

Seaweed Biology: Bi 457/557 OIMB Fall 2022

Instructor: Nancy Treneman nmendezt@uoregon.edu

DATES:

Monday 8:00 am-5:00

Seaweeds are members of the wonderful group of organisms that changed the planet: the primary producers. Green (Chlorophyta), Red (Rhodophyta) and Brown (Phaeophyceae) macroalgae, collectively known as seaweed are abundant in the coastal waters of the Northeastern Pacific. Seaweeds generate a huge amount of primary biomass and create habitat for a myriad of marine organisms. Climate change is affecting seaweed communities throughout the world's oceans. Algae in the intertidal zone must withstand wave action, desiccation, and predators. These are some of the topics of study in the class: get ready for Phycology, the study of seaweeds!

This class is an overview of seaweed diversity, evolution, biology and ecology. Students will become familiar with the diversity of seaweeds at Cape Arago and learn to identify and prepare seaweed herbarium specimens. Field trips to local intertidal and boat marina/dock sites for collection, surveys, and observation will emphasize community structure and interactions. Assignments include field studies, student projects, seaweed anatomical and taxonomic studies, individual and group research.

Classwork includes:

- Discussions (presentations by the instructor and guest lecturers)
- Overview of library tools and resources
- Seaweed Anatomy, identification, preservation
- Herbarium: examination of historical seaweed specimens and class additions
- Student Projects & Presentation
- Assignments in the field: data collection & analysis
- Research in to topics and discussions (Group and Individual)

Required Materials:

- Notebook with drawing paper (Laboratory Notebook)
- Dissection kit and 1 pair of fine tipped forceps
- Colored pencils
- Write-in-the Rain Field notebook
- Microscope slide box (100 slots)

Required Textbook: (ebook is ok)

Seaweed Ecology and Physiology, Herd, Harrison, Bischof, Lobban, 2nd Ed 2014
ISBN: 978-0-521-14595-4

Recommended Books:

Pacific Seaweeds, A guide to common seaweeds of the west coast (updated and expanded edition 2000), Druehl & Clarkston (hard copy recommended) ISBN: 978-1-55017-737-4

Keys to the Seaweeds and Seagrasses of Southeast Alaska, British Columbia,
Washington, and Oregon: Phycological Contribution #9
Gabrielson & Lindstrom, 2018 ISBN: 0-9763817-3-7

MODIFIED : Extended Syllabus Seaweed Biology, OIMB 2022, 2nd Ed.

Instructor: Nancy Treneman, nmendezt@uoregon.edu phone: 541 698 0076

T.A.: Samantha Persad, spersad5@uoregon.edu

Class Times: Mondays, 8:15 am – 5: pm unless otherwise listed in the schedule.

Laboratory hours: you will have access to the lab 24/7.

Office Hours (zoom or in person): by appointment. Please email to arrange a meeting time.

Grade Breakdown:

45% Seaweed Specimens & Slides

(16 specimens: 16 presses + 4 duplicate presses for herbarium =20 presses with notes & slides)

(15 required structure slides)

25% Tests (3)

20% Student (group) project

5% Student Symposium

5% Participation

A= 100%-90%, B=89%-80%, C= 79%-70%, D=69%-60%, F below 59% and below.

Required Readings are from two Text Books:

ALGAE: Graham et. al 2016: (G) this is a free eBook.

Download it from the class file 'Graham Algae Textbook 2016'.

Seaweed Ecology & Physiology, Hurd et al (H)

Modules:

Go to 'Modules' on Canvas. View the modules BEFORE the class day it is required. Take notes and bring your questions and ideas to class.

Podcasts: one podcast is required.

Kathleen Drew: mother of the sea: <https://www.bbc.co.uk/programmes/b04g7rd5>

Video: One video is required. Seaweed in Hawaii: <https://seagrant.soest.hawaii.edu/deep-sea-algae/>

Seaweed Specimens: You will prepare **16** seaweed specimens with their associated microscope slides and notes. You are required to make **2 Chlorophyta, 3 Rhodophyta (must include one filamentous species), 2 Phaeophyceae, and 1 artistic press**. The **remaining 8 presses** are your choice. However, you will need to make sure you have microscope slides for all the **15** required structures, so make your species choices accordingly. There are several separate instruction sheets for these: Voucher Curation and Specimen & Slide Preparation. Several class models/pages on canvas address this assignment. The Artistic presses will be displayed in the dining hall, along with any other presses you'd like to show.

Tests: There are three tests. Tests will cover all material covered since the previous test. On the last test you will identify a seaweed from any one of the Chlorophyta, Rhodophyta, or Phaeophyceae.

Test format will be short, medium, and long answer written responses with a lab practical component. NOTE: please turn off your digital devices for the duration of the test.

Field Trips: 6 field trips are planned. Attendance and engagement are required.

Group Project: Student groups with a maximum of three people will work together on answering a question about seaweed. This project must have a field component, collect quantitative data, and follow the experimental method. All students in the group must contribute equally. Data collection can be conducted at any time, not just on class field trips. A separate instruction sheet will be provided outlining the expected format.

Student Symposium: Student groups of two will give a presentation (20 minutes) on the topics in one of the chapters in Seaweed Ecology & Physiology that are not addressed within the rest of the course. The format is up to the group, and creativity is encouraged in how they communicate the information.

Associated Spp. Lab is removed.

Participation: Students are expected to attend and be engaged during all events listed on the schedule. No changes in deadlines or early/late tests, assignments, etc. in the class will be made for student absences, with the exception of emergencies. To see the university's policies, go to the 'Course Attendance and Engagement (policy)' on the university website.

I encourage you to contact us at any time to discuss the class. Please seek us out for assistance, to express concerns, and discuss what works well. Our goal is for you to enjoy increasing your skills and knowledge, and we will make every effort to optimize the class to achieve this goal.

Please let me know within the first two weeks of the term if you need assistance to fully participate in the course. Participation includes access to lectures, web-based information, in-class activities, and exams.

Information about changes in this course will be communicated as soon as possible by email, and on Canvas. In the event of a Campus wide emergency, if we are not able to meet face-to-face, students should immediately log onto Canvas and read any announcements and/or access alternative assignments. Students are also expected to continue coursework as outlined in this syllabus or other instructions on Canvas if possible.

The University Student Conduct Code (available at conduct.uoregon.edu) defines academic misconduct. Students are prohibited from committing or attempting to commit any act that constitutes academic misconduct. By way of example, students should not give or receive (or attempt to give or receive) unauthorized help on assignments or examinations without express permission from the instructor. Students should properly acknowledge and document all sources of information (e.g., quotations, paraphrases, ideas) and use only the sources and resources authorized by the instructor. If there is any question about whether an act constitutes academic misconduct, it is the students' obligation to clarify the question with the instructor before committing or attempting to commit the act.