-show. If you plan to miss the first day, please contact me before the first class via e-mail sent to exploreworldocean@gmail.com. I take attendance every class. Students who miss more than three classes (that is, if you miss four classes, consecutively or non-consecutively), you will be dropped for non-participation. **DROP POLICY**: It is the responsibility of the student to drop the course regardless of attendance requirements. Do not rely on your professor to drop you for any reason. Failure to drop a course may result in an failing grade (F) for the semester.

**LATE WORK**: I don't accept late work but I do provide limited opportunities to to earn points with alternative assignments. Having worked in the business world for several years, I can assure you that showing up on time and submitting work on time is expected. Tardy-ass people and slackers get fired. Timeliness is next to godliness.
STUDY STUDY STUDY: Students may expect to spend 6-9 HOURS PER WEEK STUDYING for this course. Students are urged to review the suggestions provided in the FC Course Catalog concerning workload and class load. Consider reducing your work hours, spending less time with friends and family, smoking less pot, and other time-management strategies to find time to study. You can find time if you use time wisely.

AMERICANS WITH DISABILITIES ACT (ADA) STATEMENT: Fullerton College is committed to providing educational accommodations for students with disabilities upon the timely request by the student to the instructor. Verification of the disability must also be provided. The Disability Support Services office functions as a resource for students and faculty in the determination and provision of educational accommodations.

FULLERTON COLLEGE CATALOG AND CLASS SCHEDULE: The Fullerton College Catalog and the Class Schedule contain a number of important policies and some great tips on studying. Please browse or read these publications for the parts that are important to you. You may purchase copies of these publications at the campus bookstore, or you may read them online at the Fullerton College website. Current Schedule: http://www.fullcoll.edu/class-schedule. College Catalog: http://www.fullcoll.edu/catalog

STANDARDS OF STUDENT CONDUCT AND DISCIPLINE POLICY: As cited in BP5500, “A student who violates the standards of student conduct shall be subject to disciplinary action including, but not limited to, the removal, suspension or expulsion of the student.” The standards of student conduct and disciplinary action for violation of Board Policy 5500 were approved by the NOCCCD Board on January 28, 2003, and were drawn in compliance with Sections 66300, 76030, 76033, 76034, 76036 of the State Education Code. Students are expected to respect and obey civil and criminal law and shall be subject to the legal penalties for violation of the city, county, state, and national law(s). Student conduct must conform to Board Policy and college regulations and procedures.

As noted above, students have an obligation to familiarize themselves with the College’s policies, rules and regulations and to conduct themselves in a reasonable, respectful manner, which is conducive toward attaining their educational goal. Upon registration, each student should obtain a copy of the College Policies and Regulations: Standards of Student Conduct and Discipline Policy. Contained therein are the policies approved by the Board of Trustees governing student behavior and the applicable penalties for violations of these policies. Copies are available in the Student Affairs Office, the Office of Equity and Diversity, all division offices, and the Student Services office.

EMERGENCY RESPONSE STATEMENT: An earthquake or extreme weather event may happen at any moment. Take note of the safety features in and around where you complete your work. Note the posted evacuation routes. During strong earthquakes, it is recommended to duck beneath a desk, cover your head with your hands, and hold on to your ass until the quaking stops. Running out of a building during an earthquake can be deadly. Didn't you hear "The Rock" in San Andreas this summer? If you know what to do during an earthquake, email me with the statement, "During an earthquake, duck, cover and hold," and I'll give you one point extra credit.
UNDECIDED ON A MAJOR? Why not pursue a career in Oceanography, Meteorology, Geology, or Earth Science? You may be amazed at the opportunities for students in this field. If you are interested in business, technology, computers, working with machinery, public relations, marketing, law, physical fitness, medicine, health and just about any other subject, we need you! All that's required is a passion for the ocean. Just ask me.

STUDENT LEARNING OUTCOMES
Upon successful completion of this course, students will be able to:

1. define terms and explain concepts of geological, physical, chemical, and biological oceanography
2. interpret and apply quantitative information, including maps, graphs, and tables of data
3. use the terms and concepts of oceanography to explain human impacts on the world ocean.

REQUIRED TEXTBOOK
The required textbook for this course is *Exploring the World Ocean* by W. Sean Chamberlin (Biological Oceanographer, Fullerton College) and Tommy Dickey (Physical Oceanographer, UC Santa Barbara), published by McGraw-Hill Higher Education, 2008. Purchase ONE of the three covers shown below. Those are the only versions of the book that are the correct version of the book.

The first edition is out of print but you may still find it with various online vendors. Alternatively, I've created a custom edition of the same book--same content, same chapters, same page numbers--that you may purchase in the book store. Note that the custom edition lacks a fold-out map that I sometimes refer to and it lacks an important figure in the inside front cover. However, I'll provide these on our course website.

The textbook is essential for the course. Everything we do in this course centers around this textbook. Many of the assignments and materials you will find in this text are brand new, never before featured in a textbook. The textbook is available through the Fullerton College bookstore, [http://bookstore.fullcoll.edu](http://bookstore.fullcoll.edu).

The cover of the out-of-print book looks like the following:
The custom book cover looks like one of the following:

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**COURSE WEBSITES**
The following websites serve our course. Try to become familiar with them in the first week of classes, or you may feel lost. Read very carefully the directions to log in to Blackboard and Turnitin. This isn't Instagram of Facebook. It's real life.

**MYGATEWAY**: This is a portal to Blackboard but I don't use it otherwise. At all. For anything.

**BLACKBOARD**: All sections of this course will use Blackboard for announcements, quizzes, exams, lecture notes, grades, assignments, study guides, and other materials and assessments related to the course. All students are expected to log in at least 2-3 times per week to adequately prepare and study for materials covered in class.

You may gain access to Blackboard through the link on MyGateway or at [http://online.fullcoll.edu](http://online.fullcoll.edu). PLEASE NOTE that the District performs maintenance on Blackboard every Friday morning from 6-10a. You will not be able to access the website at that time.

Blackboard can be a pain in the ass, but if you know how to get around in it (which, if you READ the instructions and use the help files, you'll be able to figure out), you can minimize your problems. Use of TABLETS with Blackboard is NOT RECOMMENDED. Check out each one of the links below.

**Student log in options**: [http://online.fullcoll.edu/Bkbd/Resources/stdntlogin.html](http://online.fullcoll.edu/Bkbd/Resources/stdntlogin.html)

**Student FAQ's** (includes tech info and what to be aware of when taking tests): [http://online.fullcoll.edu/Bkbd/faqs.html](http://online.fullcoll.edu/Bkbd/faqs.html)
TURNITIN.COM: This course also used turnitin.com for submission of essays (see description of essay assignments below). To access turnitin.com, go to http://turnitin.com. If you do not already have an account, you will need to create one. Go to the Create Account link next to the log in button at the top right of the page. If you already have an account, log in and enroll in your class section, according to the table below. Note that turnitin.com has excellent resources for getting started and for understanding plagiarism. See the Training link at the top of the page, and select Student Training.

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TEXTBOOK WEBSITE: The textbook site, http://www.mhhe.com/chamberlin1e, features practice quizzes, Flashcards, and other learning tools that will help you in this course.

YOUTUBE: All of my lectures and more can be found on my YouTube Channel. Not all of them apply to the coverage in this course. I will try to highlight especially important lectures in the Course Content Menu above. You may find my video lectures at http://www.youtube.com/scxq28.

ANYTHING ELSE? If you are looking for anything else and can't find it, by all means e-mail me!

SEND ALL E-MAIL TO EXPLOREWORLD OCEAN @ GMAIL.COM
Please send ALL e-mail correspondence to exploreworldocean@gmail.com. Include a SUBJECT, your SECTION, and your FULL NAME. If you don't hear back from me in 48 hours, send your email again.

Please don't send me e-mail through MyGateway. I won't get it until next summer.

Please avoid sending email to my fullcoll address. There are spies at this address.

Please be courteous! I promise to treat you with the manners and respect that you deserve if you promise to treat me the same. I am more than happy to listen to reasonable and rational statements. If I have made an error, I am more than happy to correct it.

Kindness applies to your classmates as well. A colleague with cancer writes at the end of e-mails..."Be kinder than necessary, for everyone you know is fighting a battle of some kind!"
STUDY-WITH-PROF-SEAN HOURS IN THE SEA CAVE
I welcome visits from students during my designated study hours in the Sea Cave, Room 1250-06. Campus study hours are Mondays and Wednesdays, 10:05-11:35a, and 12:45-2:45p.

It's always a good idea to let me know via e-mail that you are coming. And, of course, for the fastest response to questions, e-mail me, exploreworldocean@gmail.com.

SUPPLEMENTAL INSTRUCTION BOOSTS YOUR LEARNING POWER
This course has been selected to receive support from the Supplemental Instruction (SI) program at Fullerton College. SI provides students with opportunities to get additional instruction outside of class from peers who have taken the course previously. Unlike tutoring, SI focuses on specific topics chosen ahead of time because they tend to be the most challenging for students. SI sessions also help students improve their study skills.

SI is traditionally set up for on-campus instruction but I am working on SI-through-Chat sessions for my online students. Check Announcements for details on SI Chat Room sessions. You are more than welcome to attend the campus SI sessions. Two SI-leaders will assist you this semester. The SI sessions begin in Week Two. SI times and topics will be posted in Blackboard.

Research shows that students who regularly attend SI sessions kick ass in their courses, make much better grades, and have better success in romance (well, maybe that last statement isn't true). If you are able to attend, GO! It's a faster way to learn. If you are unable to attend because of time conflicts, let me know and I'll figure out a way for you to get the SI you need. Really, studying in a group is a lot more fun than going it alone. We learn better together.

PEER TUTORS HELP YOU SOLVE PROBLEMS AND APPLY YOUR KNOWLEDGE
Many of you will struggle with the very basic math in this class. Trust. It's basic (adding, subtracting, multiplying, and dividing). The pressure equation, \( P = \frac{z}{10} + 1 \) just throws students into a tizzy. Relax. If you are willing to learn (see What I Expect From You Above), you will be calculating pressure in your sleep.

One way to show that you are motivated and willing to learn is to meet with one of the course tutors. Check Blackboard for details on where they may be found and when they may be found there.

YOUR MIND IS BEAUTIFUL: FILL IT WITH KNOWLEDGE AND WATCH IT GROW
The goal of college is to prepare yourself for a successful life and a career beyond college. In taking this course, you are being trained to master an unfamiliar knowledge set, to apply what you learn in new situations, to think about competing possibilities, and to articulate your rationale for choosing a particular way of thinking. You'll be a better person, have more satisfying relationships, and look smarter, too, all from working hard to succeed in this class.

A number of tools will be provided for you to learn the materials, obtain the knowledge, and develop the understandings to meet these outcomes. Not all of the available tools earn you points but you can bet that if you go beyond the required work, you are
going to be more successful in your point-earning assignments. Some of these tools will help form your knowledge and understanding (formative assessments). Other tools will assess your knowledge and understanding (summative assessments).

**Course content and required reading** can be found in the Course Syllabus that follows this section. You are responsible for assigned materials, including textbook readings, YouTube lectures, and any other assigned materials.

**QUIZZES HELP YOU LEARN AND PREPARE YOU FOR EXAMS**
Quizzes keep your brain sharp. They provide immediate feedback on what you have learned. They help point out gaps in your knowledge and shortcomings in your study techniques. In this course, quizzes are aimed at helping you master the vocabulary of oceanography, and develop a better understanding of the concepts. A mastery of terms provides the foundation for everything else that we do in the course, and an understanding of the concepts builds a framework for understanding the world ocean and how it works as a system.

A total of 15 quizzes will be given in class once a week during the semester. Two quizzes will be posted online in Blackboard. Most quizzes will be multiple choice but some may be matching, fill in the blank, or even crossword puzzles. You'll be allowed to work with one other person on all quizzes. Partners will be permanent starting Week Two, but you may apply to change partners in Week 9, if you wish. You and your partner will have 15 minutes to complete each quiz.

Quizzes start 5 minutes after the class start time and end 15 minutes later. To prevent disruption to students who arrive on time, latecomers will not be permitted to enter the classroom until the quiz has ended. You must attend class and be on time to earn points on quizzes. There are no makeups of quizzes.

Each quiz is worth 15 points (225/1000 pts) or 22.5% of your grade.

**CONCEPT ASSIGNMENTS KEEP YOU ON TRACK AND HELP YOU STUDY**
Assignments help you master terms and promote deeper understanding of important ideas, what teachers call concepts. Assignments connect what you know and what you have experienced in your life with the things you are learning. They also help you learn how to work with a team (an important business skill) and they expose you to different points of view (an important life skill). Assignments also keep you on track in the course, and help to prepare you for exams by giving you a different method of studying.

Most of our assignments throughout the semester will be related to the Algae Project, a science experiment that we will carry out in class. The project involves making seawater in an 8-ounce bottle, adding appropriate fertilizers, adding microscopic algae, and monitoring their growth under different light conditions. See details below in the Algae Project section and in the course syllabus at the end of this document.

You are required to submit 15 assignments during the semester. Topics for each Assignment are listed in the Course Syllabus below. Assignments will be downloaded from Blackboard, completed in a word processing program, and uploaded to the Assignment tool in Blackboard. The first eight assignments are due prior to the midterm, at 11:55pm WEDNESDAY, October 21,
2015. The last seven are due prior to the final at 11:55pm WEDNESDAY, December 9, 2015. Check the Course Syllabus below for due dates. There are no makeup of assignments.

Each assignment that you submit is worth 15 points for a total of 225 points, or 22.5% of your final grade.

**ESSAY QUESTIONS DEVELOP YOUR UNDERSTANDING**

Most students hate writing essays, and most instructors hate grading them. But in the world of learning, essays are king. They are the clearest demonstration of whether you know and understand a topic, and whether you can apply what you know and understand. Because writing remains a vitally important activity in academic, professional, and personal affairs, and because I am a writer and love writing, I believe it's very important to help students become better writers. I'm committed to making you a better writer as long as you're willing to try to become one.

Essay questions essentially ask you to explain a big idea that you learned from your textbook or lecture note reading, something that you learned from watching a video, something that you discovered on the Internet, and something relevant to the world we live in. Topics for each essay question are listed in the Course Syllabus below.

All work will be submitted to turnitin.com where it will be checked for grammar and spelling, and where it will be checked for originality. If you copy anything from the works of others, it will show up in turnitin as being copied, and you will have to rewrite it. If you have errors of English or spelling, it will show up as errors in turnitin and you will have to rewrite it. Turnitin is meant as a tool to improve your writing skills (not to punish you for bad behavior, as some students think).

You will write and submit SIX ESSAY QUESTIONS during the semester. There are two parts to your submission of each essay. In the first part, you will submit the DRAFT VERSION of your work to turnitin.com by the due date listed in the Course Syllabus. I will quickly review your essay and activate the turnitin features that provide feedback on originality, grammar, and other writing rules. You will then revise your essay, and re-submit the FINAL VERSION as the second part of the assignment. Note that if you fail to submit the Draft Version, you will receive no feedback on your essay from either me or turnitin. Submitting something as the Draft Version is better than submitting nothing at all.

Due dates for each essay appear below in the Course Syllabus. NO LATE ESSAYS ARE ACCEPTED. There will be no exceptions to the due dates for any reason so turn your work in early if you expect you might have a conflict or an emergency.

Essays must be NO SHORTER THAN 400 words. They may be longer than 400 words, but make sure you answer the question. Essays MUST directly address the question, not him and haw and put down anything that seems right in an attempt to BS me into thinking you know what you are talking about. Leave out extraneous information that's not relevant to the question. Just answer the question in enough detail to demonstrate that you understand the ideas.
Your essays should be framed as an expository essay. (See https://owl.english.purdue.edu/owl/resource/685/02/.) Your essays must include at least FIVE paragraphs and conform to the following format:

2. A second paragraph with statements that support your first line of evidence.
3. A third paragraph with statements that support your second line of evidence.
4. A concluding paragraph that summarizes your main points.

Tell me what you are going to tell me, tell me, and then tell me what you told me.

You will receive 10 points for submitting the Draft Version of your essay (Part One) unless any parts of it are copied, in which case you will receive a zero. Check the originality of your draft, and revise and resubmit, if necesary.

You will receive up to 15 points for the Final Version of your essay (Part Two) based on the following criteria:

- **15 points**: addresses all parts of the question; conforms to the expository essay structure; and follows the rule of proper English grammar, especially spelling, punctuation, word choice, subject-verb agreement, sentence construction, and paragraph construction.
- **10 points**: does not address all parts of the question; has 3-5 errors in English grammar.
- **5 points**: does not address most parts of the question; has more than 5 errors in English grammar; lacking in effort.
- **0 points**: doesn't meet the minimum word requirement, or has any sentences or parts of sentences that are copied directly from external sources.

In total, each essay (Draft Version + Final Version) is worth 25 points. Essays count for 15% (150/1000) of your total grade. Essays must be submitted to Turnitin.com as described above. AGAIN, NO LATE ESSAYS ARE ACCEPTED.

**THE ALGAE PROJECT**
Understanding the nature of science is fundamental to appreciating and understanding the nature of scientific knowledge on which the world and your survival depends. And there's no better way to understand the nature of science then to do science.

Starting in Week Two of the semester, you will join a team of 2-3 other student "researchers" to carry out growth experiments on a tiny little, single-celled, photosynthetic microorganism called Tetra, a species of marine microalgae. (Yes, not only are you now a physicist, but you are now also a research scientist; don't forget to change your Facebook status and update your story on SnapChat.) You will learn how to prepare a beautiful saltwater home for your Tetra, nourish your Tetra with fertilizers, provide light, and follow the growth of Tetra using photography and oceanographic instrumentation. These experiments will help you develop scientific skills, help you to think like a scientist, and expose you to science as it is carried out like scientists. Most importantly, these experiments will help you master the vocabulary of oceanography, solidify your conceptual understanding of the course materials, and develop your ability to think and apply knowledge to new situations, which is the main reason we send
people to college. And, if you are anything like the past students who have conducted these experiments, you'll have a blast. The project really makes our classtime rock.

More details on the project will be provided throughout the semester. Each team will present the results of their project experiments as a slide presentation on Wednesday, November 30. After that date, project presentations will not be accepted.

Your project presentation is worth 50 points, or 5% (50/1000) of your final grade.

**ALTERNATIVE ASSIGNMENTS**

Learning is not something that teachers do for students. Learning happens because a student takes an interest in knowing and understanding a topic, because a student seeks out answers and skills to master something in which they are interested, because a student takes responsibility for their goals, their life, and their happiness. Learning doesn't happen to you because a teacher gives you an assignment; it happens because you have a desire to learn. A wise person said teaching isn't about what the teacher knows but it's about what the teacher enables others to know. Learning isn't about what's required; it's about what's desired.

In that spirit, I have created alternative assignments that enable students to take a different path, that permit flexibility in how students demonstrate their learning, and that, hopefully, inspire students to become more successful learners. Alternative assignments may be used to replace one or more of the items in two categories: 1) assignments and quizzes; and 2) essays and the presentation. Note that alternative activities do not earn you extra credit. Rather, they replace assignments you may have missed, did poorly on, or just didn't want to complete! Alternative assignments include the following:

**Alternative One Assignments (replace assignments and quizzes)**

1. Reading apprenticeship directed learning activities: 4 @ 15 points each
2. Topics worksheets: 8 @ 15 points each
3. Field trip participation activities: 2 @ 15 points each
4. Beach cleanup: 1 @ 15 points

**Alternative Two Activities (replace essays and the project)**

1. Outline and summarize one chapter of *The Immortal Life of Henrietta Lacks* by Rebecca Skloot: 2 @ 25 points.
2. Outline and summarize one chapter of *The Sports Gene* by David Epstein: 2 @ 25 points.
3. Attend a Natural Sciences seminar or workshop and write a >400-word essay on it: 2 @ 25 points.
4. Write a song or poem (minimum 1 page) about the ocean and perform it on video so it can be watched by the class: 1 @ 25 points.
THE MIDTERM AND THE FINAL
Exams assess what you know, understand, and are able to do at a given moment in time. Exams assess your ability to demonstrate a knowledge of and ability to use oceanographic terms. Exams assess your ability to articulate an understanding of the concepts relevant to an understanding of oceanography. Exams also test your ability to draw and/or interpret maps, graphs, and tables, or use simple equations to perform calculations related to ocean science. Exams also assess your ability to think about and communicate what you know and understand about the world ocean and human impacts on it.

The midterm and final will be a mix of multiple choice, matching, short answer, calculations, map/graph interpretations, short answer questions, and essays. The midterm covers all materials covered in Weeks 1-8 of the course, and the final covers all materials covered in Weeks 9-15. Where materials covered in Weeks 1-8 relate to materials in Weeks 9-15, such as water chemistry, salinity, and seasons, questions from those materials will appear on the final.

The midterm will occur in class on Wednesday, October 21, 2015. If for some reason, you are unable to attend class that day, you must notify me in advance, or within 24 hours, that is, no later than 5pm on Thursday, October 22. If you do not notify me, you will not be allowed to take a makeup midterm. All makeup midterms are held in the Skills Center.

The final exam will occur in class on Monday, December 7, 2015. If for some reason, you are unable to attend class that day, you must notify me in advance, or within 24 hours, that is, no later than 5pm on Tuesday, December 8. The last day to make up the final exam is Wednesday, December 9, 2015.

You will be permitted 90 minutes to complete the midterm and final exams. Once you begin them, you must complete them. You will not be permitted to leave the room for any reason once you have the exam in hand. If you choose to leave the room, you must forfeit the exam, and you will not be allowed to return to complete it. Your grade will be based on whatever work you finished before leaving. Just plan to stay the whole time and you’ll be fine.

The midterm is worth 150 points and the final is worth 200 points (350 points total, i.e., 35% of your final grade).

EXTRA CREDIT
Some extra credit may be available for special activities or events, as announced in Announcements in Blackboard, but don’t count on it. Be motivated to learn because you care about yourself, not because someone rewards you like a dolphin getting a fish for doing a backflip.
SUMMARY OF WAYS YOUR EARN POINTS
Assignments = 225 points
Quizzes = 225 points
Essays = 150 points
Project Presentation = 50 points
Midterm = 150 points
Final = 200 points

Alternative One Activities may be used to replace up to 450 points in missed activities or quizzes.

Alternative Two Activities may be used to replace up to 200 points in essays and the project presentation.

Alternative activities do not earn extra credit points; rather they can only be used to replace missed points.

FINAL GRADES
The course is based on 1000 points.

GRADING SCALE
A = 90%
B = 80%
C = 70%
D = 60%
F = <60%

SOME SAGE ADVICE
Students often want a very well-defined, narrow list of things they need to know. Instructors hear it as "just tell me what I need to know." That's not the purpose of college. You are here to expand your mind, to be exposed to new ways of thinking, to broaden your horizons, to learn wild new things beyond what you ever thought possible. You are here to enrich your mind and your life to the fullest extent possible. Take the attitude that "I want to learn as much as I can" and you will be amazingly successful not just in this course, but in all of your college courses and life. Remember the adage, "Your life is what your thoughts make it."

SOME PRACTICAL ADVICE
Get out your smartphone and enter all of the due dates listed in the syllabus below. Set reminders. Missing due dates is not an option.
<table>
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<th>Class #</th>
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<th>Concepts Covered</th>
<th>In-Class Assignments</th>
<th>Textbook Reading</th>
<th>Quizzes</th>
<th>Essays</th>
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<td>1</td>
<td>8/24</td>
<td>Why This Course Is Important to Your Future; Introducing the World Ocean</td>
<td>Habits of Mind; Science Literacy; Personal &amp; Professional Responsibility; Goal-setting; Time management; Life Skills</td>
<td>1. Demographics survey. Enter due dates in your smartphone; Pick a quiz partner; E-mail to Chamberlin.</td>
<td>Chap 1</td>
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<td>2</td>
<td>2</td>
<td>8/26</td>
<td>Documentary Film (The Living Sea)</td>
<td>Human Use of Ocean; Scientific Method</td>
<td>2. Two-column notes on Crude.</td>
<td>Chap 1</td>
<td>Quiz 1</td>
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<td>2</td>
<td>3</td>
<td>8/31</td>
<td>Physical and Chemical Properties of Water</td>
<td>“Apparent“ Properties; Not-So-Obvious But Important Properties; Physical States; Sensible and Latent Heat; Units of Measure; Water Pressure</td>
<td>3. Form teams of four students; Label experiment bottles; Create Google sheets</td>
<td>Chap 2, 6</td>
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<td>4</td>
<td>4</td>
<td>9/2</td>
<td>Physical and Chemical Properties of Water</td>
<td>The Water Molecule; Polarity; Hydrogen Bonding; Cohesion;</td>
<td></td>
<td>Chap 6</td>
<td>Quiz 2</td>
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<td>3</td>
<td>9/7</td>
<td>LABOR DAY HOLIDAY</td>
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<td>5</td>
<td>5</td>
<td>9/9</td>
<td>The Water Cycle and Watersheds</td>
<td>Models; Sources and Sinks; Reservoirs &amp; Pathways; Solar Radiation; Gravity Flows; Watersheds</td>
<td></td>
<td>Chap 5</td>
<td>Quiz 3</td>
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<td>2. Calculating Percentages; Understanding Mathematical Equations; Source-Sink Models</td>
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<td>Week</td>
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<td>Topics</td>
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<td>4</td>
<td>6</td>
<td>9/14</td>
<td>What Makes the Ocean Salty?</td>
<td>Atoms, Molecules, and Substances; Chemical Nomenclature; Periodic Table; Dissolving; Anions &amp; Cations; Electrical Conductivity; Salinity; Ratios; Principle of Constant Proportions</td>
<td>4. Add salts; Measure salinity; Film evaporation &amp; precipitation with GoPros</td>
<td>Chaps 6, 8</td>
<td>2. Reading Logs: Upload reading logs and roadblocks form to turnitin.com. Due on Turnitin by 1155PM, Friday, 9/18.</td>
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<td>9/15</td>
<td>What Makes the Ocean Salty?</td>
<td>Density; Inverse Relationships; Roles of Evaporation and Precipitation; Roles of Seasonal Cycle; X-Z Graphs</td>
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<td>Chaps 7, 8</td>
<td>Quiz 4</td>
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<td>5</td>
<td>8</td>
<td>9/21</td>
<td>Dissolved Gases, Dead Zones, and Ocean Acidification</td>
<td>Oxygen; Anoxia and Hypoxia; Factors Controlling Oxygen Concentrations; Eutrophication; Dead Zones</td>
<td>5. Measure volume after making headspace; Measure pH</td>
<td>Chaps 12, 13, 14</td>
<td>4. Latent Heat Equations; Understanding the Relationship Between Temperature, Salinity, and Density</td>
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<td>9</td>
<td>9/23</td>
<td>Dissolved Gases, Dead Zones, and Ocean Acidification</td>
<td>Carbon Dioxide; Carbonate Buffering System; pH; Factors Controlling CO2; Ocean Acidification</td>
<td>(Start demonstration of light:dark bottle method.)</td>
<td>Chap 6</td>
<td>Quiz 5</td>
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<td>6</td>
<td>10</td>
<td>9/28</td>
<td>Solar Radiation and Light in the Upper Ocean</td>
<td>The Electromagnetic Spectrum; Visible Light; Beer’s Law; Exponents</td>
<td>6. Complete light:dark bottle demonstration; calculate productivity</td>
<td>Chap 7</td>
<td>3. Talk to the Text: Demonstrate mastery of this tool on turnitin.com. Due on Turnitin by 1155PM, Friday, 10/2</td>
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<td>Subtopics</td>
<td>Week 7 Notes</td>
<td>Week 8 Notes</td>
<td>Week 9 Notes</td>
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<td>7</td>
<td>12</td>
<td>10/5</td>
<td>The Seasonal Cycle, Orbits and Latitudes</td>
<td>Solar System; Planetary Orbits; Axial Tilt; Earth’s Rotation; Hemispheres; Latitudinal Waypoints</td>
<td>7. Adjust light intensities with screen</td>
<td>Chap 7</td>
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<td>6. Latitude and Longitude; Calculating Area</td>
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<td>13</td>
<td>10/7</td>
<td>The Seasonal Cycle, Daylength, and Sun Angle</td>
<td>Solar Intensity Per Unit Area; Angles; Hours of Sunlight; Sunrise and Sunset Points; Sun Dials; Photography</td>
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<td>Chap 7</td>
<td>Quiz 7</td>
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<td>8</td>
<td>14</td>
<td>10/12</td>
<td>Midterm</td>
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<td>Midterm Essay: Draw and explain Earth’s orbit around the Sun. Compare the changes in day length, sun angle, and solar heating that occur at the two solstices and equinoxes.</td>
<td>Chap 7</td>
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<td>4. What is the seasonal cycle and what three types of observable PHYSICAL evidence exist from your years on Planet Earth that the seasonal cycle occurs? Due on Turnitin by 1155PM, Friday, 10/16.</td>
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<td>15</td>
<td>10/14</td>
<td>The Seasonal Thermocline and the Mixed Layer</td>
<td>X-Z Graphs; Temperature versus Depth Profiles; Thermocline; Identifying the Mixed Layer</td>
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<td>Chap 7</td>
<td>Quiz 8</td>
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<td>9</td>
<td>16</td>
<td>10/19</td>
<td>The Seasonal Thermocline and the Mixed Layer</td>
<td>Stratification and Destratification Over the Seasonal Cycle; Changes in Mixed Layer Depth Over the Seasonal Cycle; The Role of Winds; Atmospheric Heating and Cooling;</td>
<td>Chaps 7, 13</td>
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<td>8. Interpreting and Drawing X-Z Graphs of T, S, PAR, and Z</td>
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<td>Week</td>
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<td>Topics and Activities</td>
<td>Chaps</td>
<td>Quiz</td>
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<td>17</td>
<td>10/21</td>
<td>The World Ocean Circulation</td>
<td>Positive, Neutral, Negative Buoyancy; Water Masses; Latitudinal Variations; Deep Circulation; 8. Measure color &amp; fluorescence of bottle before algae; take pictures</td>
<td>Chaps 7, 9</td>
<td>Quiz 9</td>
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<td>18</td>
<td>10/26</td>
<td>The World Ocean Circulation</td>
<td>Surface Circulation; Coriolis Effect; Ekman Transport; Upwelling; 9. Add algae, measure color &amp; fluorescence; take pictures; email photos and results..</td>
<td>Chaps 8, 9</td>
<td>5. Why does the color of our local waters change from season to season? Explain three things that you could observe scientifically to determine the cause of the color changes? Due on Turnitin by 1155PM, Friday, 10/30. 9. How to Read a Map; Eastern versus Western Boundary Currents</td>
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<td>19</td>
<td>10/28</td>
<td>Waves, Tides, and Ocean Mixing</td>
<td>Surface Waves; Wave-Generating Forces; Internal Waves; 10. Measure color &amp; fluorescence; take pictures; email photos and results.</td>
<td>Chaps 8, 10</td>
<td>Quiz 10</td>
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<td>20</td>
<td>11/2</td>
<td>Waves, Tides, and Ocean Mixing</td>
<td>Tides; Tidal Currents; Continental Shelves and Internal Mixing Processes; 11. Measure color &amp; fluorescence; take pictures; email photos and results.</td>
<td>Chap 11</td>
<td>10. Using Wave Equations; Interpreting Tide Charts</td>
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<td>21</td>
<td>11/4</td>
<td>Phytoplankton and Primary Productivity</td>
<td>Prokaryotes and Eukaryotes; Phytoplankton Species and Their Cellular Composition; Biologically Important Nutrients; Chemical Equations; Energy-making Reactions (Light Reactions); Carbon-assembling Reactions (Dark Reactions) Liebig’s Law of the Minimum; N-P-K and plants; 12. Measure color &amp; fluorescence; take pictures; email photos and results.</td>
<td>Chaps 6, 7, 9, 12, 13</td>
<td>Quiz 11</td>
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| 12   | 22   | 11/9       | Phytoplankton and Primary Productivity  
Latitudinal and Seasonal Variations in Primary Productivity  
13. Add more nutrients and brine shrimp eggs, for fun. Work on group table of results. Due by email by end of class. Combine data sets for teams working on same seasons.  
Chaps 6, 13 | 6. Demonstrate your mastery of the Tracking Concept Development tool. Due on turnitin by 1155PM, Friday, 11/13.  
11. Working With Data; Making a Data Table; Calculating Rates of Change |
| 11/11|      | Veteran's Day Holiday | Quiz 12 (online) |
| 13   | 23   | 11/16      | Ocean Microbes and Biogeochemical Cycles  
Heterotrophic Bacteria, Respiration, and Remineralization; Food Webs; The Carbon Cycle  
14. Combined class data tables due for all groups working on the same season.  
Chaps 6, 13, 14 | 12. Calculating Averages and Anomalies; Drawing and Labeling Scientific Illustrations |
| 11/18|      | El Niño and La Niña, SSTs and the Walker Circulation  
Trade Winds; Walker Circulation; Westerly Wind Bursts; Meridional Cross Sections (orange slices); Kelvin Waves; California El Niño  
15. Outline of presentation responsibilities due by end of class.  
Chap 8 | Quiz 13 |
| 14   | 25   | 11/23      | El Niño and La Niña, Ecosystem Effects  
Winds and Ekman Transport; Upwelling Ecosystems; Effects of El Niño  
Work on presentations in groups (outside of class, too).  
Chaps 8, 14 | S |
| 13. How to Make an Effective Presentation |
| 26   | 11/25| Global Climate Change  
Sources, sinks, reservoirs; Short- and Longwave Radiation; Greenhouse Gases; Sources and Sinks of Carbon Dioxide; the Keeling Curve  
Work on presentations in groups (outside of class, too).  
Chaps 2, 6, 7, 8 | Quiz 14 |
| 15   | 27   | Global Climate Change  
Global Warming; Future Warming; Sea Level Rise; Ocean Acidification; Extreme Weather  
Work on presentations in groups (outside of class, too).  
Chap 6, 8 | 14. Successful Habits for Exam-Preparation; Writing Essays |
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<tr>
<th>Date</th>
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<tr>
<td>28</td>
<td>11/30</td>
<td>Project Presentations</td>
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<td>16</td>
<td>29</td>
<td>12/7</td>
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<td>30</td>
<td>12/9</td>
<td>Awards Ceremony &amp; Potluck</td>
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