

INTRODUCTION TO MARINE SCIENCE – FT193

University of Alaska Southeast

2015-2016 Syllabus

Mondays, 5:00-7:30pm, Rm 202 UAS Sitka Campus, or distance delivery

This will be a hybrid class with some students face-to-face and others via distance delivery. Students will find information about this course through UAS online (Blackboard). If you are taking the course distance delivery, you will need access to a computer and a headset with microphone (if you need one, please ask before class starts). We will utilize the web meeting function (Collaborate Live), which you will find on the left hand tool bar of the homepage of UAS on-line. We will review using this the first night of class.

Instructor

Lauren Bell

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Office hours: by appointment only

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Course Description

In this survey course, students will be exposed to core concepts within marine ecology, oceanography, fisheries, marine animal physiology, and other related topics in the marine sciences. Students will also be introduced to major modern changes to marine ecosystems, such as ocean acidification and fisheries declines, to highlight the current worldwide demand for marine scientists. Coursework will include readings and discussion of relevant research with the aim of familiarizing students with the scientific process.

Course Objectives

At the end of this course, students will be able to:

- describe the basic physical and chemical structure of the oceans and how they differ regionally
- link oceanographic features with nutrient transport and biological productivity
- compare and contrast the structure and function of the major marine ecosystems
- understand the community interactions and regimes that shape marine ecosystems as well as the ecological metrics used to describe these processes
- describe the major algal, invertebrate, and vertebrate taxonomic groups present in the ocean and list defining characteristics of major taxa
- list some physiological adaptations that enable marine organisms to thrive in 'extreme' environments
- name the major fisheries in Alaska and the governing bodies responsible for their management
- summarize the positions of competing marine resource user groups and the challenges inherent in "fair" resource allotment
- describe the major anthropogenic stressors affecting the global marine environment and the anticipated consequences of these changes in Alaskan waters

UAS Competencies

This course will address the following UAS competencies:

- Competency in Critical Thinking: Students in this class will be required to apply critical thinking skills to understand the unique habitat of the marine world and how plants and animals are adapted to live in it. Students will also be required to critically assess the scientific approach to a variety of research questions in the marine sciences.
- Competency in Professional Behavior: Students in this class will be required to provide constructive critiques of marine primary research in weekly reading discussions. Students will also be expected to value and respect the wide variety of marine science fields, even if outside of their own interests.
- Competency in Information Literacy: Students will be required to conduct their own research to craft an argument supporting their critical issue. They will then be required to give an oral presentation to their peers as well as evaluate each other's arguments in debate.
- Competency in Communication: Students in this class will demonstrate communication skills in their critical issue presentation as well as their weekly discussion posts.

Academic Grading

I calculate your grade from the following point totals:

100 pts - Midterm
150 pts - Final (cumulative)
100 pts - Critical issue presentation & debate
150 pts - Class participation (attendance, reading discussions, discussion posts)

500 pts total

Final grades will be based on percentage points (i.e., X/500 possible points):

A+ 97-100%	B+ 87-89%	C+ 77-79%	D+ 67-69%	F less than 60%
A 92-97%	B 82-87%	C 72-77%	D 62-67%	
A- 90-92%	B- 80-82%	C- 70-72%	D- 60-62%	

Readings

There is no required textbook for this course. However, a selection of readings will be provided via Blackboard throughout the semester - some of which will be peer-reviewed research and review articles that have been published in scientific journals. A secondary goal of this course is that you will become more comfortable reading, interpreting, and critiquing such articles, as this process represents an integral part of scientific research and communication.

Readings will be provided at least a week in advance of the class in which they are discussed. All students will be expected to have read the material prior to class and be prepared to summarize and evaluate the content during discussion. Once we get going, I may assign a particular student to lead and moderate the paper discussion that week.

Discussion Posts

For more informal materials and media associated with a course module, I may request that you write a response to the material in a Blackboard Discussion Post. I will inform you of my expectations for each post individually. Ideally, these posts will stimulate discussions between students via Blackboard by posing questions to each other or taking positions on a certain issue.

Critical issue presentation and debate

For this course, each student will prepare a short (10-15 min) presentation on:

the most important issue currently facing Alaska's marine ecosystem

Throughout the course we will be discussing various natural and anthropogenic pressures on our global and local seas. These include, but are not limited to:

- *Overfishing*
- *Ocean Acidification*
- *Warming Temperatures*
- *Invasive Species*
- *Pollution (debris, spills, noise)*
- *Reduction in polar sea ice extent*
- *Glacier melt/terrestrial run-off*

I would like you to choose which of these issues you think is most critical to Alaska's oceans at this time and thus should be prioritized for ongoing research around the state. You are welcome to choose a topic I have not listed as long as you discuss with me first. As most of these issues are inextricably tied to one another, it is expected that you will briefly touch on these interactions in your presentation. However, your assignment is to make an argument that one research topic should be prioritized for funding over all others. There is no "right answer" here – I mainly want to see that you have thought through the consequences of each of these issues and can summarize their importance. You are welcome to use Powerpoint slides to assist in your presentation, but it is not required.

The last class period before Thanksgiving break will be set aside for these presentations as well as an informal debate. We are going to pretend that I represent a millionaire philanthropist, and you are competing with each other for funding that will support research in Alaska in the sphere of your choice. Philanthropist me will have no prior knowledge of any of these topics, so you'll be expected to both explain what the issue is and why it represents the biggest change to the Alaskan marine ecosystem and/or those who depend on its resources. We will start with individual presentations, and then move into questioning and debate amongst each other to justify why your topic is most deserving of funding. Depending on how many topics are chosen in total by the class, we may split into teams for this debate. This is meant to be a fun way to start our wrap-up to the semester, and a chance to synthesize everything you've learned during this course.

By November 2nd: Post your chosen topic and 3-4 sentences supporting your choice in the blackboard discussion thread titled "Critical Issue". Your justification should be grounded in some background research and synthesis, but no sources are required.

Tentative Semester Schedule

<u>Date</u>	<u>Topics</u>
August 31st	Introduction <i>syllabus, assignments, paperwork</i>
	OCEANOGRAPHY
	The ocean as a setting for life <i>properties of seawater, ocean chemistry</i> <i>nutrient cycles</i> <i>oceanic and benthic subdivisions</i>
September 14th	Motion of the ocean: global <i>conveyor belts: large-scale transfers of heat & nutrients</i> <i>gyres and the Coriolis effect</i> <i>climate indices (PDO, ENSO, AO)</i>
September 21st	Motion of the ocean: local <i>upwelling/downwelling, Ekman transport</i> <i>currents/tides/waves</i> <i>mixing vs. stratification</i>
September 28th	BIOLOGY OF MARINE SPECIES Organisms: plants & plankton <i>microbes</i> <i>macroalgae</i> <i>phytoplankton and zoops - biology, differences at latitude,</i> <i>ideal environments</i>
October 5th	Organisms: macrofauna part 1 <i>major taxonomic divisions</i> <i>basic biology - body plans and ecological niches</i>
October 12th	Organisms: macrofauna part 2 <i>major taxonomic divisions</i> <i>basic biology - body plans and ecological niches</i>
October 19th	<u>MIDTERM (any time this week, Oct 19-23rd)</u> MARINE ECOLOGY Ecosystems <i>tidal: mangroves, salt marshes, mudflats, rocky intertidal,</i> <i>estuaries</i> <i>coastal: shelves, seagrasses, coral reefs</i> <i>lesser-seen: pelagic, deep-sea, polar</i>
October 26th	Physiological adaptations <i>all organisms: hydrodynamics, energetics, osmoregulation</i> <i>deep sea</i> <i>intertidal</i> <i>marine mammals</i>

November 2nd	<u>Critical issue topic and justification due on blackboard</u> Community processes <i>biodiversity, productivity, biotic interactions</i> <i>food webs, energy flow</i> <i>population dynamics - disturbance, reproductive strategies</i>
November 9th	FISHERIES Fisheries management <i>overview of population modeling - what do we need to know?</i> <i>overview of management process (scientists, users, BoF, etc.)</i> <i>ecosystem-based management, cross-borders</i> <i>case studies - methods of management</i>
November 16th	Human dimensions <i>historical use, fishing as culture</i> <i>competing interests, environmental justice</i> <i>tragedy of the commons vs. tragedy of open access</i>
November 23rd	CRITICAL ISSUE CLASS DEBATE
November 30th	CHANGING OCEAN <i>Current topics (esp. those not covered in debate)</i> <i>Recent research</i> <i>The "good news" - next directions for marine science</i>
December 7th	<u>FINAL</u>

SPECIFIC INFORMATION AND EXPECTATIONS

How to Begin

1. Read your **Getting Started Packet** (sent by US Mail), return required forms
2. To access the class you will need to set up a UAS user name and password. To do this follow the instructions at: <https://uascentral.uas.alaska.edu/elmo>. Make sure to write down your user name and password for future reference. If you have difficulty with the on-line format, remember that the help desk is available as are several tutorials. Contact the help desk for more information: toll free 1-877-465-6400 or local 796-6400; e-mail: helpdesk@uas.alask.edu

Help Resources

Sitka Campus: sitka.distance@uas.alaska.edu, 800-478-6653 or 907-747-7700 (x = phone extension)

- You can start here with questions about *any* aspect of our course, including technology.
If we don't know the answer we will find someone who does
- eLearning Support: Kim x7709, Eric x7757, Emy x7721, Amy x7726, Randy x7701
- UAS Sitka Facebook and Twitter www.uas.alaska.edu/sitka.

UAS Technology Help Desk: 877-465-6400, <http://www.uas.alaska.edu/helpdesk/>

Attendance, lectures, and exams

Attendance is required and factors into the final course grade under “class participation”. If you are unable to attend class, please contact the instructor prior to class. It is the responsibility of the student to get information missed in class. All class lectures are archived in UAS online home site for the course, and we will go over finding these the first night of class.

Exams will be sent to pre-arranged proctors. Students residing in Sitka, Juneau and Ketchikan will take exams at UAS learning centers. I will give you the better part of a week to take the exams, from 8am on Monday to 5pm on Friday. It is the responsibility of each student to find an appropriate exam proctor. Please contact me early in the semester if you have questions about this. In rural areas, schools, libraries or places of employment have been used for this purpose. No notes, books or other resources are to be used in the exam room.

Approaching the course

This course is meant to provide a comprehensive overview of a very broad set of topics, which means we will be stuffing a lot of information into this short semester. I encourage you to review the learning objectives for the course as well as for each lecture, as these will guide how I will assess your knowledge on midterms, the final, and in your presentation. I would encourage you to avoid memorizing specific details and numbers and focus more on understanding the broader concepts and processes we discuss in this course. I am happy to schedule a time to sit down and chat outside of class time if you are having trouble with a particular topic or would like to know more detail. Please do not hesitate to contact me by email or phone.

Technology

Expect to face some technology issues as part of this course – the technology is imperfect, as are the people using it (namely, me). Poor internet access can put you at a disadvantage. We will try to accommodate any issues that come up as they come up during class. Hopefully we can troubleshoot most issues and become familiar with the interface during the first class, but please do not hesitate to contact me if you are continuing to experience issues in future classes. If you are having trouble connecting to the class at a regularly scheduled meeting time, you may call or text my number listed at the top of this syllabus.

Web Meetings

Feel free to interrupt me at any time. Use the “raise your hand” function to be sure I see you. Off-topic chatting is distracting to everyone, so keep text messages on topic. Collaborate sends all messages to the instructor, even if you send only to another student.

Respectful communication is expected at all times. Vast distances may separate us, but we are all in this course together. You will have many opportunities to work with classmates. I encourage you to get into the habit of contacting me (or using other help options) at least once a week to clear up questions.

Incomplete Policy

Incomplete grades may sometimes be negotiated when circumstances such as illness or family emergency interfere with completion. To qualify for consideration of an incomplete a student must have completed the majority of coursework, earned a C or better on the midterm, and participated fully and consistently though out the class. Incomplete grades will not be given in cases of non-participation or failure to communicate with the instructor. Students who are unable to participate in coursework for a significant amount of time during the semester should plan to re-register for the course at a later date rather than take an incomplete grade.

Student ratings of Instruction

During the last three weeks of class, you will have an opportunity to complete an on-line rating questionnaire on course instruction, how the course aided in your skill development, effectiveness of technology and equipment used, and adequacy of library resources and services used during the course. You will receive notification in your UAS email account when the rating questionnaire is available. Please make use of this opportunity to provide feedback on what worked for you and what did not. Your input is used to assess methods and services in order to provide the best educational experience possible.

Important dates

1 st day of class	August 31
Labor Day holiday (no class)	September 7
Last day to withdraw from the class without a grade and 100% refund:	September 15
Last day to change from credit to audit or vise-versa	September 15
Last day to withdraw from class with a “W”	November 20
Thanksgiving holiday	Nov 26 – 29
Finals week	Dec 7 – 12

GENERAL INFORMATION

Students with Disabilities

The University of Alaska Southeast is committed to providing a working and learning atmosphere that supports our diverse student population. The Americans with Disabilities Act (ADA) of 1990 and Section 504 of the Rehabilitation Act of 1973 prohibit discrimination against any qualified person regardless of his or her disability, and require universities to provide reasonable accommodations to students with disabilities in order to ensure equal access to all academic and co-curricular programs and services. Students with disabilities requesting accommodations should contact the Disabilities Support Services (DSS) Coordinator to obtain forms for requesting accommodations and documentation requirements. Once a determination is made, faculty will be notified of the accommodations established for the student, which they must allow. The nature of all disabilities is held extremely confidential. Students are encouraged to request accommodations prior to the start of the semester, or as soon as possible, to allow time for a formal review and for the accommodations to be put into place. The DSS Coordinator for the UAS Sitka Campus is Christopher Washko, Student Success Center Manager (Rm 226C), who can be contacted at cmwashko@uas.alaska.edu or (907) 747-7703.

Sexual Harassment, Sexual Violence, and Gender-Based Discrimination Policy

The University of Alaska Southeast is committed to providing both employment and educational environments free of harassment or discrimination related to an individual's race, color, gender, religion, national origin, age, physical or mental disability, veteran status, marital status, pregnancy or parenthood as prohibited by Title IX of the Education Amendments of 1972 and of Title VII (Section 703) of the Civil Rights Act of 1964. University of Alaska Board of Regents policy further includes sexual orientation as a protected class on all UA campuses. These protections are extended not only to university employees, but to students and campus visitors as well.

Title IX specifically prohibits sexual harassment, gender-based discrimination, and sexual violence against any participant in an educational program or activity that receives federal funds. Sexual violence includes attempted or completed rape or sexual assault, as well as sexual harassment, stalking, voyeurism, exhibitionism, verbal or physical sexuality-based threats or abuse, and intimate partner violence. Title IX aims to create educational environments absent all forms of sex discrimination. It addresses university programs, admissions, athletics, sponsored activities and organizations, and student-to-student sexual harassment/violence conducted either on or off-campus. Any person who believes herself or himself (or another member of the university community) to be subjected to such unlawful sexual harassment, violence, discrimination, intimidation and/or exploitation should immediately bring the matter to the attention of the campus Title IX Officer, or to any instructor, academic or administrative officer, supervisor, or advisor. These employees are then mandated to forward the complaint confidentially to the campus Title IX Officer, who will take prompt actions to investigate all incidents and take necessary actions to immediately stop the unlawful behavior or situation, prevent its reoccurrence, and remedy its effects upon the victims and the university community. The Sitka Campus Title IX Officer is Christopher Washko, who can be reached at (907) 747-7703.

Multi-Lingual Students

Taking an advanced course in a language that is not your first language is an accomplishment to be admired. It can also be a challenge. Our writing tutors have ESL expertise and a commitment to helping you reach your goals.

Academic Honesty

Academic integrity is expected at all times. **It is the student's responsibility to be familiar with the relevant sections in the UAS catalog and the UAS student handbook.** Academic dishonesty of any type, including plagiarism and inappropriate test conduct, will typically result in the most serious consequences provided for by UAS policy. Test misconduct or plagiarism of a written or image-based assignment (including Open Book Tests, Disease Team posts and Labs) will result in a zero for the assignment or a failing grade for the course. Students are required to view the presentation on avoiding plagiarism at our website before starting assignments. See tutorial at: <http://www.uasplus.com/ssc/lo/508plagiarism/>