

Instructional Team:

Instructor:

Dr. Karla Heidelberg
Office Hours: TH 11:00-12:00 or 2:00-3:00
Location: CAS ENST suite
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Teaching Assistant:

Chris Suffridge
Office Hours: W 9:00-10:00
Location: ACB 508
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Textbooks: Lecture: Peter Stiling, 2015, ECOLOGY, Global Insights and Investigations (2nd Ed)
Laboratory: Materials provided via BB

Website: <https://blackboard.usc.edu>
(site for course materials, lecture notes, quizzes, additional readings, grades etc.)

Lecture times: M/W 2:00 - 3:20pm (two lectures per week) VHE 217
Laboratory time: M or W 3:30 - 6:30pm (one lab per week) ZHS 258

Course Overview

Ecology is the study of the relationships between living organisms, including humans, and their physical environment. This course outlines the benefits of ecosystems and how human or other species interactions alter existing ecosystems.

In this class, you will be introduced to the ideas and methods of ecological research that help us answer questions about how ecosystem function and how disturbance (in a variety of forms) can alter ecosystems. Material will build on the skills you have acquired in other biology or sciences classes. You will also be introduced to concepts in ecological theory, modeling, and data management and analysis. We will use quantitative statistics and graphical skills that you may have not previously learned. I will continue to emphasize graphical analysis skills, writing skills and library literature skills, building on what you have encountered in previous courses.

Course Objectives:

- become familiar with ecological processes, theories, and current questions
- be able to pose ecological questions and design ecological experiments
- be able to construct and analyze the behavior of a quantitative descriptive model
- be able to analyze data statistically to answer ecological questions
- gain practice with scientific writing and oral presentation

Lectures

Lectures will introduce ecological principles, models, and applications and will help you become conversant with the language that ecologists use, the issues and questions ecologists tackle, and methods ecologists use. I will also introduce some historical background to give you insight into why certain issues are so contentious today.

Schedule of lecture topics (subject to modification of specific topics and reading assignments):

Day	Activity	Readings
M Aug 22	Lec 1 Introduction and Relevance of BISC315	Chapter 1
W Aug 24	Lec 2 Evolution and Genetics	Chapter 2
Week 1	LAB 1: Introduction and Lab Logistics; Safety Training; Introduction to R software package	
M Aug 29	Lec 3 Natural Selection, Speciation and Extinction	
W Aug 31	Lec 4 Behavioral Ecology	Chapter 3
Week 2	LAB 2: "Introduction to R statistical software. R we having fun yet?": data manipulation and plotting	
M Sep 05	LABOR DAY – NO CLASS	
W Sep 07	Lec 5 Physiological Ecology- Part 1: Temp, Water, pH	Chapter 4-6
Week 3	LAB 3: No Labs (Labor Day Week)	
M Sep 12	Lec 6 Physiological Ecology- Part 2: Nutrients	Chapter 7
W Sep 14	Lec 7 Demographic Techniques and Population Patterns	Chapter 8
Week 4	LAB 4: Behavioral Ecology of USC's Squirrel Population: What R the squirrels up to? Lab Midterm I (Takehome): "R you able to plot and analyze this data?"	
M Sep 19	Lec 8 Life Tables and Demography	Chapter 9
W Sep 21	Lec 9 Population Growth and Field Trip Prep	Chapter 10
Week 5	NO LAB (Lab on Saturday)	Midterm I Due
S Sept 24	Field Trip 1 (7:00-4:00)	
M Sep 26	Lec 10: Competition, Coexistence and Facilitation	Chapter 11, 12
W Sep 28	MIDTERM 1 (Lectures 1-9)	
Week 6	LAB 5: Sample (insect and plant) and Data Analysis	
M Oct 03	Lec 11 Predation and Herbivory	Chapter 13, 14
W Oct 05	Lec 12 Parasitism	Chapter 15
Week 7	LAB 6a: Cricket behavior lab (part A)	
M Oct 10	Lec 13 Population Regulation	Chapter 16
W Oct 12	Lec 14 Species Diversity	Chapter 17
Week 8	LAB 6b: Cricket behavior lab (part B)	Field Trip Report Due
M Oct 17	Lec 15 Species Richness and Community Service	Chapters 18,19
W Oct 19	Lec 16 Succession	Chapter 20
Week 9	LAB 7: SimBio intermediate disturbance lab	Presentation Outline Due
M Oct 24	LAB 8: Field Trip Natural History Museum (during lecture)	
W Oct 26	MIDTERM 2 (Lectures 10-18)	
Week 10	NO LAB (credit for field trip)	
M Oct 31	Lec 17 & 18 Island Biogeography Theory as applied to Ecology	Chapter 21
W Nov 2	Guest Lect: Miguel Ordeñana LA Natural History Museum	Chapter 21
Week 11	LAB 9: a) Intertidal organism identification. b) Effects of Keystone Predator on Community Structure affecting growth (SimBio)	Cricket Report Due
M Nov 7	Lec 19 Marine Biomes	Chapter 23
W Nov 9	Lec 20 & 21 Terrestrial and Freshwater Biomes	Chapter 22, 24
Week 12		
Sat Nov 12	Abalone Cove Intertidal Field trip (11:00-5:00)	
M Nov 14	NO CLASS (credit for field trip)	Chapter 25
W Nov 16	Lec 22 Food Webs and Energy Flow	
Week 13	LAB: Student Presentations	

M Nov 21	Lec 23 Biomass Production	Chapter 26
W Nov 23	THANKSGIVING HOLIDAY	
Week 14	LAB: No Lab – Holiday Week	
M Nov 28	Lec 24 Biogeochemical Cycles	Chapter 27
W Nov 30	Lec 25 Special Topics Lecture	
Week 15	LAB: LAB Exam 2: Practical and room cleanup	
F Dec 9	FINAL EXAM 2:00-4:00 pm	

*Additional readings for specific lectures or labs may be posted on Blackboard during the semester.

Labs

Laboratory activities will include outdoor activities both on campus and off campus, bench side experiments, and computer-based modeling activities. These activities will emphasize how ecologists test their ideas, through quantitative observations, models, and manipulative, controlled, and replicated experiments.

There will be two **mandatory**, off campus, weekend field trips required for this course (Saturday September 24th and Saturday November 12th). Working outdoors is a great way to see organisms in their natural habitats. Plan to dress appropriately for each proposed activity and bring water. Please plan accordingly.

Grading:

The final letter grade for the course will be assigned on a curve, determined by the total number of points (900) as follows:

<u>Lecture (600pts)</u>	
Midterm 1	200
Midterm 2	200
Final Exam	200
<u>Laboratory (300pts)</u>	
Lab Midterm: R based	25
Lab Final	25
Insect Behavior Report	25
Terrestrial Ecology Field Trip	25
Terrestrial Ecology Field Trip Report	25
Abalone Cove Field Trip	25
Abalone Cove Field Trip Report	25
Lab Assignments	50
Final Presentation	25
Final Paper	25
Participation/Attendance	25

Any document associated with grading may be photocopied by the instructional staff.

Course Policies

Exams

The lecture portion of this course will include two midterm exams and a final exam. Exams may include multiple choice questions, fill-in answers, definitions, T/F, short answers, and short or long

essays. Material will be drawn from lectures, reading, laboratory material, and problem set material. The final will focus heavily on the third portion of the exam, but will also have cumulative section.

Policy on Re-grading Examinations

If you feel that an error was made in the grading of an examination, you need to do the following: 1) Check the posted answer key with your TA, 2) Prepare a printed statement explaining why you feel your grade was incorrect, and 3) submit this along with a re-grade Request Form (downloaded from Blackboard) and your original examination to your TA within one week of the time the examination was returned to you. Your entire exam may be re-graded and, as a result, your grade may increase or decrease from a requested re-grade. No frivolous reasons will be accepted for requesting grade changes; stated reasons for a grade change must be legitimate (e.g., error in totaling the score).

Policy on Missed Lecture Exams, Quizzes, On-Campus Labs, or Lab Exams

UNPLANNED ABSENCES: You may be excused from exams or labs only in the event of a documented illness or emergency as outlined by university policy or approved religious holiday (SCampus; policy.usc.edu/student/scampus/). If you miss a class or lab exam, quiz or graded activity due to medical illness you must present a valid medical excuse to the TA or Instructor within 48h of the missed examination or quiz. The excuse cannot be to attend a dental appointment, a conference, or other similar reasons. The reason for missing an examination or quiz must be of a medical nature or totally unavoidable (e.g., a verified automobile collision on the day and time of the examination). An invalid excuse, or the excuse turned in late, will result in a score of zero for the activity missed. If you miss the final examination and have provided a valid medical excuse within 72 hours of the examination time, a final course grade of incomplete (IN) will be recorded and you will be permitted to take a make-up final examination during the following semester.

PLANNED ABSENCES: Students who wish to miss an examination for observance of a religious holy day should be aware of the University's policy on such absences, published at: <http://orl.usc.edu/religiouslife/holydays/absences.html>. Requests for such absences should be made by email to the TA and Dr. Heidelberg at least 2 weeks in advance of the absence. If the absence is approved, a reasonable accommodation will be provided.

Field Trip Attendance Policy

Trips will take place on Saturday September 24th and Saturday November 12th. We are unable to reschedule these trips, and no make-ups will be given. If you have a conflict with either date you must notify both the professor and the TA no later than the second Friday of the course (9/2/2016) in order to be considered for "USC-Excused" status. Field Trip Absences will fall into three categories as described below:

USC-Excused: Status will be granted as defined by USC policy (SCampus; policy.usc.edu/student/scampus/).

Non-USC-excused: Status will be granted on a case-by-case basis by the course instructors for absences not due to a USC approved reason. Please submit your requests for this status as soon as possible but no later than 36 hours prior to the bus departure time.

Unexcused: all other absences.

If you miss either field trip for an USC-excused reason your field trip points will be prorated. If you have a Non-USC-excused absence you will be unable to earn the points associated with the work done in the field (25pts/trip), but you will be allowed to complete the post-trip work using the data collected in the field. If you have an unexcused absence you will receive a zero for both the field trip points and the post field trip points. Please note that missing the bus is NOT a valid excuse. The bus will leave with or without you at the predetermined time. Due to USC policy, you are not permitted to use any transportation other than the bus to attend either field trip.

Participation/Lab Attendance: You are required to attend, and be on time for, all labs. Points will be deducted for tardiness (5pts/incident) or absence, any violation of safety rules, improper laboratory/sampling technique, inability to contribute fully to group projects, leaving your lab space messy, poor effort, etc.

Students with Disabilities

Students requesting academic accommodations based on a disability are required to register with the Office of Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Be sure that the letter is delivered to the Laboratory Manager as early in the semester as possible, preferably by September 6, 2013. DSP is located in STU 301 and is open from 8:30 a.m. to 5:00 p.m., Monday through Friday. The telephone number of DSP is 213-740-0776. If a student's approved accommodation is limited to extra time on examinations, the teaching staff of BISC 120 will provide the accommodation. For any other accommodation, such as a private room, translator, etc., students must make prior arrangements with the DSP office 2 weeks before the exam date. For more information please visit the following website: http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html.

Statement on Academic Integrity

Ethics of academic integrity is a primary focus of the course. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles. Scampus, the Student Guidebook, contains the Student Conduct Code in Section 11.00: <http://web-app.usc.edu/scampus/1100-behavior-violating-university-standards-and-appropriate-sanctions/>, while the recommended sanctions are located in Appendix A. Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at: <http://www.usc.edu/student-affairs/SJACS/>. It is a violation of academic integrity to either use someone else's clicker in the classroom to assist that person in gaining points, or lend your assigned clicker to another student.

Website

Postings on Blackboard (<https://blackboard.usc.edu>) will be an official source for announcements, course materials, lecture notes, grade postings and general discussions. Answers to students' frequently asked questions regarding this course can be found on Blackboard (<https://blackboard.usc.edu>) under Course Information. We may also use Blackboard for lecture or laboratory quizzes. Students are responsible for checking the course website on a regular basis.

Communication

Students are responsible for frequently checking class Blackboard account and their USC email accounts. Due to the complex nature of planning and executing field tips and laboratory exercises, it may become necessary for the course instructors to make changes to the published schedule. Students are responsible for any information sent to their USC email accounts by the course instructors.

LABORATORY PERFORMANCE GUIDELINES

1. You are required to attend all lab sessions. Any unexcused absences will seriously affect your evaluation. Come to lab on time. You will lose 5 points for each tardy. You are also to remain for the entire lab session or until excused by your instructor.
2. **NO EATING OR DRINKING IS ALLOWED IN THE LABORATORY.**
Keep a neat working area. At the end of the lab session, clean and return all supplies to their proper place, clean your work area, and slide your chair under the table. Check with your instructor before leaving.
3. **LAB ASSIGNMENTS:** During each lab students need to record their results (drawings, observations, calculations) in their lab notebook or the provided worksheet or computer database. Each student is required to show his/her TA their lab notebook before leaving the lab and obtain a signature. Depending on the lab, lab assignments may be completed entirely during the lab period, may be assigned as homework, or may span multiple lab periods. Your TA will provide details on assignments.
5. **LAB REPORTS:** Three lab reports will be written during the semester. The first will focus on our Terrestrial Ecology field trip, and the second will focus on the Insect Behavior Lab, and the third will focus on the Abalone Cove Field Trip. Lab reports must be submitted both on Blackboard via "turnitin" and emailed to the TA as a .pdf (no other format will be accepted). Lab report guidelines will be discussed in class and posted on Blackboard (<https://blackboard.usc.edu/>).
6. **LAB EXAMS:** The two lab practical exams will test your understanding of the topics and exercises covered in the laboratory sessions.
7. **ECOLOGY PRESENTATION AND PAPER:** Each student will be required to choose an ecological topic for their final paper and presentation. Each topic must be unique, and must be approved by the instructors no later than week 9 of the course. Detailed instructions for preparing your presentation, including how points will be assigned, will be provided in class and will be posted on Blackboard (<https://blackboard.usc.edu/>).
8. **POSTING GRADES:** You can find your lecture and lab grades on Blackboard: <https://blackboard.usc.edu>. Be sure to check for additional postings on a regular basis. It is the student's responsibility to notify his/her TA or Instructor ASAP in the event of any mistakes, so please check your scores on Blackboard weekly.