



Marine Environmental Science: ENV 115 *Lecture Syllabus* Fall 2019

How inappropriate to call this planet Earth when it is quite clearly Ocean.

[Arthur C. Clarke](#)

There's nothing wrong with enjoying looking at the surface of the ocean itself, except that when you finally see what goes on underwater, you realize that you've been missing the whole point of the ocean. Staying on the surface all the time is like going to the circus and staring at the outside of the tent.

Dave Barry

It is said by the Eldar that in water there lives yet the echo of the Music of the Ainur more than in any substance that is in this Earth; and many of the Children of Ilúvatar hearken still unsated to the voices of the Sea, and yet know not for what they listen.

[J.R.R. Tolkien, *The Silmarillion*](#)

For most of history, man has had to fight nature to survive; in this century he is beginning to realize that, in order to survive, he must protect it.

[Jacques-Yves Cousteau](#)

The scientific community is no private club. In principle, and in its best and broadest sense of the words, scientific inquiry can be undertaken by anyone on almost any subject matter.

W. Quine and J. Ullian

Department Name: Environmental Program

College/School/Division Name: Natural Sciences and Mathematics; Chaminade University of Honolulu

Course Credits: 3

Term: Fall 2019 **Class Meeting Days:** TTh **Class Meeting Hours:** 4:00-5:20 **Class Location:** WSC120

Instructor: Dr. Gail Grabowsky

E-mail address: ggrabows@chaminade.edu

Phone: 735-4834 (ext. 834 if calling from on campus); cell 808-387-9319 (please don't call after 9:00 pm, but you may text anytime!)

Office Location: Wesselkamper Science Center, room 105

Office hours: MF: 2:30-6:00; T 12:30-2:30; Or by appointment

Course Website: <https://drive.google.com/drive/folders/1eo1I6ZUW0hDCQJmtUUu7qHj2RLN5IWP0>

University Course Catalog Description:

This course introduces students to the scientific causes and consequences of the current major marine environmental issues. Topics include: effects of global warming on ocean ecosystems, marine pollution, marine debris, oil spills, fisheries exploitation, fisheries by-catch, marine alien species and coral reef degradation. The course focuses on making students aware of the material causes and consequences of each issue as well as the role of science in devising sustainable solutions to each issue. Course must be taken concurrently with ENV 115L.

Course Learning Outcomes: When you have completed this course you should:

- ◆ Know what science is and how scientific research is conducted
- ◆ Understand the basic concepts in oceanography and marine biology
- ◆ Know the characteristics of the major marine zones
- ◆ Know the names and ecological roles of a number of marine organisms that occur in Hawaiian waters
- ◆ Know the physical causes of each of the major marine environmental issues
- ◆ Understand the causal network of events that lead to the occurrence of each issue
- ◆ Know the actual and projected physical consequences of each issue
- ◆ Understand the detrimental effect(s) of each issue on marine ecosystems and human welfare
- ◆ Be familiar with some of the specific mechanisms diverse indigenous people of the Pacific employ(ed) in gathering ocean resources that may be considered sustainable practices
- ◆ Demonstrate an understanding of the connections between academic work and real-life situations

Texts:

Required: You should purchase this textbook.

Castro, P. & M. E. Huber. Marine Biology. 11th Edition. McGraw Hill. 2013. [ISBN:9781259880032]

Supplemental Texts: A number of readings in this course will come from other documents and publications. I will provide you e-copies and bibliographies/references through Google Drive.

Course Website: https://drive.google.com/drive/folders/1f3i4sxB9gE6OmpLVumE_5zOaPZCh8_t-

Grading & Assessment: Your grade in this course will be based on the following. Each of the items/activities listed below will be described to you in writing or orally in class.

Grading will be quantified as follows:

Two Lecture Exams	40%	or 50% (20/25% each) (200 points)
Final Exam	20%	or 25% (100 points)
Marine Zone Presentation	20%	or 25% (100 points)
(Optional) Notable Marine Places and Issues Presentation	20%	or 25% (100 points)
	400	or 500 points total

Letter grades are interpreted as follows:

- A = Outstanding scholarship and an unusual degree of intellectual initiative
- B = Superior work done in a consistent and intellectual manner
- C = Average grade indicating a competent grasp of subject matter
- D = Inferior work of the lowest passing grade, not satisfactory for fulfillment of prerequisite course work
- F = Failed to grasp the minimum subject matter; no credit given

Grading Procedures:

Grades will be assigned to written exams using a curve with the mean score for the class being a B- and the score immediately below the mean being a C+. This will be explained in detail in class. The first two lecture exams will cover the material from the start of class up until the first exam and the material after the first exam up until the second exam, respectively. These exams will have a variety of types of questions on them. The final exam is cumulative, multiple choice and covers the lecture material for the entire semester. A review sheet will be handed out before every exam.

Marine Zone and Notable Marine Places and Issues Presentations:

These presentations will both count towards your lecture grade. The *Notable Places* presentation is optional! The particular protocols, requirements and grading criteria for each will be described in class and with a handout. The date of the presentations are indicated on the syllabus.

Attendance and you grade:

While I dearly hope that you can make every class..., since you are adults now, you are free to miss any *lecture* class you choose... but **KNOW** that there may be some consequences should you choose to exercise this option: your grade could (and most likely **WILL**) suffer. I believe that students who have missed a lot of classes **ALWAYS** would have done better if they had not missed classes. There simply is no substitute for being in class when it comes to understanding the material. I can give you a fishing pole, but I cannot make you fish.

If you miss a lecture exam or lab your absence must be excused if it is not to *formally* effect your grade. Excused absences occur when you bring in a doctor's note, a funeral announcement for a family member, notice of participation in athletic events, etc. Unexcused absences occur when you were working, surfing, sleeping, cramming for an exam in another class, etc. I am a scientist; I require hard evidence if an absence is to be excused. If your car breaks down on the way to an exam or lab take a picture and make SURE I can verify the date and time of the breakdown and it will be an excused absence, ☺, however, no evidence; no excused absence.

Extra Credit Options:

Throughout the course Dr. Gail will be making numerous environmental service-learning outings available to you. You may also find environmental service opportunities on your own. For every service-learning activity that you participate in, that entails 4-5 hours of work, will receive +5 extra credit points. Also, periodically throughout the course there will be talks and presentations you may attend that pertain to the course material. You can earn +2 extra credit points towards a lecture exam for each talk you attend with content related to the course content. In order for all talks and service activities to count for extra credit you MUST have them approved by Dr. Gail PRIOR TO the event and you MUST document your presence (if Dr. Gail is not also in attendance) with a photograph of yourself participating or some other kind of evidence. You may earn up to 30 extra credit points from service activities and 10 from attending talks/presentations.



**Marine Environmental Science
Course Schedule
Fall 2019
Part I**

Ocean Environments & Inhabitants

<u>WEEK OF</u>	<u>TOPIC</u>	<u>ACTIVITIES</u>
8/26 – 8/30	Course Intro; Marianist Values; Science	Chapter 1 in textbook
9/3 – 9/6	Science & Indigenous Knowledge; Marine Geology	Chapter 2 in the textbook
9/9 – 9/13	Special Properties of Water; Seawater Chemistry	Chapter 3 in the textbook
9/16 – 9/20	Oceanography	
9/23 – 9/27	Marine Biodiversity; Larvae	Chpts 4 & 6 in the textbook
9/30 – 10/4	Introduction to Ecology; Marine Ecosystems	Chpts 7, 8 & 9 in the textbook
	10/3: Marine Zone Presentations	
10/7 – 10/11	Ecology Wrap-Up & Review	Chapter 10 in the textbook
	10/10: Exam I	Exam I

**Part II
Threats to Our Oceans**

<u>WEEK OF</u>	<u>TOPIC</u>	<u>ACTIVITIES</u>
10/15 – 10/18	Coral Reef Threats	Outside Readings (provided in e-copy)
10/21 – 10/25	Climate Change	Outside Readings (provided in e-copy)
10/28 – 11/1	Coastal Development; Marine Pollution	Outside Readings (provided in e-copy)
11/4 – 11/8		
	Non-point source pollution; Marine Debris	Outside Readings (provided in e-copy)
11/12 – 11/15	Introduced Species	Outside Readings (provided in e-copy)
11/18 – 11/22	Fisheries: Recreational Near Shore	Outside Readings (provided in e-copy)
	11/21: Exam II	Exam II
11/25 – 11/27	Fisheries: Commercial; Aquaculture	Outside Readings (provided in e-copy)
12/2 – 12/6	Issues Summary; Solutions to Marine Threats	Outside Readings (provided in e-copy)
	12/5: Notable Marine Places & Issues Presentations	Chapter 18 in the textbook

Important Dates You Should Know:

- **Final Exam: Thursday, December 12th from 3:30 – 5:30 PM in our classroom.**



Alignment of Natural Sciences Courses with Marianist & Hawaiian values of the University:

The Natural Sciences Division provides an *integral, quality education*: sophisticated integrative course content taught by experienced, dedicated, and well-educated instructors.

- *We educate in family spirit* – every classroom is an *Ohana* and you can expect to be respected yet challenged in an environment that is supportive, inclusively by instructors who take the time to personally get to know and care for you.
- *We educate for service, justice and peace*, since many of the most pressing global issues (climate change, health inequity, poverty, justice) are those which science and technology investigate, establish ethical parameters for, and offer solutions to.
- *We educate for adaptation and change*. In science and technology, the only constant is change. Data, techniques, technologies, questions, interpretations and ethical landscapes are constantly evolving, and we teach students to thrive on this dynamic uncertainty.

The study of science and technology can be formative, exploring human creativity and potential in the development of technologies and scientific solutions, the opportunity to engage in the stewardship of the natural world, and the opportunity to promote social justice. We provide opportunities to engage with the problems that face Hawai'i and the Pacific region through the Natural Sciences curriculum, in particular, those centered around severe challenges in health, poverty, environmental resilience, and erosion of traditional culture. The Marianist Educational Values relate to Native Hawaiian ideas of *mana*, *na'auao*, *ohana*, *aloha* and *aina*. We intend for our Natural Sciences programs to be culturally-sustaining, rooted in our Hawaiian place, and centered on core values of *Mai'au*, be neat, prepared, careful in all we do; *Makawalu*, demonstrate foresight and planning; *`Ai*, sustain mind and body; *Pa`a Na`au*, learn deeply.

Grades of "Incomplete":

Students and instructors may negotiate an incomplete grade when there are specific justifying circumstances. When submitting a grade the "I" will be accompanied by the alternative grade that will automatically be assigned after 90 days. These include IB, IC, ID, and IF. If only an "I" is submitted the default grade is F. The completion of the work, evaluation, and reporting of the final grade is due within 90 days after the end of the semester or term. This limit may not be extended.

Instructor and Student Communication:

Questions for this course can be emailed to the instructor at [ggrabows@chaminade.edu]. Online, in-person and phone conferences can be arranged. Dr. Gail will get back to you in person or via email or text ASAP usually within one day. Please if you text Dr. Gail include your name in your text!

Cell phones, tablets, and laptops:

Music Devices and Cellular Phones: Unless specifically permitted by your instructor, use of music devices and cell phones is prohibited during all Natural Science and Mathematics classes, as it is discourteous and may lead to suspicion of academic misconduct. Students unable to comply will be asked to leave class.

Out of consideration for your classmates, please set your cell phone to silent mode during class. Students are encouraged to bring laptops or tablets to class as the instructor will assign online activities and readings that will require the use of a laptop or tablet. Laptops and tablets should not be misused, such as checking distracting websites. Use your best judgment and respect your classmates and instructor.

Disability Access:

If you need individual accommodations to meet course outcomes because of a documented disability, please speak with me to discuss your needs as soon as possible so that we can ensure your full participation in class and fair assessment of your work. Students with special needs who meet criteria for the Americans with Disabilities Act (ADA) provisions must provide written documentation of the need for accommodations from the Counseling Center by the end of week three of the class, in order for instructors to plan accordingly. If a student would like to determine if they meet the criteria for

accommodations, they should contact the Counseling Center at (808) 735-4845 for further information (counselingcenter@chaminade.edu).

Title IX Compliance:

Chaminade University of Honolulu recognizes the inherent dignity of all individuals and promotes respect for all people. Sexual misconduct, physical and/or psychological abuse will NOT be tolerated at CUH. If you have been the victim of sexual misconduct, physical and/or psychological abuse, we encourage you to report this matter promptly. As a faculty member, I am interested in promoting a safe and healthy environment, and should I learn of any sexual misconduct, physical and/or psychological abuse, I must report the matter to the Title IX Coordinator. If you or someone you know has been harassed or assaulted, you can find the appropriate resources by visiting Campus Ministry, the Dean of Students Office, the Counseling Center, or the Office for Compliance and Personnel Services.

Attendance Policy:

For the University wide attendance policies please see page 54 of the 2019-2020 Academic Catalog.

Academic Conduct Policy:

From the 2018-2019 Undergraduate Academic Catalog (p. 42): Any community must have a set of rules and standards of conduct by which it operates. At Chaminade, these standards are outlined so as to reflect both the Catholic, Marianist values of the institution and to honor and respect students as responsible adults. All alleged violations of the community standards are handled through an established student conduct process, outlined in the Student Handbook, and operated within the guidelines set to honor both students' rights and campus values. Students should conduct themselves in a manner that reflects the ideals of the University. This includes knowing and respecting the intent of rules, regulations, and/or policies presented in the Student Handbook, and realizing that students are subject to the University's jurisdiction from the time of their admission until their enrollment has been formally terminated. Please refer to the Student Handbook for more details. A copy of the Student Handbook is available on the Chaminade website. For further information, please refer to the Student Handbook: <https://studentaffairs.chaminade.edu/wp-content/uploads/sites/28/2018-19-NEW-STUDENT-HANDBOOK.pdf>

Classroom Atmosphere:

I value a very open, yet courteous class atmosphere. Express your ideas! Ask your questions! (The only dumb question is the one in which you ask yourself if you should ask your question.) Respect the thoughts and ideas and opinions of others – really think about what others say. Let them fully express their thoughts and ideas and then you do the same. **The thing I value most from my college days are all the wonderful, valuable, diverse ways of looking at and understanding the world that I was exposed to. Be an open vessel – take ideas in! You will learn as much from each other as you do from me.**

This syllabus and course schedule are living documents: they are free to change. I try to adhere as closely as possible to them for your convenience, but there will be times in which we will take longer on a particular topic or add or delete a topic to enhance the course. I like to be able to react to you as the course proceeds and go with the flow a bit in order to make the course experience sort of custom fit to you!

You are responsible for all of the information in this document: losing it or not reading it do not make you exempt from knowing what's in it!

Use your syllabus to keep you organized and aware of important dates and how your grade is determined.