

Kelp Forest Ecology
MSL 656

Summer XXXX

Dates:

CREDITS: 2

PREREQUISITES: graduate standing
and current UA AAUS certification

MEETING TIME/COURSE TYPE: This
is a field course that meets daily at the
Kasitsna Bay Lab

INSTRUCTOR: Brenda Konar



COURSE DESCRIPTION

Introduction to knowledge, hypotheses, and disputes regarding kelp forest ecology, including the environmental and ecological interactions that influence their distribution, structure, and function. Course includes lectures, discussions, labs, and scuba diving field trips. We take a global perspective but focus on local Alaska subtidal flora and fauna.

STUDENT LEARNING OUTCOMES

For 656 graduates:

- ↳ You will have a deep understanding of the existing knowledge, hypotheses, and disputes regarding kelp forest communities and the ecological interactions that influence their structure and dynamics,
- ↳ You will be able to identify common Alaska subtidal fish, invertebrates, and macroalgae,
- ↳ You will be able to analyze, synthesize, and present data (in an oral presentation) from the long term monitoring sampling that will be completed by all students during the course
- ↳ You will be able to lead labs (set-up, data organization, and analysis, and present results to the class);
- ↳ You will be able to critically evaluate and then lead paper discussions of current relevant literature;
- ↳ You will show mastery of different sampling methods and the ability to choose and conduct the correct type of sampling for a given question.

For 456 undergraduates:

- ↳ You will have an understanding of the existing knowledge, hypotheses, and disputes regarding kelp forest communities and the ecological interactions that influence their structure and dynamics,
- ↳ You will be able to identify common Alaska subtidal fish, invertebrates, and macroalgae,
- ↳ You will be able to sample for various metrics in kelp forests,
- ↳ You will be able to conduct research in kelp forests.

COURSE READINGS/MATERIALS

There are multiple peer-reviewed scientific papers that we will read and discuss during the course. These will be supplied to you in electronic format.

TECHNICAL REQUIREMENTS FOR COURSE

Students must have regular access to a laptop computer. There is (limited) internet at the Kasitsna Bay Lab.

INSTRUCTIONAL METHODS

This is a field course at the Kasitsna Bay Lab. Lectures, labs, and field excursions will all be done while at the lab. Facilities at the lab are disability accessible. However, SCUBA diving excursions are required.

COURSE POLICIES

All assignments must be completed by the date they are due.

No late assignments will be accepted, and you will receive 0 points for any assignment not submitted by the due date. I may grant exceptions under very rare circumstances (e.g., severe sickness over prolonged periods).

ACADEMIC INTEGRITY

As described by UAF, scholastic dishonesty constitutes a violation of the university rules and regulations and is punishable according to the procedures outlined by UAF.

Scholastic dishonesty includes, but is not limited to, cheating on an exam, plagiarism, and collusion. Cheating includes providing answers to or taking answers from another student. Plagiarism includes use of another author's words or arguments without attribution. Collusion includes unauthorized collaboration with another person in preparing written work for fulfillment of any course requirement. Scholastic dishonesty is punishable by removal from the course and a grade of "F."

For more information go to [Student Code of Conduct](#).

GRADES

Paper Discussions	5
Paper Discussion lead	5
Organism Exam	20
Presentation	15
Herbarium	15
Final Exam	25
Labs	15

Paper Discussions

Students will read assigned papers and contribute at least one criticism and one positive attribute for each paper. Students should be able to relate the paper to other studies in the literature and to field observations. Students will lead at least one paper discussion.

Organism Exam

The class will keep a running list of common organisms (fish, invertebrates, and seaweeds) found during field trips. Each student will be expected to identify and correctly spell (scientific names) at least 30 different live organisms that will be presented to them in a test-setting in the Kasitsna Bay wet lab.

Presentation

Each student will give a 12-minute conference style presentation on data that they chose to analyze from the long-term monitoring sampling done during the class. The student will pick the question that they want to answer with their analyses and explain in their introduction, why this question is interesting and important. Each presentation should also include overall conclusions (i.e., what does this mean?).

Herbarium

Each student will construct an herbarium consisting of 20 red algal species, 5 brown algal species, and 5 green algal species. Each pressing must be correctly identified.

Final Exam

This will be a closed book exam material from the lecture, readings, and labs. There will be approximately 20 questions that will be short answer (a few sentences or a diagram) and approximately 3 questions that will entail a longer (1 page) answer, which will require the student to demonstrate a deeper, integrated understanding of the ecological concepts discussed during the class.

Labs

Each student will be expected to participate in all labs. Students will also be expected to lead at least one lab, i.e., perform lab prep, collect and summarize data collected during the lab, and present summarized data during paper discussion relevant to that lab.

Recommended Courses: Invertebrate Zoology, Ecology, Statistics

Recommended General Books:

****Guide books will be available for you to borrow at the Kasitsna Bay Lab.**

Absolute scores will be used to determine final grades, which will be on the +/- scale.

	<i>A = 93% and greater</i>	<i>A- = 90% and greater</i>
<i>B+ = 86% and greater</i>	<i>B = 83% and greater</i>	<i>B- = 80% and greater</i>
<i>C+ = 76% and greater</i>	<i>C = 73% and greater</i>	<i>C- = 70% and greater</i>
<i>D+ = 66% and greater</i>	<i>D = 63% and greater</i>	<i>D- = 60% and greater</i>
	<i>F = lower than 60%</i>	

EXPLANATION OF NB/I/W GRADES

This course adheres to the UAF policies for granting NB Grades:

The NB grade is for use only in situations in which the instructor has No Basis upon

which to assign a grade. In general, the NB grade will not be granted.

This course follows the UAF Incomplete Grade Policy:

“The letter “I” (Incomplete) is a temporary grade used to indicate that the student has satisfactorily completed (C or better) the majority of work in a course but for personal reasons beyond the student’s control, such as sickness, he has not been able to complete the course during the regular semester. Negligence or indifference are not acceptable reasons for an “I” grade.”

Successful, timely completion of this course depends on committing yourself early and maintaining your effort. Failure to submit assignments in a timely manner may result in faculty-initiated Withdrawal from the course, which can result in a **W** on your transcript.

OTHER PERTINENT INFORMATION

BOATING

Any student wanting to drive boats for their project must take the on-line boating class prior to the start date of the course and bring their completion certificate with them to the lab. A practical exam and orientation will be given at the lab.

<http://www.boatus.org/onlinecourse/Alaska.asp>

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/academicsregulations/students-rights-responsibilities>.

I will work with the [Office of Disability Service](#) to provide reasonable accommodation to students with disabilities. Contact information: uaf-disability-services@alaska.edu
Phone: 907.474.5655 or TTY: 907.474.1827 or Fax: 907.474.5688

SUPPORT SERVICES

Go to the Student Handbook (www.uaf.edu/handbook) for things like: academic advising, tutoring, library and academic support, disability services, computing and technology, veteran and military support, academic complaint and appeals, late withdrawals, “classroom” behavior expectations and more.

UAF Help Desk

Go to <http://www.alaska.edu/oit/> to see about current network outages and technology news.

For technical questions, contact the Help Desk at:

- e-mail at helpdesk@alaska.edu
- phone: 907.450.8300 or 1.800.478.8226

Tutorial and academic support

Students who have difficulties with oral presentations, mathematics and/or writing are strongly encouraged to get help from:

- [UAF Speaking Center](#) (907.474.5470, speak@uaf.edu)
- [UAF Writing Center](#) (907.474.5314, Gruening 8th floor)
- [UAF Math Services](#)
- [Debbie Moses Learning Center at CTC \(907.455.2860\)](#) (604 Barnette St, 907.455.2860).

NOTICE OF NONDISCRIMINATION

UA is an AA/EO employer and educational institution and prohibits illegal discrimination against any individual: www.alaska.edu/nondiscrimination.

COVID

Students should keep up-to-date on the university's policies, practices, and mandates related to COVID-19 by regularly checking this website:

<https://sites.google.com/alaska.edu/coronavirus/uaf/uaf-students?authuser=0>

Further, students are expected to adhere to the university's policies, practices, and mandates and are subject to disciplinary actions if they do not comply.

EXAMPLE COURSE SCHEDULE:

DATE	morning	afternoon	evening
		arrive at the lab	Meet and chat
1	Lectures: -Kelp Forest Introduction	Dive: check out KBay Boat check outs Lab: Algal Pressings	Paper discussion: Krumhansl et al. 2016 Lead: TBD
2	Lectures: -Biological Drivers -Common Macroalgae and Invertebrates -Biological Sampling	Dive: Hezketh (offshore rocks) Macroalgal sampling Plant tagging Collection of holdfasts	Lab: Holdfast dissections Paper discussion: Schuster and Konar 2014 Lead: TBD
3	Lecture: -Abiotic Drivers -Physical Sampling	Dive: Hezketh (inshore) Physical attribute sampling (rugosity, substrate, flow, slope) Sample horizontal/vertical substrates and soft/cobble substrates	Lab: Work up data Paper discussion: Smale et al. 2020 Lead TBD:
4	Lecture: -Aleutian Kelp Forests: A sea otter's tale	Dive: Homer Spit urchin barren	Lab: Urchin count, measure, GSI Paper discussion: Weitzman and Konar 2021 Lead: TBD
5	Lecture: -Kelp Forests Around the World -Monitoring	Lecture: Monitoring	Paper discussion: Pedersen et al. 2012 Lead: TBD

6	Permanent Site Sampling (PSS) Dive: Cohen Leave dock: TBD	PSS Lab	Lab: PSS sorting
7	PSS Dive: Elephant Leave dock: TBD	PSS Lab	Lab: PSS sorting
8	PSS Dive: Outside Beach Leave dock: TBD	PSS Lab	Lab: PSS sorting
9	PSS Dive: Port Graham Leave dock: TBD	PSS Lab	Lab: PSS sorting
10	off	Organism Exam	Movie night... Blue Planet
11	Dive: (Kasitsna Bay) chemosensory ability and sea star movement	Dive: (Kasitsna Bay) chemosensory ability and sea star movement	Paper Discussion: Brewer and Konar 2005 Lead: TBD
12	Dive: Hezketh Resample tagged plants	Examine growth data	off
13	off	Herbariums due PSS Presentations (grad students)	off
14	off	Final Exam	
	Leave lab		