

Anthro 118: Environmental Archaeology

Location and Time: TBD

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Office: TBD
Office Hours: TBD

Course Description

From our earliest ancestors that moved out of the trees to the recent warming of our planet, the history and future of humans is fundamentally influenced by our relationship with the natural environment. Because of this intimate relationship, understanding how humans used, adapted to and altered our environment is of vital importance to anthropological and archaeological research. How did climate change or catastrophic events affect the development of human society? How have people adapted to and managed the challenges associated with climate change? What is the future of our cultural heritage given our current environment?

This course will study of the dynamic history of human-environmental interactions with an emphasis on the scientific methods used to explore these interactions. The two main themes of this course are 1) the diverse ways in which humans have and continue to interact with our environment and 2) how ecological thinking and environmental sciences (geoarchaeology, paleobotany, zooarchaeology) are used to enhance our knowledge about the human past and present. By the end of this course I expect students critically understand the history of ecological thought in archaeological research and to gain a practical understanding of the methods used to reconstruct human-environmental interactions.

Course Objectives (Student Learning Goals)

- ◆ Describe the natural and cultural mechanisms that drive environmental and climatic change and the diverse responses human groups have used to mitigate environmental fluctuations
- ◆ Interpret and synthesize data and results from various scientific methods including radiocarbon dating, geoarchaeology, paleoethnobotany and zooarchaeology.
- ◆ Use archaeological evidence to reconstruct past environmental conditions
- ◆ Critically evaluate the effects of environmental change on material remains and the potential impact of climate change to the preservation of cultural heritage.

Course Text

There is no official textbook for this class. I will provide all of the readings as pdfs to students through the course website.

Class Structure

This course meets twice a week for 75 minutes per session. For your benefit and mine, I will not be lecturing all the time. Instead, I will rely on classroom discussion in order to explore key course concepts so please be prepared when you come to class!

Grading and Evaluation

There will be 500 total points in this course awarded in a variety of formats including an exam, annotated bibliography, in-class activities assignments and a final project. Student performance will be evaluated on the basis of the following:

	<u>Points</u>	<u>Percent of Total</u>
Exam	100 points	20%
Annotated Bibliography	100 points	20%
Environmental Site Report	100 points	20%
Environmental Site Report Poster	100 points	20%
In-class activities	100 points	20%

<u>Percentage</u>	<u>Points</u>	<u>Letter Grade</u>	<u>GPA Value</u>
92.0-100	460-500	A	4.0
89.0-91.9	445-459	A-	3.7
86.0-88.9	430-444	B+	3.3
83.0-85.9	415-429	B	3.0
80.0-82.9	400-414	B-	2.7
77.0-79.9	385-399	C+	2.3
74.0-76.9	370-384	C	2.0
71.0-73.9	355-369	C-	1.7
68.0-70.9	340-354	D+	1.3
65.0-67.9	325-339	D	1.0
62.0-64.9	310-324	D-	0.7
<62.0	0-309	F	0.0

Exams: Only one exam will be given in this course and it will take place at the end of Week 3. This exam is worth 100 points and may include multiple choice questions, short answer questions and/or essay questions. This exam will cover topics from the first three weeks of the course and will be taken in class. You are allowed to fill one notecard (3 x 5 inches) on both sides with notes and use this notecard while you are taking the exam.

Annotated Bibliography: The annotated bibliography will consist of a list of a minimum of 10 different peer-reviewed academic references. This includes journal articles and book chapters but does not include magazine articles, websites or Wikipedia entries. The bibliography will provide citation information for each reference in the American Anthropological Association citation style and a paragraph of at least 200 words summarizing the contents of each reference. The annotated bibliography cannot include articles or book chapters assigned in the reading list. To get the most out of this assignment, try to focus on references that would be useful to your environmental report.

Environmental Site Report and Poster: The final project of this course will be the development of an environmental report and poster. This assignment requires each student to produce technical report about an archaeological site or region similar to reports developed by the Environmental Protection Agency. The report will feature the following sections 1) Introduction of the site/region, 2) the paleo-environment, 3) the current and future environment, 4) summary of methods used to reconstruct the environment 5) recommendations for future archaeological research and preservation. Reports will be a minimum of 2500 words (1.5 spacing, 12 point, Times New Roman font, 1 inch margins) including figures but not references.

You will be required to present the findings of your report in a conference style poster presentation on the last day of class. You are welcome to work with a partner on developing, designing and presenting the poster. Groups should be formed by week 6 in order for students to have sufficient time to prepare the poster. It is highly advisable to develop your poster project in consultation with Erik, which can be done at any time during the course. Students will be expected to review all other posters and provide constructive feedback on the presented posters. As a note, you are able to work with a partner on the poster component of this assignment but each student must turn in their own environmental site report.

In-class activities: This is primarily a lecture class, although discussions and in-class activities will supplement lecture content and readings. In-class activities can take the form of free-writing activities, opinion pieces, mock trial debates or even pop quizzes. These activities will occur regularly but students will not be made aware of them prior to class.

Course Policies

Class Participation: This is a course that will rely heavily on class participation. Your opinions, questions and commentary are always welcome as long as your opinions respect other students in the course and myself. I will not tolerate any disrespectful comments towards students or me.

Missed and late assignments/exams: Given the structure of assignments in this course, no late work is accepted without approval from Erik. If circumstances arise in which you are unable to turn in an assignment and you if have a justifiable reason for its tardiness, please talk to me as soon as possible.

Absences: Your attendance and class participation is critical to your success in this class. In-class activities and discussions during lecture will help to prepare for the exams and final projects. If you need to miss class for any reason please contact Erik as soon as possible.

Student Disabilities: Students needing any academic accommodations based on a disability should contact the Office for Students with Disabilities (OSD) located at (310) 825-1501 or A255 Murphy Hall. When possible, students should contact the OSD within the first two weeks of the term as reasonable notice is needed to coordinate accommodations. For more information visit www.osd.ucla.edu.

Erik reserves the right to change any assignments, grading and policies outlined in the syllabus during the course. Finally, **the most important policy of this class is that if you don't know something, please ASK!!**

Class Schedule

Week 1: Introduction to Environmental Archaeology

Session 1 (Monday, Sep. 26)		Session 2 (Wednesday, Sep. 28)	
<i>Topic</i>	<i>Readings / Assignments</i>	<i>Topic</i>	<i>Readings / Assignments</i>
Introduction What is Environmental Archaeology?	None	Theories of Human-Habitat Interaction: Cultural Ecology & Ecological Anthropology	Moran, pp. 27-47

Week 2: Environmental Thinking and Environmental Change

Session 3 (Monday, Oct 3)		Session 4 (Wednesday, Oct. 5)	
<i>Topic</i>	<i>Readings / Assignments</i>	<i>Diss. Topics</i>	<i>Readings / Assignments</i>
Theories of Human-Habitat Interaction: Historical Ecology & Resilience Theory	Moran, pp. 47-56 Redman 2005	Mechanisms of environmental change and their proxies	Bathurst et al. 2010 Ice Cores Sediment Cores Diatoms (short video)

Week 3: Human Responses to Environmental Change

Session 5 (Monday, Oct 10)		Session 6 (Wednesday, Oct 12)	
<i>Lecture Topics</i>	<i>Readings / Assignments</i>	<i>Lecture Topic</i>	<i>Readings / Assignments</i>
Human Responses to Environmental Change	Butzer 1983 Dillehay and Kolata 2004	EXAM! (Don't forget your notecard)	

Week 4: Dating Methods

Session 7 (Monday, Oct 17)		Session 8 (Wednesday, Oct 19)	
<i>Diss. Topics</i>	<i>Readings / Assignments</i>	<i>Lecture Topic</i>	<i>Readings / Assignments</i>
Absolute and Relative Dating	Branch et al. 2010 Pg. 155 - 184	Application of Dating Methods	<i>Fitzhugh et al. 2016</i> <i>Martin-Benito et al. 2014</i> <i>Liritzis etl a. 2013 (Ch 4)</i> <i>Dugmore et al. 2000</i>

Week 5: Geoarcheology

Session 9 (Monday, Oct 24)		Session 10 (Wednesday, Oct 26)	
<i>Diss. Topics</i>	<i>Readings / Assignments</i>	<i>Lecture Topic</i>	<i>Readings / Assignments</i>
Archaeological Geology	Branch et al. 2010 Pg. 25-51	Application of Geo-Archaeological Methods	Bring your own article

Week 6: Paleoethnobotany

Session 11 (Monday, Oct 31)		Session 12 (Wednesday, Nov 2)	
<i>Diss. Topics</i>	<i>Readings / Assignments</i>	<i>Lecture Topic</i>	<i>Readings / Assignments</i>
Paleoethnobotany	Fritz 2005 Pg. 788-820	Paleoethnobotany and the emergence of agriculture	<i>Erickson et al. 2005 Dillehay et al. 2007 Gross and Zhao 2014 Araus et al. 2014</i>

Week 7: Zooarchaeology / Faunal Paleoecology

Session 13 (Monday, Nov 7)		Session 14 (Wednesday, Nov 9)	
<i>Diss. Topics</i>	<i>Readings / Assignments</i>	<i>Lecture Topic</i>	<i>Readings / Assignments</i>
Zooarchaeology	Lyman 2005	The Faunal Paleoecology of the Channel Islands	<i>Walker et al. 1986 Erlandson et al. 2008 Rick et al. 2008 Jazwa et al. 2015</i>

Week 8: Climate Change and Archaeology – Part 1

Session 15 (Monday, Nov 14)		Session 16 (Wednesday, Nov 16)	
<i>Diss. Topics</i>	<i>Readings / Assignments</i>	<i>Lecture Topic</i>	<i>Readings / Assignments</i>
ANNOTATED BIBLIOGRAPHY DUE!			
Collapse!	No readings required	Threats to island and coastal archaeology	Reeder-Myers 2015 Erlandson 2010

Week 9: Climate Change and Archaeology – Part 2

Session 17 (Monday, Nov 21)		Session 18 (Wednesday, Nov 23)	
<i>Diss. Topics</i>	<i>Readings / Assignments</i>	<i>Lecture Topic</i>	<i>Readings / Assignments</i>
Climate change and the fate of world heritage	UNESCO – Pg. 11-32	Environmental activism and course-wrap up	Environmental Report Consultation with Erik

Week 10: Environmental Site Poster Presentations

Session 19 (Monday, Nov 28)		Session 20 (Wednesday, Nov 30)	
<i>Diss. Topics</i>	<i>Readings / Assignments</i>	<i>Lecture Topic</i>	<i>Readings / Assignments</i>
NO CLASS!		Environmental Poster Presentations	

***Environmental reports are due by December 9th at 4:45 pm!**

Reading List

Week 1

Moran, Emilio F.

2007 *Human Adaptability: An Introduction to Ecological Anthropology*. Third edition. Boulder, CO: Westview Press.

Week 2

Moran, Emilio F.

2007 *Human Adaptability: An Introduction to Ecological Anthropology*. Third edition. Boulder, CO: Westview Press.

Redman, Charles L.

2005 Resilience Theory in Archaeology. *American Anthropologist* 107(1): 70–77.

Bathurst, Rhonda R., Davide Zori, and Jesse Byock

2010 Diatoms as Bioindicators of Site Use: Locating Turf Structures from the Viking Age. *Journal of Archaeological Science* 37(11): 2920–2928.

Ice Cores: <https://www.climate.gov/news-features/climate-tech/climate-core-how-scientists-study-ice-cores-reveal-earth's-climate>

Sediment Cores:

http://earthobservatory.nasa.gov/Features/Paleoclimatology_SedimentCores/paleoclimatology_sediment_cores_2.php

Diatoms: <http://ca.pbslearningmedia.org/resource/clim10.sci.ess.earthsys.diatom/diatoms-measure-climate-change/>

Week 3

Butzer, Karl W.

1983 Human Response to Environmental Change in the Perspective of Future, Global Climate. *Quaternary Research* 19(3): 279–292.

Dillehay, Tom D., and Alan L. Kolata

2004 Long-Term Human Response to Uncertain Environmental Conditions in the Andes. *Proceedings of the National Academy of Sciences of the United States of America* 101(12): 4325–4330.

Week 4

Branch, Nick, Matthew Canti, Peter Clark, and Chris Turney

2014 *Environmental Archaeology: Theoretical and Practical Approaches*. Routledge.

Fitzhugh, Ben, Erik W. Gjesfjeld, William A. Brown, Mark J. Hudson, and Jennie D. Shaw
2016 Resilience and the Population History of the Kuril Islands, Northwest Pacific: A Study in Complex Human Ecodynamics. *Quaternary International*.

Martin-Benito, Dario, Neil Pederson, Molly McDonald, et al.
2014 Dendrochronological Dating of the World Trade Center Ship, Lower Manhattan, New York City. *Tree-Ring Research* 70(2): 65–77.

Liritzis, Ioannis, Ashok Kumar Singhvi, James K. Feathers, et al.
2013 Luminescence Dating of Archaeological Materials. In *Luminescence Dating in Archaeology, Anthropology, and Geoarchaeology* Pp. 25–40. Springer Briefs in Earth System Sciences. Springer International Publishing.

Dugmore, Andrew J., Anthony J. Newton, Guðrún Larsen, and Gordon T. Cook
2000 Tephrochronology, Environmental Change and the Norse Settlement of Iceland. *Environmental Archaeology* 5(1): 21–34.

Week 5

Branch, Nick, Matthew Canti, Peter Clark, and Chris Turney
2014 *Environmental Archaeology: Theoretical and Practical Approaches*. Routledge.

Week 6

Fritz, Gayle
2005 Paleoethnobotanical Methods and Applications. In *Handbook of Archaeological Methods*. Herbert D. G. Maschner and Christopher Chippindale, eds. Pp. 773–833. Rowman Altamira.

Walker, Phillip L., and Jon M. Erlandson
1986 Dental Evidence for Prehistoric Dietary Change on the Northern Channel Islands, California. *American Antiquity* 51(2): 375–383.

Erlandson, Jon M., Torben C. Rick, Todd J. Braje, Alexis Steinberg, and René L. Vellanoweth
2008 Human Impacts on Ancient Shellfish: A 10,000 Year Record from San Miguel Island, California. *Journal of Archaeological Science* 35(8): 2144–2152.

Rick, Torben C., Phillip L. Walker, Lauren M. Willis, et al.
2008 Dogs, Humans and Island Ecosystems: The Distribution, Antiquity and Ecology of Domestic Dogs (*Canis Familiaris*) on California's Channel Islands, USA. *The Holocene* 18(7): 1077–1087.

Jazwa, Christopher S., Todd J. Braje, Jon M. Erlandson, and Douglas J. Kennett
2015 Central Place Foraging and Shellfish Processing on California's Northern Channel Islands. *Journal of Anthropological Archaeology* 40: 33–47.

Week 7

Reeder-Myers, Leslie A.

2015 Cultural Heritage at Risk in the Twenty-First Century: A Vulnerability Assessment of Coastal Archaeological Sites in the United States. *The Journal of Island and Coastal Archaeology* 10(3): 436–445.

Erlandson, Jon McVey

2010 As the World Warms: Rising Seas, Coastal Archaeology, and the Erosion of Maritime History. *Journal of Coastal Conservation* 16(2): 137–142.

Week 8

UNESCO

2016 World Heritage and Tourism in a Changing Climate.

<http://whc.unesco.org/en/activities/883/>, accessed September 23, 2016.