

**OCEA 101 - INTRODUCTORY OCEANOGRAPHY (LECTURE) - CLASS# 1904**

3 Lecture Hours; 3 Units; Letter Grade; Student may petition for Credit/No Credit

**MEETING TIMES:** 1/21/2020 - 5/21/2020 – Tuesday/Thursday 4:30 pm to 5:45 pm – Room OC4529

**INSTRUCTOR:** Ray Rector

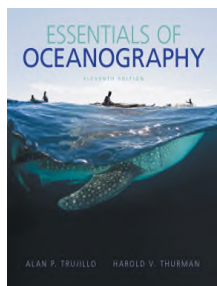
**CONTACT:** E-mail – [oceanprof@seascisurf.com](mailto:oceanprof@seascisurf.com)

**OFFICE HOURS:** Tuesdays – 5:45 pm to 7:00 pm; Room OC4529

**CLASSROOM WEBSITE:** <http://www.seascisurf.com/> Click the “MiraCosta Ocea101 Tu-Th” link

**COURSE DESCRIPTION:** This course explores the major processes and features of the world's oceans. Topics include the origin and history of the ocean basins, atmospheric circulation and weather, ocean circulation, and the dynamics of waves, tides, and coastlines. The course also reviews marine life (including plankton, nekton, benthos, and marine mammals), explores the oceans as a resource for people, and considers human impacts on marine environments.

**COURSE TEXTBOOK:** No required purchase of a textbook for this course. However, the optional and highly recommended course text is [Essentials of Oceanography](#), 12<sup>th</sup> or 11<sup>th</sup> Edition; Authors: Trujillo & Thurman



**12<sup>th</sup> Edition:** Print ISBN: 9780134073545, 0134073541

eText ISBN: 9780134298092, 0134298098

**11<sup>th</sup> Edition:** Print ISBN: 9780321814050, 0321814053

eText ISBN: 9780133558890, 0133558894

**COLLEGE'S FREE OPEN-SOURCE E-TEXT URL:** <http://gotbooks.miracosta.edu/oceans>

**CLASS CANVAS URL:** <http://www.miracosta.edu/instruction/distanceeducation/index.html>

**PROFESSOR'S WEB URL:** <http://www.seascisurf.com/> Click the MiraCosta Ocea101 Tu-Th” link

**STUDENT LEARNING OUTCOMES:** Upon completion of this course, students should be able to:

1. Explain the theory of plate tectonics and relate it to the formation of major sea floor features.
2. Reconstruct the circulation patterns of atmosphere and ocean circulation systems, and analyze their interrelationships.
3. Describe the major principles involved in the formation and behavior of waves and tides, and evaluate their effects on coastal processes.
4. Summarize the major physical properties of the oceans and evaluate how each one affects marine communities and marine life.
5. Summarize the major types of marine pollution, including global warming, and evaluate how each one affects marine communities and marine life.

**CLASS ENROLLMENT NOTES:** It is the student's responsibility to add, drop, or withdraw from classes before the deadlines stated in the class schedule. Petitions to add, drop, or withdraw after the deadline will not be approved without written proof of circumstances beyond the student's control, which made her/him unable to meet the deadline. Lack of money to pay fees is not considered an extenuating circumstance. Students anticipating difficulty in paying fees before the deadline should check with the Financial Aid Office about sources of funds or other alternatives for which they may be eligible. If you decide to withdraw from this course, you are reminded to do so before the following deadlines: **February 2, 2020** is the last day to withdraw with a refund and with no grade (no "W") placed on permanent record.), or **April 24, 2020** (last day to withdraw with a "W" on your transcript). If you stop coming to class, and fail to withdraw by the 04/24 deadline, then a final grade must be assigned to you. The last day to change from a letter grade to pass/no

pass is the **2/21/2020**. **IMPORTANT NOTE:** If you withdraw/drop or get dropped from this OCEA101 lecture section, then you will be automatically dropped from your ocean lab course too.

**ACCOMMODATION OF DISABILITY:** If you have a disability, you are encouraged to contact Disabled Students Programs & Services at 795-6658. Their office is located in Building 3000, adjacent to Parking lot 3C. They will help you determine what assistance is available for you.

**INSTRUCTOR'S ATTENDANCE POLICY:** Attendance is critical to teaching and learning in this class. You will most likely fall behind in acquiring course content, vocabulary, concepts, and skills if you do not attend class regularly. I realize that situations can arise that are beyond your control, which could interfere with attending this class. A student will be dropped from this course for excessive absences (exceeding 20% of the course meetings). Attendance is taken every class meeting by means of a sign-up sheet that will be passed around at the beginning of each class. Note that it is your responsibility to sign it on the attendance sign-in sheet during each class meeting in order to receive attendance credit for that class meeting. It will be up to you for staying current with timely class notes, classroom website information concerning the material that was missed during absences. There is no make-up or rescheduling of quizzes or exams unless the student provides proof of some compelling reason for the make-up. It is the student's responsibility to contact me personally to forewarn me of any problem in either, attending the regular-scheduled exams and quizzes, or making assignment due dates. Business, pleasure, or being generally ill, is not a compelling reason. Being horribly sick or having a death in the family is good reason.

**TARDINESS and LEAVING CLASS EARLY:** Being late to a class once or twice is understandable; however, it should not become a habit. Constant tardiness will not be tolerated. Students will be given a warning and if he or she continues to be tardy, then each additional tardy (past the initial first two) will be counted as half an absence. If you do arrive to class late, then please use the interior entry door to enter the classroom. Leaving class early once or twice during the semester is understandable, but it should be done so not as to be discourteous and disruptive to class. If you continue to leave class early - prior to the instructor's finishing of the lecture - more than twice during the semester, it will count as half an absence. If you do arrive to class early, then please use the interior entry door to exit the classroom.

**CLASSROOM BEHAVIOR AND STUDENT CODE OF CONDUCT:** Students are expected to respect and obey standards of student conduct while in class and on campus. Charges of misconduct and disciplinary sanctions may be imposed upon students who violate these standards of conduct or provisions of college regulations. As your instructor, I have the following expectations of your behavior in this class:

- 1) Promote a positive learning environment by exhibiting mutual respect and consideration of the feelings, ideas, and contributions of others.
- 2) Demonstrate a genuine desire to learn, interact, and improve academically.
- 3) Demonstrate respect for furniture, tools, equipment, and supplies in the classroom.
- 4) Clean up after yourself.
- 5) No eating or drinking in class; exception is water.
- 6) All cell phones, pagers, and audio players must remain turned off, or in silent mode.
- 7) This class will be conducted in accordance with the college code of student conduct and basic standards of academic honesty. Cheating, plagiarism, or other forms of academic dishonesty are totally unacceptable and will not be tolerated. Violations of standards of academic honesty will be reported to the school dean for appropriate action. See the full version of the instructor's plagiarism policy at <http://www.seascisurf.com/plagiarism.mht> located at the "MiraCosta Ocea101 -Tu-Th link on the professor's website.

**CANVAS ONLINE QUIZZES:** There are ten (10) required online quizzes for this course, and they are posted on the course **Canvas** page. Each quiz covers a specific set of the course topics, with associated information coming from the textbook, Endless Voyage Videos, instructor's Power Points and class lectures, and the college's E-textbook. Each quiz is available for a period of time (several weeks), and appears in the course schedule with a due date. The due date for each quiz is on a given Wednesday before the associated exam. The online quizzes are open-book, and you can start and stop each test within the multi-week test-taking period. You get three (3) attempts at taking each quiz. The quizzes are independent tests; each student must take their own test without help from other people. The online quizzes are automatically graded by Canvas and post immediately to your "Grades" on Canvas.

**REQUIRED OCEANOGRAPHIC RESEARCH TERM PROJECT:** The research project consists of the following **four required components** done over the course of the semester:

- 1) Submit a Ocean Research Proposal (one page) for your research project topic. Note: Your choice of research topic **MUST** fall under a marine environmental concern or issue – 20 points -- **Due 3/24**
- 2) Prepare/assemble/submit a Written Presentation Outline of your research presentation (must include a comprehensive, format-correct bibliography) - 60 points – **Due 4/28**
- 3) Give an 8-minute Oral Presentation in front of class – Present highlights of your research - 60 points-  
– **Presentation days: 5/5, 5/7, 5/12 and 5/14**
- 4) Attend class on presentation days. Fill out Presentation Evaluations of your fellow student's presentations, including your own. Receive 1.5 points per evaluation (for example, 38 total possible points if 25 students present.) **Peer Evaluation days: 5/5, 5/7, 5/12 and 5/14**

**Notes:** 1) Research project docs found on both the Canvas page and professor's website. 2) Research and presentations may be conducted by a group of two, with following restrictions: 1) You must check with instructor first for the "OK"; 2) Each group member must submit separate and original work – groups cannot submit single, nor (remotely) identical work). 3) Each group member must present for her or his required 8-minute talk time. 3) Submit written work in electronically Canvas, or in person in class

### **GRADING/ASSESSMENT:**

- I. Ten (10) multiple-choice online (Canvas) quizzes @ 15 points each – No make-ups
- II. Four (4) true/false, multiple-choice, essay exams (includes final) @ 100 points each – No make-ups
- III. Term Project – Approx. 180 points (Note: Late project assignments not accepted – no exceptions)
- IV. Total possible points = Approximately 730. Final grade is based on a purely points total percentage.
- V. Extra credit is offered: You can earn a maximum of 35 points of extra credit

**Last day to turn in extra credit work is Thursday May 14<sup>th</sup>** – Late work will not be accepted.

- VI. **Grading Scale:**
- |            |     |
|------------|-----|
| 100% – 90% | = A |
| 89% -- 80% | = B |
| 79% -- 70% | = C |
| 69% -- 55% | = D |
| < 55%      | = F |

#### **Course Quiz Schedule:**

- 1) Quiz I: Monday January 27
- 2) Quizzes II & III: Monday February 19
- 3) Quizzes IV & V: Monday March 23
- 4) Quizzes VI & VII: Monday April 13
- 5) Quizzes VIII, XI & X: Wednesday May 20

#### **Course Exam Schedule:**

- 1) Exam I: Tuesday February 25
- 2) Exam II: Tuesday March 17
- 3) Exam III: Tuesday April 14
- 4) Final Exam: Thursday May 21

**Extra Credit Deadline:** All extra credit must be turned in by **Thursday, May 14<sup>th</sup>** for credit. Late extra credit work will not be accepted - no exceptions - period.

**CONFLICT RESOLUTION:** If you feel that you have valid grounds to challenge a grade, you must first attempt to resolve your problem informally with me, your instructor. If the grade challenge cannot be resolved, you must file a petition for grade challenge with the Dean of Physical Sciences who will work with the Department Chair to help resolve the issue. If resolution does not occur, your next step is to file an appeal with the Vice President of Instruction. Grade Challenge Procedure is found in the college catalogue.

**EXTRA CREDIT:** Extra credit activities are a great way to get more education (and points) out of this course; I encourage students to do extra credit. There are several ways to earn extra credit in this class:

- 1) Instructor- and student self-guided field trips; 2) Supplementary research/writing assignments approved by instructor; and 3) Internet-based activities and assignments approved by instructor

**Notes:** a) The instructor must first approve extra credit work; approval is based on several criteria.

b) Extra credit can be used to boost a student's grade points by a maximum of 35 points.

c) **Last day to turn in extra credit work is Thursday May 14<sup>h</sup>** – Late work will not be accepted.

d) The Birch Aquarium voluntary field trip will cost the student about \$16 for admission. However, if a student is financially strapped, the college will reimburse the admission fees (save your receipt)

**VOLUNTARY WEEKEND FIELD TRIPS:** Four weekend field trips are planned for the semester. Field trips earn extra credit and are totally voluntary!

- 1) Weekend field trip: Saturday February 22 – Torrey Pines Beach, 10:00 am
- 2) Weekend field trip: Sunday March 29 – Blacks Beach, 10:00 am
- 3) Weekend field trip: Saturday April 11 – Moonlight Beach, 10:00 am
- 4) Weekend field trip: Sunday May 3 – Birch Aquarium, 9:00 am

**Field Trip Notes:** Check the professor's classroom web page for fieldtrip details

- Extra credit and/or excessive absence make-up will be awarded for participating on these trips.
- Experience gained on fieldtrips greatly helps in understanding the text and lecture material.
- Field trips are fun and a great way to better know your classmates and instructor.
- Note that if you cannot attend an in-person fieldtrip, then you can do a virtual fieldtrip option
- Earn up to 10 points per in-person fieldtrip. Earn up to 5 points per each virtual fieldtrip.

**CLASSROOM WEBSITE RESOURCE:** The instructor has set up a website specifically as an academic resource for his earth sciences students. This site is located at <http://www.seascisurf.com/>. Clicking on the **Mira Costa OCEA101 Tu/Th** link will give you direct access to a wide variety of classroom information and oceanographic resources. Classroom information includes professor contacts, class syllabus and schedule, important dates/deadlines, classroom lecture notes, PowerPoint presentations, exam study guides, practice exams, research project guides and resources, and field trip information. It is strongly urged that you take utmost advantage of this site.

## MiraCosta Oceanography Tu-Th Schedule – Spring 2020

| Date     | Class Meeting Lecture and Discussion Topics   | Homework & Testing<br>Textbook Reading and<br>Online Video Viewing |
|----------|---|--|
| Tu 1/21  | Course Introduction<br>Importance of Studying the Ocean<br>Brief History of Marine Science  | Syllabus and Schedule<br>TT Ch 1; GB Ch1<br>EV Videos 2 and 9      |
| Th 1/23  | The Scientific Method<br>Origin of Earth, Moon, Ocean, & Life<br>Geologic Time and Age of the Earth<br>Earth's Layered Physiology | TT Ch 1, 2; GB Ch 1, 2<br>EV Videos 1 and 3                        |
| Mon 1/27 | <b>Canvas Quiz 1</b> - Syllabus & Schedule  | <b>Canvas Quiz 1 - Syllabus</b>                                    |
| Tu 1/28  | Continental Drift Hypothesis<br>Plate Tectonic Theory<br>Seafloor Spreading and Subduction  | TT Ch 2: GB Ch 4<br>EV Videos 3, 4                                 |
| Th 2/30  | Evidence for the Plate Tectonic Theory<br><b>Last day to withdraw with refund &amp; no "W" is Sunday, February 3</b>              | TT Ch 2; GB Ch 4<br>EV Videos 3, 4                                 |
| Tu 2/4   | Methods of Studying the Seafloor<br>Continental Margin Seafloor<br>Deep-Ocean Basin Seafloor                                      | TT Ch 3: GB Ch 5<br>EV Video 5                                     |
| Th 2/5   | Marine Sediments  | TT Ch 4: GB Ch 6<br>EV Video 6                                     |

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| Tu 2/11             | Physical and Chemical Properties of Seawater<br><b>Research Project Proposal due –</b>                             | TT Ch 4; GB Ch 6<br>EV Video 6                            |
| Th 2/13             | Physical and Chemical Properties of Seawater   | TT Ch 5; GB Ch 7<br>EV Videos 7, 8 & 9                    |
| Tu 2/18             | Atmospheric Properties, Processes & Circulation<br>Storm Systems, Weather Patterns and Climate                     | TT Ch 6; GB Ch 8<br>EV Video 10                           |
| Th 2/20             | Ocean surface currents and Gyres<br><b>Review for Exam 1</b>   | TT Ch 7; GB Ch 9<br>EV Video 11                           |
| Sat 2/22<br>@ 10 am | <b>Voluntary Weekend Fieldtrip</b> - Torrey Pines Beach -<br>Coastal Geology and Tectonics Theme                   | See course's online fieldtrip #1<br>info link for details |
| Mon 2/24            | <b>Canvas Quiz 2</b> - Ocean Origin and Plate Tectonics  | <b>Canvas Quiz 2 - TT Ch 1, 2</b>                         |
| Mon 2/24            | <b>Canvas Quiz 3</b> - Seafloors and Sediments   | <b>Canvas Quiz 3 - TT Ch 3, 4</b>                         |
| Tu 2/25             | <b>Exam 1</b> – (Chapters 1 through 4)<br>(Bring a 100-answer scantron card and #2 pencil!)                        | Exam 1 Study Guide<br>Practice Exam 1                     |
| Th 2/27             | Ocean vertical currents, and Deep circulation  | TT Ch 7; GB Ch 9<br>EV Video 12                           |
| Tu 3/3              | Water Waves – Causes and Dynamics<br>Wind Waves - Origin and Behavior  | TT Ch 8; GB Ch 10<br>EV Video 13                          |
| Th 3/5              | Breaking Waves – Surfing<br>Origin and nature of Tsunamis  | TT Ch 8; GB Ch 10<br>EV Videos 13, 14                     |
| Tu 3/10             | Origin and nature of Tides   | TT Ch 10, 11; GB Ch 12<br>EV Video 16                     |
| Th 3/12             | Coastlines, Beaches, and Shoreline Processes<br><b>Research Project Proposal due –</b><br><b>Review for Exam 2</b> | TT Ch 11; GB Ch 12<br>EV Video 17                         |
| Tu 3/17             | <b>Spring Break</b>  | <b>No Class/No Work</b>                                   |
| Th 3/19             | <b>Spring Break</b>  | <b>No Class/No Work</b>                                   |
| Mon 3/23            | <b>Canvas Quiz 4</b> - Seawater Properties   | <b>Canvas Quiz 4 - TT Ch 5</b>                            |
| Mon 3/23            | <b>Canvas Quiz 5</b> - Atmosphere and Ocean Circulation  | <b>Canvas Quiz 5 - TT Ch 6, 7</b>                         |
| Tu 3/24             | <b>Exam 2</b> – (Chapters 5 through 7)<br>(Bring a 100-answer scantron card and #2 pencil!)                        | Exam 2 Study Guide<br>Practice Exam 2                     |
| Th 3/26             | Human Influences on Coastal Environments   | TT Ch 11; GB Ch 12<br>EV Video 17                         |
| Sun 3/29<br>@ 10 am | <b>Voluntary Weekend Fieldtrip</b> - Blacks Beach<br>Waves and Currents Theme                                      | See course's online fieldtrip #2<br>info link for details |
| Tu 3/31             | Marine Life - Evolution & Classification<br>Marine Life - Physical Factors and Habitats                            | TT Ch 12; GB Ch 13, 14<br>EV Videos 18, 19                |

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| Th 4/2              | Primary bio-production<br>Types of Phytoplankton and Seaweeds<br>Marine Feeding Relationships   | TT Ch 13; GB Ch 12<br>EV Videos 20  |
| Tu 4/7              | Marine Invertebrates and Fishes<br>Marine Communities   | TT Ch 14, 15; GB Ch 14, 15,<br>16; EV Videos 21, 22, 23   |
| Th 4/9              | Marine Invertebrates, Fishes and Mammals<br>Marine Communities<br><b>Review for Exam 3</b>  | TT Ch 14, 15; GB Ch 14, 15,<br>16; EV Videos 21, 22, 23   |
| Sat 4/11<br>@ 10 am | <b>Voluntary Weekend Fieldtrip</b> - Moonlight Beach<br>Coastal Processes Theme   | See course's online fieldtrip #3<br>info link for details   |
| Mon 4/13            | <b>Canvas Quiz 6</b> - Ocean Waves  | <b>Canvas Quiz 6</b> - TT Ch 8, 9   |
| Mon 4/13            | <b>Canvas Quiz 7</b> - Shorelines   | <b>Canvas Quiz 7</b> TT Ch 10, 11   |
| Tu 4/14             | <b>Exam 3</b> – (Chapters 8 through 11)<br>(Bring a 100-answer scantron card and #2 pencil!)  | Exam 3 Study Guide<br>Practice Exam 3   |
| Th 4/16             | Marine Biological Resources– Marine Fisheries<br>Marine Seafloor Resources – Physical and Energy  | Chapters 4 and 13<br>EV Video 24  |
| Tu 4/21             | Marine Biological Resources– Marine Fisheries<br>Marine Seafloor Resources – Physical and Energy  | TT Ch 10, 11; GB Ch 12<br>EV Video 24   |
| Th 4/23             | Environmental Concerns -- Marine Pollution<br><b>Last day to withdraw with a "W" is Thursday, April 25</b>  | Chapter 11<br>EV Video 25   |
| Tu 4/28             | Environmental Issues -- Marine Pollution<br><b>Oral Presentation Written Outline due -</b>  | TT Ch 11, 16; GB Ch 17<br>EV Video 25; Teacher's Refs   |
| Th 4/30             | Environmental Concerns – Global Warming / Climate Change  | TT Ch 11, 16; GB Ch 17<br>EV Video 25; Teacher's Refs   |
| Sun 5/3<br>@ 9 am   | <b>Voluntary Weekend Fieldtrip</b> - Birch Aquarium Marine Life and<br>Environmental Issues Theme   | See course's online fieldtrip #4<br>info link for details   |
| Tu 5/5              | <b>Student Presentations</b> -- See website for details   | Prepare Presentation  |
| Th 5/7              | <b>Student Presentations</b> -- See website for details   | Prepare Presentation  |
| Tu 5/12             | <b>Student Presentations</b> -- See website for details   | Prepare Presentation  |
| Th 5/14             | <b>Student Presentations</b> -- See website for details<br><b>Last day to turn in Extra Credit – No Exceptions</b><br><b>Review for Final Exam</b>    | Final Study Guide<br>Final Practice Exam  |
| Tu 5/19             | <b>No Class - Finals Week</b>   | Study for Final Exam  |
| Wed 5/20            | <b>Canvas Quiz 8</b> - Marine Life I<br><b>Canvas Quiz 9</b> - Marine Life II<br><b>Canvas Quiz 10</b> - Marine Resources, Pollution & Climate Change | <b>Canvas Quiz 8</b> -TT Ch 12, 13<br><b>Canvas Quiz 9</b> -TT Ch 14, 15<br><b>Canvas Quiz 10</b> -TT Ch 11, 16 |
| Th 5/21             | <b>Final Exam</b> - 4:00pm to 5:50pm (Chapters 12 through 15)   | Study for Final Exam  |

**Disclaimer:** This is a tentative schedule and may be changed by the instructor at anytime during semester.