

**COURSE TITLE:**

**Islands, Sustainability, Ecology and Culture Through Time: The Process of Change in Science**

**Instructors:**

Prof. Karla Heidelberg  
Office Hours: TU 8:00-10:00  
Location: CAS 116 Env. Studies Suite  
Email: [kheidelb@usc.edu](mailto:kheidelb@usc.edu)

Prof. Lynn Swartz Dodd  
Office Hours: TH 11-12  
Location: ACB 335 (archaeology lab)  
Email: [archaeology@usc.edu](mailto:archaeology@usc.edu)

**Textbooks:**

Mainlanders and Islanders  
Contemporary Issues in California Archaeology  
ebook \$31.47 pback \$45 Cambridge ; New York : Cambridge University Press, 2013.

Other materials, such as journal articles related to the Ecology of Islands will be provided via Black Board

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

Lecture times: W/F 12:00 - 1:20pm (two lectures per week) ACB 238  
Laboratory time: F 1:30 - 4:20pm AHF 259

**Mandatory, multi-day field trip: September 8-10<sup>th</sup>**

A multi-day trip to Santa Catalina/Pimu Island--one of the Channel Islands located off the coast of Los Angeles--is a centerpiece of this class. Other field trips will take place on Fridays during scheduled class times.

**Course Overview**

Islands are home to roughly 600 million people—or about 10% of the world’s population. Cultural and biological developments have abounded on islands since earliest times, and provide us with laboratories in which to investigate evolution, ecology, colonization, sustainability, and other concepts critical to understanding our world and ourselves at all times and scales, both on planet Earth and on the other outposts of our Solar System that we aim to explore.

The discovery and settlement of Earth’s islands is one of the most fascinating stories in human history. Unique cultures, economies, beliefs and medicines develop on islands, while numerous animal and plant species live only on islands or in the soil and sands formed there. Islands can serve as buffers against natural disasters including storms and disease, and they can be threatened by climate change and resource depletion, leading us to wonder whether islands are bell weathers for the future of mainland ecosystems.

If we consider Captain Cook’s voyages to Tahiti to chart the transit of Venus; or Darwin’s fascination with the flora and fauna of the Galapagos Islands that led to his insights into evolution; or Swift’s tale of Robinson Caruso (based on an actual incident); or Disney’s new fantasy “Moana,”; we understand that islands have long captured our imaginations, both scientific and romantic. We are prompted to think

creatively about islands as a lens for viewing natural processes and human experiences of the past, present and future.

This course outlines the benefits of ecosystems and how human or other species interactions alter existing ecosystems. Through activities, reading, structured discussions, and field trips that focus primarily on Catalina Island, we will explore specific ecological concepts of islands and how colonization of islands by people alters island ecology. This class will be an integrated blend of the fields of archaeology and island ecology. You will be introduced to how these two fields provide insight into how humans impact ecology of sensitive ecological communities found on islands. The class will also help you become conversant with the language that ecologists and archaeologists use, the issues and questions these scientists tackle, and methods used to study impacts.

**Course Objectives:**

**As a result of fully participating in this course, students will be able to**

- Gain an understanding of the processes of change in science
- Become familiar with ecological and cultural processes, theories, and current questions as specifically related to islands
- Pose ecological and cultural questions that are based on past research on selected topics
- be able to analyze data statistically to answer ecological questions
- Gain practice with scientific writing and oral presentations

**Specific learning objectives of the course.** Students will:

- 1) Explain the importance of biodiversity in conservation and describe how to assess the potential of conservation strategies to help protect biodiversity
- 2) Articulate (via written and oral means) the causes and consequences of anthropogenic disturbances on biodiversity
- 3) Research and critically interpret scientific literature to formulate hypotheses and develop a strong working scientific foundational knowledge of current issues and problems
- 4) Analyze responses of biological communities to past disturbances
- 5) Predict responses of biological communities to future disturbances

**Schedule**

Schedule of lecture topics or reading material is subject to modification. Students are expected to read the assignments and participate actively in the discussion. All changes will be posted to blackboard and announced in class. Classes are followed by the initials of the lead professor.

Day	Activity	Readings/ Assignments
W Aug 23	Introduction to the course; (LD/KH)	HW #1 Journal assignments explained; Journal Assignment #1
F Aug 25	Introduction to the scientific method as used in archaeology and anthropology (LD)	
W Aug 30	Islands as a cultural and ecological phenomena (LD/KH)	
F Sept 1	Introduction to Catalina Island’s marine and terrestrial environment LAB 1: California Science Center marine exhibits (KH)	HW #2: CA Science Center worksheet
W Sep 06	The Kelp highway hypothesis: The peopling of the globe (LD)	Erlandson

F Sep 08- Sunday Sept 10	<b>(MANDATORY) Lab 2: Weekend field trip to Catalina Island (depart FRIDAY from UPC at 1:30: Return SUNDAY by 5pm) (LD/KH)</b>	Journal check on Sunday (journal entries #2 and #3)
W Sep 13	Debrief of ecological aspects of Catalina Island and data collection (LD/KH)	
F Sep 16	Introduction to Evolutionary principles Lab 3: Natural History Museum behind the scenes tour of collections with Dr. Regina Wetzer and discussion of the study of biological diversity from archived collections. (KH)	HW #3: Natural History Museum worksheet
W Sep 20	The concept of island biogeography and the colonization of islands (KH)	
F Sep 22	Case studies of endemic species and the impact of non-native populations on Catalina Island (KH)	HW #4: Presentation topics due with 3 primary literature sources
W Sep 27	<b>MIDTERM 1 (Lectures and field work)</b>	
F Sep 29	No class (time replaced by field trips); online assignment	HW Video and #4 Journal entry assigned
W Oct 04	TBD (LD)	
F Oct 06	Lab 4: La Brea Tar Pits – a look back in time (LD)	#5 Journal entry
W Oct 11	TBD (LD)	
F Oct 13	No class (time replaced by field trips)	
W Oct 18	TBD (LD)	
F Oct 20	The role of invasive species in island ecology (KH)	
W Oct 25	TBD (LD)	
F Oct 27	<b>MIDTERM 2 (Lectures and field work)</b>	
W Nov 1	The importance of biodiversity, shifting baselines and extinctions (KH)	<i>Knowlton and Jackson 2008. Shifting baselines. PLoS Biology</i>
F Nov 3	White's Point intertidal ecology and coastal anthropology trip (LD/KH)	Lab report topic assigned
W Nov 8	The nature of science in change (LD)	<i>Jørgensen 2014 "Environmentalists on Both Sides. Enactments in the California Rigs-to-Reefs Debate" 51-68.</i>
F Nov 10	An introduction to the value of molecular approaches for studying ecology and anthropology (KH)	Term paper topic assigned
W Nov 15	Special challenges for conservation faced by islands from climate change (KH)	Lab report due <i>Jackson et al. 2014. Status and Trends of Caribbean Coral Reefs: 1970-2012 (Exec Summary)</i>
F Nov 17	The science behind protected areas (KH)	Kelman and West 2009
W Nov 22	<b>THANKSGIVING HOLIDAY</b>	
F Nov 23	<b>THANKSGIVING HOLIDAY</b>	
W Nov 29	Student presentations (LD/KH)	
F Dec 1	Student presentations (LD/KH)	
F Dec 8	<b>EXAM 3 11:00a to 1:00pm</b>	Journals due; final paper due

There will be one **mandatory**, multi-day, off-campus, weekend field trip required for this course (Friday, September 8<sup>th</sup> through Sunday September 10<sup>th</sup>). More details about this trip will be provided after the start of the semester. Other field trips will occur during Friday Lecture/Lab times. Participating in lab activities is integral to your success in class.

**Grading:**

The final letter grade for the course will be assigned on a curve, determined by the total number of points (400) as follows.

Item	Points
Exam 1	150
Exam 2	150
Exam 3	150
HW #1: Student questionnaire	10
Journal entry #1	10
HW #2: California Science Center worksheet	20
Catalina Island Field trip (journal entry #2)	10
Catalina Island Field trip (journal entry #3)	10
HW #3: Natural History Museum worksheet	20
Journal entry #4 (linked to video assignment)	10
HW #4: Presentation topic choice + 3 literature sources	20
Intertidal Community Ecology Lab Report	50
Presentation	25
Term Paper	50
Class participation (involvement in class discussions and activities)	25
<b>TOTAL</b>	<b>710</b>

Any document associated with grading may be photocopied by the instructional staff. Late assignments will get a deduction of 5% per day.

**Course Policies**

**Exams**

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, readings, and/or field trips.

**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 2) Prepare a printed statement explaining why you feel your grade was incorrect, and 3) submit this along with your original examination within one week of the time the exam was returned. 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, assignments, or field trips**

**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/](http://policy.usc.edu/student/scampus/)). If you miss a class, exam or graded activity due to medical illness you must present a valid medical excuse within 48h of the missed examination or quiz. 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 make-up missed work 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 at least 2 weeks in advance of the absence. If the absence is approved, a reasonable accommodation will be provided.

### **Field Trip Attendance Policy**

The Catalina Island field trips will take place on Friday Sept 8<sup>th</sup> through Sunday, September 10<sup>th</sup>. We are unable to reschedule this trip, and no make-ups will be given. Other field trips happen during the scheduled Friday time slot. 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/](http://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 VIA EMAIL TO BOTH INSTRUCTORS but no later than 36 hours prior to the bus departure time.

Unexcused: all other absences.

If you miss a 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, but in some cases 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/boat is NOT a valid excuse. The bus will leave with or without you at the predetermined time.

**Participation/Lab Attendance:** You are required to attend, and be on time for, all field trips. Points will be deducted from your participation grade for tardiness (3 pts/incident) or absence, any violation of safety rules, non-scholarly behavior, inability to contribute fully to group projects, 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](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.

5. **LAB REPORT:** One lab report will be written during the semester. This exercise is designed to teach Lab reports must be submitted both on Blackboard via "turnitin". 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. **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.