Course Description

How are our lives shaped by the environment around us? And, as scientists argue about whether or not we've entered a new age called "The Anthropocene", how great an impact have humans really made on the environment, from prehistory right up until today? This course will consider the complexities of human-environment interactions using a diachronic and comparative perspective only possible through an archaeological lens. It will explore the ecological relationships between people, animals, and plants in the past and discuss the implications of these dynamic relationships in an increasingly globalized world.

Required Textbook:


Grading and Assignments:

Each week will consist of two lectures and one practical (during Part 2, Methods) or seminar (during Part 3, Interpretation). Attendance is important and practical worksheets and seminar presentations will form a substantial percentage (25%) of your final grade. Other graded components of the course include one short topical paper (4-5 pages, double spaced) and a longer research paper that synthesizes two or more types of environmental archaeology data (3,000 words for undergraduates, 8-10,000 words for graduate students); no late papers will be accepted without prior approval. There will be a final exam. This course may be taken as satisfactory/no credit (S/NC). All non-textbook readings will be posted on the wiki (http://proteus.brown.edu/environmentalarch14private/home). The password is environmentalpr1vate. These should be completed before class.

Your final grade will be determined as follows:
- Participation (includes practical and seminar assignments): 25%
- Short paper: 20%
- Research paper: 35%
- Final exam: 20%

Additional Information

*Student and Employee Accessibility Services* Please inform me (after class or during office hours) if you have a disability or other condition that might require some modification of any of these course procedures. For more information contact Student and Employee Accessibility Services (SEAS) at 401-863-9588 or SEAS@brown.edu

*Libraries* Our subject librarian is Ian Straughn (Ian_Straughn@brown.edu). You can contact him with any research or library-related questions.
Course Schedule

Part 1: Introduction

Week 1 An Introduction to Environmental Archaeology

01/22 Lecture People and environments: an introduction to environmental archaeology
01/24 Lecture Geography, climate, and ecology

Readings:

- “Introduction to environmental archaeology” by Elizabeth J. Reitz, Lee A. Newsom, Sylvia J. Scudder, and C. Margaret Scarry, in Case Studies in Environmental Archaeology, 2nd ed., pp. 3-13

Week 2 Approaches to Environmental Archaeology

01/27 Lecture What is environmental archaeology?
01/29 Lecture Archaeological science: methods and techniques
01/31 Lecture Taphonomy and site formation processes

Readings:

- Environmental Archaeology, pp. 3-35, 36-79, 139-162
- Zooarchaeology, by Elizabeth J. Reitz and Elizabeth S. Wing, 2nd ed., pp. 88-116

Part 2 Methods

Week 3 Geomorphology and geoarchaeology I

02/03 Lecture Soils
02/05 Lecture Landscapes
02/07 Practical Local geology

Readings:

- Environmental Archaeology, pp. 257-319, pp. 193-250

Week 4 Geomorphology and geoarchaeology II

02/10 Lecture Stratigraphy
02/12 Lecture Micromorphology
02/14 Practical From GIS to micromorph: applications of geoarchaeology
Readings:

- *Practical and Theoretical Geoarchaeology*, by Paul Goldberg and Richard I. Macphail, pp. 11-27, 42-71, pp. 72-150

**Week 5 Archaeobotany I**

02/17 NO CLASS
02/19 Lecture Seeds and paleoethnobotany
02/21 Lecture The importance of charcoal

Readings:

- “Selective quantitative measurements in paleoethnobotany” by Virginia S. Popper, in *Current Paleoethnobotany*, pp. 53-71
- “Ratios in paleoethnobotanical analysis” by Naomi F. Miller, in *Current Paleoethnobotany*, pp. 72-85
- “Environmental interpretation of archaeological charcoal” by Tristine L. Smart and Ellen S. Hoffman, in *Current Paleoethnobotany*, pp. 167-205

**Week 6 Archaeobotany II**

02/24 Lecture Pollen counts in archaeobotany
02/26 Lecture Making the invisible, visible: phytoliths and starch grains
02/28 Practical Applications of archaeobotany in the field and lab

Readings:

- *Environmental Archaeology*, pp. 343-368
- *Paleoethnobotany*, by Deborah M. Pearsall, 2nd ed., pp. 178-182, 249-353
- *Phytoliths*, by Dolores R. Piperno, pp. 1-44
- *Paleoethnobotany*, by Deborah M. Pearsall, 2nd ed., pp. 11-65
- Watch videos at http://archaeobotany.googlepages.com/

**Week 7 Zooarchaeology I**

03/03 Lecture Animals and environments
03/05 Lecture Another story: the value of microfauna in zooarchaeological studies
03/07 Practical Working with faunal remains
Readings:

- *Environmental Archaeology*, pp. 411-467, pp. 468-488

**Week 8 Zooarchaeology II**

03/10 Lecture “To Everything There is a Season”: The seasonal use of animals in prehistory its implications for environmental archaeology

03/12 Lecture The process of domestication and its consequences

03/14 Practical Faunal assemblages from recovery to interpretation

Readings:

- Davis, S. 1987. *The Archaeology of Animals*. New Haven: Yale University Press. (Chapter 4, In what season was a site occupied?) (pp. 75-90).

**Week 9 Human Osteology and Molecular Studies**

03/17 Lecture Human osteology and paleopathology

03/19 Lecture Stable isotopes and human diet

03/21 Practical Reconciling osteological and biomolecular data
Readings:

- *Skeletons in Our Closet: Revealing Our Past through Bioarchaeology* by Clark S. Larsen, pp. 65-120
- *Paleoethnobotany*, by Deborah M. Pearsall, 2nd ed., pp. 520-578
- “Bone Chemistry and Paleodiet” by Donald F. Pate, *Journal of Archaeological Method and Theory* 1:161-209

**Week 10 03/24-03/28 NO CLASS-SPRING BREAK**

**Part 3: Interpretation**

**Week 11 Climate and Environmental Change**

03/31 Lecture Climate Change and Sea Level Rise
04/02 Lecture Environmental contexts and reconstruction
04/04 Seminar Case Study: The Younger Dryas and the Pleistocene-Holocene Transition

Readings:

- *Environmental Archaeology*, pp. 163-191, 369-408;
- “A Paleoindian response to Younger Dryas climate change” by Paige Newby et al., *Quaternary Science Reviews* 24:141–154

**Week 12 Human Ecology and Mobility**

04/07 Lecture Hunter-gatherers, foraging ecology, and the Broad Spectrum Revolution
04/09 Lecture Forager, farmer, pastoralist, nomad: what’s in a name?
04/11 Seminar Case Study: Central Asia

Readings:

- “Variability and dynamic landscapes of mobile pastoralism in ethnography and prehistory” by Michael D. Frachetti, in *The Archaeology of Mobility: Old World and New World Nomadism*, pp. 366-396;
- “Mobility and sedentism of the Iron Age agropastoralists of Southeast Kazakhstan” by Claudia Chang, in *The Archaeology of Mobility: Old World and New World Nomadism*, pp. 329-342
Week 13 Agriculture

04/14 Lecture Human diet and agriculture
04/16 Lecture The effects of agriculture and land use
04/18 Seminar Case Study: Long-term landscape change in the Mediterranean

Readings:

- “Low-level food production” by Bruce Smith, *Journal of Archaeological Research* 9:1-43
- “A holistic approach to examining ancient agriculture” by Alexia Smith and Natalie D. Munro, *Current Anthropology* 50:925-936
- “The farmed and the hunted: integrating floral and faunal data from Tres Zapotes, Veracruz” by Tanya M. Peres, Amber M. VanDerwarker, and Christopher A. Pool, in *Integrating Zooarchaeology and Paleoethnobotany*, pp. 281-308
- *Practical and Theoretical Geoarchaeology*, by Paul Goldberg and Richard I. Macphail, pp. 193-210
- *Human Impact on Ancient Environments*, by Charles L. Redman, pp. 53-126

Week 14 The Future from the Past: Applications of Environmental Archaeology

04/21 Lecture Culture contact and the modern era
04/23 Lecture Implications of environmental archaeology for the future
04/25 Final Review

Readings:

- *An Environmental History of the World*, by J. Donald Hughes, 2nd ed., pp. 154-186
- “Sustainability of irrigated agriculture in the San Joaquin Valley, California” by Gerrit Schoups et al., *PNAS* 102:15352-15356

FINAL EXAM: Date TBA