

# Zoology 352: Marine Ecology Lab

(Spring 2014, 2 credits)

## Instructors

Mark Novak (Cordley 3006, [mark.novak@science.oregonstate.edu](mailto:mark.novak@science.oregonstate.edu)), Office hour: Wedn, 1-2 pm)

Lillian Tuttle (Cordley 5018A, [tuttlel@science.oregonstate.edu](mailto:tuttlel@science.oregonstate.edu), Office hour by appointment)

Kurt Ingeman (Cordley 5020, [ingemank@science.oregonstate.edu](mailto:ingemank@science.oregonstate.edu), Office hour by appointment)

## Class Meeting Times

This class officially meets on Thursdays from 0800-1200 in Cordley 2035. However, since this is a field-oriented lab course we will be meeting very early in the morning on several occasions to go into the field (see schedule). We will always *try* to be back on campus by noon. *If you will not be available for all three of the fieldtrips, you should not enroll in this course.* Please check the course schedule carefully for meeting times.

## Course Documentation

All handouts and assignments will be posted on the Blackboard website (<http://my.oregonstate.edu/>).

## Field Guides (recommended, but not required)

1) *Field Guide to Oregon's Rocky Intertidal*. 2007. K. Krieg. (Available on Blackboard)

2) *Coastal Fishes of the Pacific Northwest*. 1996. A. Lamb and P. Edgell. Harbour Publishing Co.

## Supplies for Field Trips

1) calf-high or thigh-high rubber boots - *essential* for working in the rocky intertidal

2) warm and waterproof clothes (or warm clothes you do not care about)

## Course Fees

This is a field-oriented lab and we will be making several trips to the coast using school vans. There will be a \$50 charge added to your student account statement to help cover transportation costs.

## Course Description

Marine ecology is the study of the distribution and abundance of organisms and how they interact with the marine environment. Students will investigate important theories, common techniques, and current trends in the discipline of marine ecology. However, the primary focus of the course is to teach students how to “do science” by (1) conducting a field experiment that explores ecological patterns and processes in Oregon’s rocky intertidal, and (2) effectively analyzing and communicating experimental results.

## Student Learning Outcomes

1. *Identify* intertidal species and *explain* patterns observed in the intertidal zone. Students’ learning will be assessed based on accurate identification of organisms, and ability to use evidence and logic to explain observed biological patterns.
2. *Comprehend* and *perform* the steps of the scientific method. Students’ learning will be assessed by evaluating their contributions to planning, conducting, and reporting on a group research project, and by their ability to evaluate projects being conducted by other class groups.
3. *Understand* differences among basic statistical methods (t-tests, regression, ANOVA), and be able to *use* the appropriate test to analyze data collected for their final project. Students’ learning will be assessed based on the statistical methods and results sections of their final group projects as well as an in-class statistics activity and worksheet.
4. *Evaluate* the strengths and weaknesses of primary scientific research. Students will demonstrate their learning through evaluations of scientific talks and journal articles.

## Grading

	<b>%</b>	<b>Points</b>	
	15%	30	Participation: classroom & field
	5%	10	Ecobeaker
	5%	10	Introduction to Statistics activity
	5%	10	Debate Pro-Con Summary
	10%	20	Critiques (Scientific paper and Scientific talk)
	10%	20	Project proposal & rough draft of individual paper section
	25%	50	Oral project presentation
	25%	50	Final project paper
Total:	100%	200	

## Absence and Late Work Policy

Field trips cannot be made up. Under extenuating circumstances, in-class assignments may be made up *at the discretion of the instructors*. All late work will be penalized by 10% per day.

## Academic Honesty and Student Conduct

We will follow the University's rules on student conduct. All the work you do in this class must be your own, must be new, and must be original. Plagiarism or cheating of any type will result in a zero on the illegitimate assessment. Cases of academic dishonesty will also be referred to the academic unit and the Student Conduct and Community Standards Office for additional disciplinary action. <http://oregonstate.edu/studentconduct/regulations/index.php>

(a) Academic dishonesty is defined as an intentional act of deception in which a student seeks to claim credit for the work or effort of another person or uses unauthorized materials or fabricated information in any academic work. (b) It includes "cheating" (intentional use or attempted use of unauthorized materials, information, or study aid), "fabrication" (intentional falsification or invention of any information), "assisting in dishonesty" (intentionally or knowingly helping or attempting to help another commit an act of dishonesty), "tampering" (altering or interfering with evaluation instruments and documents), and "plagiarism" (intentionally or knowingly representing the words or ideas of another person as one's own). (c) Academic dishonesty cases are handled initially by the instructors, but will also be referred to the Student Conduct Coordinator for action under these rules.

***Any of these acts will result in a ZERO for the assignment in which they occur for both the student committing the act and the students allowing the act to occur***

## Statement Regarding Students with Disabilities

Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course ***prior to or during the first week of the term*** to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at 737-4098; <http://ds.oregonstate.edu/home/>.

## Disclaimer

We reserve the right to change the schedule, content, policies, and assignments in this course due to extenuating circumstances or by mutual agreement between the instructors and the students.

Z352 Marine Ecology Laboratory

<u>Date</u>	<u>Meeting Time</u>	<u>Description</u>
4-3	8:00	Course introduction In-class worksheet: Skills and knowledge assessment Lecture 1 & activity: <i>Marine ecology patterns and processes</i> Lecture 2: <i>Scientific method: Understanding biological patterns</i> Introduction to research topics <b>Assignment:</b> reading (on Blackboard)
4-10	8:00	Lecture 3 & activity: <i>Sampling design</i> Lecture 4: <i>Scientific communication (writing and presenting)</i> Activity: Group discussion on reading <b>Assignment:</b> Ecobeaker (open-note quiz on 4/24)
4-17	<b>Depart Cordley Hall 6:00AM!!!</b>	<b>FIELD TRIP TO BOILER BAY</b> (low tide: -0.29 m @ 0822) Class data collection Team exploration and planning <b>Assignment:</b> Project proposal draft (Due 4/24)
4-24	8:00	<b>Due: Project proposal draft</b> (we will provide quick feedback) <b>Open-note quiz:</b> Ecobeaker Lecture 5 & activity: <i>Introduction to statistics</i> <b>Assignment:</b> Final project proposal (Due 5/1)
5-1	<b>Depart Cordley Hall 6:00AM!!!</b>	<b>FIELD TRIP TO BOILER BAY</b> (low tide: -0.35 m @ 0826) <b>Due: Final project proposal</b> Group data collection <b>Assignment:</b> Scientific paper critique ( <i>your paper of choice</i> , Due 5/8) Read papers to prepare for in-class debate 5/8
5-8	8:00	<b>Due: Scientific paper critique</b> In-class debate
5-15	<b>Depart Cordley Hall 6:00AM!!!</b>	<b>FIELD TRIP TO BOILER BAY</b> (low tide: -0.53 m @ 0723) Group data collection <b>Assignment:</b> Rough draft of project paper (Due 5/22)
5-22	8:00	<b>Due: Rough draft of project paper</b> Lecture 6 & activity: Invited speaker TBD <b>Assignment:</b> Second draft of project paper (Due 5/29)
5-29	8:00	<b>Due: Second draft of project paper (bring 8 copies)</b> <b>Due: Scientific talk critique</b> Review and edit other groups' drafts Group work on paper and presentation
6-5	8:00	<b>DUE: FINAL PROJECT PAPER and GROUP PRESENTATIONS</b>