

MBI 212: Introduction to Marine Science II Spring 2025

Instructor: Dr. Sarah L. Mincks

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Class meeting times: T TH 11:30 – 1:00

Location: 201 O'Neil Bldg.
Office hours: by appointment

Prerequisites: OCE 211 or permission of instructor

Course Description

This course explores the diversity of marine life, from microbes to mammals, as well as the interactions of marine organisms with each other and with their environment. Topics include primary productivity, biology of marine organisms, marine food webs, physiological adaptations, and ecology of marine habitats from coastal to deep-sea systems. Students will also be introduced to current topics and methods in marine research.

Goals and Learning Objectives

1. Develop fluency in the vocabulary of marine biology, and learn how marine biological research is conducted and communicated.
2. Understand organization of the invertebrate tree of life, and identify representative organisms from the major marine phyla.
3. Consider the unique environmental constraints on marine organisms in a variety of different habitats, and the adaptations that have arisen to deal with these conditions.
4. Understand how energy and nutrients flow through the marine food web, and how energy flow relates to production of marine resources.
5. Examine how marine organisms interact with each other, and with their environment, and consider how these interactions shape the assemblages of organisms found in different marine habitats.

Course Logistics and Delivery Mode

This is an in-person course, and will meet on campus at the scheduled time and location. Pre-recorded lectures may be provided in the event that the instructor cannot be present during the normal class period (e.g. due to illness or travel). Likewise, students may request access to recorded lectures in the event of illness, emergency, or UAF-sanctioned activity/travel. Students given permission to participate remotely will be provided with a zoom link and are expected to attend synchronous lectures at the scheduled class time.

Communication: Schedule changes including cancelled classes will be announced using the default email address listed in your directory information as shown on UAOnline. Course materials, assignments, general announcements, and grades will be administered via [Canvas](#). *Please check your contact information and your Canvas notifications settings to ensure that you are receiving important information and updates in a timely manner.*

Text and Reading Assignments: The required text for this course is *Marine Biology, 6th Edition*, by Jeffrey S. Levinton. An eBook is available at a much reduced price. Most lectures are designed around the textbook, so following along in the book will be helpful to you. Corresponding readings for each lecture are noted on the lecture schedule. Additional readings (e.g., scientific papers) may be assigned periodically throughout the semester.

Assignments and Exams

* Additional assignments may be added during the semester.

Public seminars (20 points each): You are required to attend two public seminars or thesis defenses of your choosing at any time during the semester. These seminars should cover topics related to the natural sciences, but do not necessarily have to be on marine science in particular. Most seminars are accessible via Zoom, and some are recorded automatically or by request.

Most science departments on campus hold weekly seminars at the same time each week. You can also find fliers for upcoming special seminars and defenses posted on bulletin boards all around the West Ridge, or on the CFOS home page at www.uaf.edu/cfos/. Recorded asynchronous seminars are also available online from a variety of sources.

To receive credit for public seminars: Use the form available on the Canvas site to submit a short report to the instructor that includes the title of the presentation, speaker's name, location and date of the event (building, room number), and a paragraph describing the content of the presentation. Reports can be submitted at any time during the semester, but *all reports must be received by 5 pm on the day of our last lecture*. You may attend up to two additional seminars for **extra credit (10 points each)**.

Homework assignments: At least two sets of essay questions will be assigned during the semester. Questions will provide an opportunity for you to think through concepts covered in lectures, and will help you prepare for exams. Instructor feedback will be provided prior to exams.

Quizzes (~5 - 10 points each): Short quizzes will be administered periodically throughout the semester via Canvas. Quiz questions will be very similar to exam questions and will help you to gauge your level of preparedness for the exams. Your lowest quiz score will be dropped from your final grade.

Exams: Two midterms (1.5 hours) and **one final exam** (comprehensive; 2 hours) will be given during the course. Exams will consist of multiple choice and T/F, short answer, and short essay questions. Exam format will be discussed further during class.

Grading

Grades will be determined based on the absolute points awarded for the following requirements:

Quizzes (~5 x 5 pts)

~25

Midterm (2 x 75 pts)	150
Final exam	100
Seminars (2 x 20 pts)	40
Homeworks (~2 x 50 pts)	~100
Total	~415 pts.

Additional assignments and/or quizzes may be added during the semester, which may alter this point total.

Semester grades will be assigned according to the following scale:

A+ 98-100%	A 93-97%	A- 90-92%	
B+ 87-89%	B 83-86%	B- 80-82%	
C+ 77-79%	C 73-76%	C- 70-72%	
D+ 67-69%	D 63-66%	D- 60-62%	F <60%

Course Policies

Late work: Turning your work in on time makes it possible for the instructor to provide timely feedback, particularly study questions assigned to help you prepare for exams. *A grade penalty of 10% will be assessed every 24 hours until the work is submitted.*

Exams and quizzes will generally be administered via Canvas and can be taken within a multi-day window of time. For this reason, absences should not prevent submission of exams or quizzes. However, life does happen. If illness or other emergency should impact your ability to participate in the course and complete work, including exams, in a timely manner, please contact the instructor to extend due dates or request other accommodations. We can almost always find a solution, but communication is key.

A grade of Incomplete (I) will be given only to those students who have obtained permission prior to the last day of regular classes to complete course work after the scheduled date of the final exam. Permission will only be granted in situations where completion of work was made impossible by circumstances beyond the student's control, e.g., extended absence due to severe illness or injury of the student or family member. Students who do not have permission to take an Incomplete will be given a grade based on the number of points they have earned as of the semester's end. If work is not completed within one year of the scheduled final exam, incompletes will be changed to a grade of F, per UAF policy.

Participation / Attendance: You are much more likely to be successful in this course if you attend lectures, which will frequently include material that is covered in much less detail, or not at all, in the text. Lectures can also be recorded if requested in advance. Please communicate with the instructor if you must miss class so that we can accommodate your needs.

Plagiarism: Students should be familiar with the UAF Honor Code, which can be found in the course catalog. The Academic Misconduct Policy is also outlined [here](#). All work, including homework, exams, narration, discussion and quizzes must be the student's original work and not copied from another source, such as another student (past or present) or websites. Note that the Academic Misconduct Policy also applies to work created by AI-engines. Cite references as appropriate, and

present ideas in your own words. Plagiarism may result in an instructor-initiated withdrawal or an automatic F for the course.

UAF Policies

Student protections statement: UAF embraces and grows a culture of respect, diversity, inclusion, and caring. Students at this university are protected against sexual harassment and discrimination (Title IX). Faculty members are designated as responsible employees which means they are required to report sexual misconduct. Graduate teaching assistants do not share the same reporting obligations. For more information on your rights as a student and the resources available to you to resolve problems, please go to the following site: <https://catalog.uaf.edu/academics-regulations/students-rights-responsibilities/>.

Disability services statement: I will work with the Office of Disability Services to provide reasonable accommodation to students with disabilities.

ASUAF advocacy statement: The Associated Students of the University of Alaska Fairbanks, the student government of UAF, offers advocacy services to students who feel they are facing issues with staff, faculty, and/or other students specifically if these issues are hindering the ability of the student to succeed in their academics or go about their lives at the university. Students who wish to utilize these services can contact the Student Advocacy Director by visiting the ASUAF office or emailing asuaf.office@alaska.edu.

Course-Relevant Student Academic Support:

- Writing Center (907-474-5314, uaf-writing-center@alaska.edu, Gruening 801)
- The Debbie Moses Learning Center at CTC (907-455-2860, 604 Barnette St, Room 120, <https://www.ctc.uaf.edu/student-services/student-success-center/>)
- For more information and resources, please see the Academic Advising Resource List <https://www.uaf.edu/advising/students/index.php>

Student Resources:

- Disability Services (907-474-5655, uaf-disability-services@alaska.edu, Whitaker 208)
- Student Health & Counseling [6 free counseling sessions] (907-474-7043, <https://www.uaf.edu/chc/appointments.php>, Gruening 215)
- Office of Rights, Compliance and Accountability (907-474-7300, uaf-orca@alaska.edu, 3rd Floor, Constitution Hall)
- Associated Students of the University of Alaska Fairbanks (ASUAF) or ASUAF Student Government (907-474-7355, asuaf.office@alaska.edu, Wood Center 119)

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For more information, contact:

UAF Office of Rights, Compliance and Accountability, 3rd floor, Constitution Hall
907-474-7300; uaf-orca@alaska.edu

Course Schedule

	Date	Lecture Topic	Readings
1	1/14	Course overview; Review: Oceanic Environment	Ch. 2
	1/16	Climate Oscillations and Climate Change	Ch. 3
2	1/21	Principles of Marine Ecology	Ch. 4
	1/23	Life in a Fluid Medium	Ch. 6
3	1/28	Marine Plankton I: Phytoplankton & Other Microbes	Ch. 8
	1/30	Marine Plankton II: Zooplankton	Ch. 8
4	2/4	Primary Production	Ch. 11
	2/6	Pelagic Fishes: Distribution and Adaptations	Ch. 9 & 10—focus on relevant sections
5	2/11	Pelagic Ecosystem Processes	Ch. 12
	2/13	STUDY SESSION	
6	2/18	MIDTERM 1	
	2/20	Physiological Challenges of Life in the Sea	Ch. 5
7	2/25	Life-History Strategies	Ch. 7
	2/27	Life-History Strategies (continued)	
8	3/4	Diversity of Benthic Invertebrates	Ch. 14
	3/6	Diversity of Benthic Invertebrates (continued)	
9	3/11	SPRING BREAK	
	3/13		
10	3/18	Feeding Strategies	Ch. 15
	3/20	Rocky Intertidal	Ch. 16
11	3/25	Soft-Bottom Habitats	Ch. 15

	3/27	Salt Marshes, Mangroves and Seagrass Beds, & Estuaries	Ch. 16, Ch. 17
12	4/1	MIDTERM 2	
	4/3	Kelp Forests	Ch. 17
13	4/8	Coral Reefs	Ch. 17
	4/10	Deep-Sea Floor	Ch. 18
14	4/15	Deep-Sea Floor (continued)	
	4/17	Chemosynthetic Habitats	
15	4/22	Marine Pollution	Ch. 22
	4/24	Polar Marine Ecosystems	Ch. 19
	4/29	Final Exam (Comprehensive)	