

Human Ecology: Archaeological Aspects
ANTH 4330/5330-3
(Arthur.Joyce@Colorado.edu)

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COURSE OUTLINE

This course examines the human ecology of the Postglacial or Holocene Epoch and provides an overview of the techniques of environmental archaeology. The course begins with a discussion of the significance of understanding Holocene human ecology for dealing with environmental problems in the present and future; a topic that we will return to at the end of the course. We will examine Holocene human ecology through interdisciplinary research involving collaborations among archaeologists, palynologists, paleozoologists, paleobotanists, and geologists among others. We will consider theoretical perspectives through which interdisciplinary teams examine the history of human ecological relations. The bulk of the course examines human ecology from the end of the last Ice Age, about 10,000 years ago, to the present. The majority of the course focuses on a series of research problems in Holocene environmental archaeology. These topics illustrate how recent problem-oriented interdisciplinary research has provided new directions to key questions in human prehistory that have relevance for understanding contemporary environmental problems. Research problems include the ecological impact of early farmers, the varied ecological effects of the colonization of Polynesia, the effects of climatic change on Holocene populations, the impact of El Niño events on human societies, and the role of human induced landscape degradation (i.e., deforestation and erosion) in the development of Mesoamerican civilization. Consideration of these research problems will also illustrate techniques in interdisciplinary research such as the use of fossil pollen to understand past vegetation and climate as well as geological studies of ancient river systems. The final topic argues that we must examine cultural constructions of nature to fully understand human-environment interaction. We will examine how the differing views of nature among Native Americans and European Colonists affected their interactions with the environment and with each other during the 16th to the 18th centuries.

The course meets Tuesday and Thursday from 2:00-3:15pm in ECON 205. I will hold office hours in Hale 156 on Tuesday from 3:15-5:00 pm and Wednesday from 12:00-1:00 pm, or by appointment. My office phone number is 303-735-3055.

There is one required text for the course, which has been ordered through the CU Bookstore: HUMAN IMPACT ON ANCIENT ENVIRONMENTS, by Charles L. Redman (University of Arizona Press, 1999), abbreviated R, below.

Course readings include a series of articles, which are on e-reserve.

Course Requirements: The course will be graded on the basis of two exams (30% each for undergrads/20% each for grad students), a term paper (30% for undergrads/50% for grad students), two quizzes/assignments (5%), and class participation. Class participation will count as "extra-credit" towards the final grade. Exams will be based on all material presented in class including lectures, readings, discussions, slides, and films. No makeup exams will be given so it is your responsibility to take the exams at the scheduled times. I will pass out a description of term paper topics early in the semester. Graduate students will select the topics for their term papers in consultation with me and a summary of the paper topic will be due on 10/13; you are encouraged to discuss your topic with me and I would be glad to help with selection of the topic

and reference materials. Late papers will be penalized.

The university honor code is in effect for the course and all assignments should be independent work unless otherwise arranged by us (<http://www.colorado.edu/policies/honor.html> and <http://www.colorado.edu/academics/honorcode/>). If you qualify for accommodations because of a disability, please submit to Prof. Joyce a letter from Disability Services in a timely manner so that your needs may be addressed. Disability Services determines accommodations based on documented disabilities (303-492-8671, Willard 322, www.Colorado.edu/disabilityservices). Students who have serious religious obligations that conflict with class requirements must notify Prof. Joyce within the first two weeks of the semester so that adequate accommodations can be made. The University of Colorado policies on sexual harassment or discrimination and harassment based upon race, color, national origin, sex, age, disability, creed, religion, sexual orientation, or veteran status applies to all students, staff, and faculty (<http://www.colorado.edu/odh>).

The following is the schedule of topics for class discussion:

<u>Date</u>	<u>Topic</u>	<u>(Readings)</u>
8/25	Introduction	
8/27	Why study Holocene human ecology	(R:3-14; Hardesty 2007; van der Leeuw and Redman 2002)
9/1	Concepts in human ecology and environmental archaeology	(R:15-34)
9/3	Class Cancelled for <i>Mesa Redonda de Monte Albán</i>	
9/8	Concepts in environmental archaeology	(R:35-51; Fisher and Feinman 2005)
9/10	Background to the Holocene: Pleistocene environments and human ecology in the Ice Age	(R:53-68, 75-80; Martin 1973)
9/15	Postglacial adaptations	(Hayden 1990)
9/17	Reconstructing Holocene Environments: palynology	(Roberts 1998:28-54)
9/22	Reconstructing Holocene Environments: geomorphology and climatology	(Goldberg and Macphail 2006:42-64, 85-99)
9/24	Ecological impacts of the earliest farmers	(R:81-95; Smith 1998:15-33)
9/29	Ecological impacts of the earliest farmers	(R:95-126, 148-158)
10/1	Islands of global change	(R:68-75; Kirch 1997)
10/6	The mystery of Easter Island	(Diamond 1995; Hunt 2006)
10/8	Film: "Easter Island in Context: from Paradise to Calamity"	
10/13	Review for the Midterm	
10/15	Midterm Exam	
10/20	Landscape and Civilization	(R:127-139)
10/22	Landscape and Civilization	(R:159-191; Dickson 1987)
10/27	The ecological impact of Mesoamerican states	(R:139-148; Abrams and Rue 1988; Dunning and Beach 1994)
10/29	Film: "Out of the Past: Collapse"	(Kerr 2001; Hodell et al 2001)
11/3	Paleoecological research along the Río Verde	(Joyce and Mueller 1997)

- 11/5 Paleocological research along the Río Verde (Goman et al. 2005)
- 11/10 The Mediaeval Warm Epoch and the collapse of Ancient American Civilizations (Ortloff and Kolata 1993)
- 11/12 Did environmental degradation trigger social collapse or did social collapse trigger environmental degradation? (Erickson 1999, 2006; Fisher et al. 2003; Fisher 2005)
- 11/17 The impact of catastrophic environmental events: El Niño (Moore 1991)
- 11/19 The Little Ice Age and the decline of Norse Settlements on Greenland and Vinland (R:191-194; McGovern 1994)
- 11/23-11/27 Thanksgiving Break
- 12/1 Changes in the Land (Cronon 2003:19-53)
- 12/3 Changes in the Land (Cronon 2003:54-81)
- 12/8 Holocene human ecology; term papers due
- 12/10 What does Holocene human ecology tell us about the environmental future (R:195-219);
- 12/12 Final Exam 1:30-4:00pm

COURSE READINGS

- Abrams, E. M. and D. J. Rue. 1988. The causes and consequences of deforestation among the rehistoric Maya. Human Ecology 16(4):377-395.
- Cronon, W. 2003. Changes in the Land, 2nd edition. New York: Hill & Wang.
- Diamond, J. 1995. Easter's end. Discover 16(8):63-69.
- Dickson, D. B. 1987. Circumscription by anthropogenic environmental destruction: An expansion of Carneiro's (1970) theory of the origin of the state. American Antiquity 52(4):709-716.
- Dunning, N. P. and T. Beach. 1994. Soil erosion, slope management, and ancient terracing in the Maya Lowlands. Latin American Antiquity 5(1):51-69.
- Erickson, C. L. 1999. Neo-environmental determinism and agrarian 'collapse' in Andean prehistory. Antiquity 73:634-642.
- Erickson, C. L. 2006. Intensification, political economy, and the farming community. In Agricultural Strategies, edited by J. Marcus and C. Stanish, pp. 334-363. University of California, Los Angeles.
- Fisher, C. T. 2005. Demographic and landscape change in the Lake Pátzcuaro Basin, Mexico: Abandoning the garden. American Anthropologist 107(1):87-95.
- Fisher, C. T. and G. M. Feinman. 2005. Introduction to "landscapes over time." American Anthropologist 107(1):62-69.
- Fisher, C. T., H. P. Pollard, I. Israde-Alcántara, V. H. Garduño-Monroy, and S. K. Banerjee. 2003. A reexamination of human-induced environmental change within the Lake Pátzcuaro Basin, Michoacán, Mexico. Proceedings of the National Academy of Sciences 100(8), 4957-4962.
- Goldberg, P. and R. I. Macphail. 2006. Practical and Theoretical Geoarchaeology. Oxford: Blackwell.
- Goman, M., A. A. Joyce and R. G. Mueller. 2005. Stratigraphic evidence for anthropogenically induced coastal environmental change from Oaxaca, Mexico. Quaternary Research 63:250-260.
- Hardesty, D. L. 2007. Perspectives on global-change archaeology. American Anthropologist 109(1):1-7.

- Hayden, B. 1990. Nimrods, piscators, pluckers, and planters: The emergence of food production. Journal of Anthropological Archaeology 9:31-69.
- Hodell, D. A., M. Brenner, J. H. Curtis, and T. Guilderson. 2001. Solar forcing of drought frequency in the Maya Lowlands. Science 292:1367-1373.
- Hunt, T. L. 2006. Rethinking the fall of Easter Island. American Scientist 94(5):412-
- Joyce, A. A. and R. G. Mueller. 1997. Prehispanic human ecology of the Río Verde drainage basin. World Archaeology 29(1):75-94.
- Kerr, R. A. 2001. A variable sun and the Maya collapse. Science 292:129.
- Kirch, P. V. 1997. Microcosmic histories: Island perspectives on "Global" change. American Anthropologist 99(1):30-42.
- Martin, P. S. 1973. The discovery of America. Science 179:969-974.
- McGovern, T. H. 1994. Management for extinction in Norse Greenland. In Historical Ecology. Edited by C. L. Crumley, pp.127-154. Santa Fe: School of American Research Press.
- Moore, J. D. 1991. Cultural responses to environmental catastrophes: Post-El Niño subsistence on the prehistoric coast of Peru. Latin American Antiquity 2(1):27-47.
- Ortloff, C. R. and A. L. Kolata. 1993. Climate and collapse: Agro-ecological perspectives on the decline of the Tiwanaku state. Journal of Archaeological Science 20:195-221.
- Roberts, N. 1998. The Holocene: An Environmental History, 2nd edition. Oxford: Blackwell.
- Smith, B. D. 1998. The Emergence of Agriculture. New York: Scientific American Library.
- van der Leeuw, S. and C. L. Redman. 2002. Placing archaeology at the center of socio-natural studies. American Antiquity 67(4):597-605.