**ARCH 1870: Environmental Archaeology**

**Rhode Island Hall 108 T/TH 1:00-2:20pm**

**Instructor:** Dr. Zachary Dunseth

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**Office Hours:** Rhode Island Hall 102 T/TH 3:00-5:00 pm, or by appointment.

**Syllabus**

**Course Description:**

Environmental archaeology studies the various ancient or historical interactions between humans and their environment—in other words, how the environment shaped humanity, and how humanity shaped its environment. This class will survey the main subdisciplines in environmental archaeology (geoarchaeology, archaeobotany, zooarchaeology, human bioarchaeology and stable isotopes), and explore how they can used to explore the past. Intentionally, this course does not aim to foster expertise in any specific aspect of environmental archaeology, but to develop experience and critical reading of environmental archaeological methods, datasets and theories as applied to human history.

**Prerequisites**

There are no prerequisites for this class. However, basic understanding or previous experience in archaeology is a plus.

**Learning Goals:**

This course will teach students how to:

* Describe natural and cultural mechanisms defining (local and regional) environments, and environmental change
* Interpret, calibrate and model radiocarbon dates, OSL and other chronometric methods
* Consume and assess various geoarchaeological, archaeobotanical, zooarchaeological and isotopic datasets used to reconstruct past environmental conditions.

**Textbooks**:

* Dinacauze, D.F. 2000. *Environmental Archaeology: Principles and Practice*. Cambridge University Press, Cambridge, UK.
* Reitz, E.J., Newson, L.A., Scudder, S.J. 2008. *Case Studies in Environmental Archaeology* (2nd Edition). Plenum Press, London.
* In addition to the textbooks, selected readings will be posted on Canvas (see below). Note that the readings are subject to change throughout the semester.

Purchase of these textbooks are **not required** for the course; all assigned readings will be uploaded to Canvas.Copies of both texts are also available at the Rockefeller Library.

**Grading and Assignments:**

Attendance and Participation (15%)

Lab notebooks (20%)

Short Paper (15%)

Seminar Presentation (20%)

Final Report (30%)

Each week will consist of one lecture and either one seminar or practical (laboratory) class. Attendance and participation in class is required and will make up a substantial percentage of the final grade (15%).

**Assignments**

*Lab Notebooks (20%)*

Archaeologists and archaeological scientists keep detailed notes on their work in the field and in the lab; in this class we will do the same for all practical assignments. Lab notebooks may be digital or analogue, but must be typed up for submission on Canvas by the following Tuesday after practical assignments.

*Seminar presentation (20%)*

Each student will be assigned an article during the semester to summarize and present to the class (maximum 10-15 minutes) and lead subsequent discussion during one of the seminar classes through the semester. Presentations should be made in PowerPoint and include visuals. Focus of the presentation should be on the archaeology, methods/theories discussed, results, and conclusions. Presenters will lead the subsequent discussion.

*Short Paper (15%)*

A short topical paper (1000 words maximum undergrad, 2000 maximum graduate students) on one method and its application to archaeology or paleoclimate reconstruction of their choosing.

*Final Paper Report (30%)*

Students will develop a paleoenvironmental report for an archaeological site of their choosing. Sites may be anywhere in the world from any period of human history. Students will collect previously published information including geological, geomorphological, soil data, as well as archaeological and environmental data. The paper will assess both the publication history, and plan potential studies that could inform about certain sites over. Paper is expected to be around 2500-3000 words for undergraduates, 4000-6000 for graduate students. Studies should be in the format of EPA or a published site report.

General format of the paper:

1. Introduction to site and region (archaeological/historical background)
2. Modern (and immediate future) environment and paleoenvironmental setting
3. Summary of methods used to reconstruct the environment (published and/or those planned to be carried out)
4. Recommendations for future archaeological research

**Formatting Guidelines for Papers**

Papers should be formatted as follows: 12 pt Times New Roman, 2.0 (double) spacing, 1-inch margins.

References and citations should be consistent according to a standard used in archaeology journals (MLA, Harvard, etc). Footnotes are strongly discouraged.

**Late Assignments**

Late assignments will be docked 10% for each day submitted after the due date, unless given prior approval by the instructor.

**Course Requirements and Expectations**

Over 14 weeks, students will spend approximately 3 hours per week in class (42 hours total). Required reading for lecture and seminar meetings is expected to take up approximately 5 hours per week (70 hours). The seminar presentation, short paper and final report are estimated to take an additional 40 hours over the course of the semester.

**Email and Contact Policy:**

The most effective way to contact me is in person, either after class, during office hours, or by appointment.

Second most effective way to contact is through email ([zachary\_dunseth@brown.edu](mailto:zachary_dunseth@brown.edu)). I will try to reply to all emails within 24 hours on weekdays, and within 48 hours over the weekend. Please note I will rarely answer emails after 9:00pm.

**Accessibility and Accommodations**

Brown University is committed to full inclusion of all students. Please inform me (in person, after class or during office hours) if you have a disability or other conditions that might require accommodations or modification to any of these course procedures. For more information, please contact [**Student and Employee Accessibility Services**](https://www.brown.edu/campus-life/support/accessibility-services/) at (401) 863-9588 or [SEAS@brown.edu](mailto:SEAS@brown.edu). Students in need of short-term academic advice or support can contact one of the deans in the Dean of College office.

**Diversity Statement**

Our classroom is safe space of learning that supports a diversity of thoughts, perspectives and experiences. Your identity (including race, gender, class, sexuality, religion, ability, etc) will be respected.

If you have a name and/or set of pronouns you prefer, please let me know. If something was said in class (by anyone, myself included) that made you feel uncomfortable, please talk to me about it after class or by email. Anonymous feedback is also an option through my mailbox in the Joukowsky.

Unlike some instructors, I prefer to be addressed by my first name: ‘Zach.’ My preferred pronouns are he/his.

**Academic Code**

All students at Brown must follow the Academic Code: <https://www.brown.edu/academics/college/degree/index.php?q=policies/academic-code/>. Plagiarism of any sort is unacceptable, and may result in serious penalties (warning, reprimand, or grade adjustment).

**Course Schedule:**

Week 1: Introduction

9/4 (Thurs) **Course Introduction**: Syllabus, Course goals, etc.

Week 2: Introduction

9/10 (Tues) **Lecture:** What is(n’t)Environmental Archaeology?

*Readings:* Reitz et al. 2008: 3-19; Dinacauze 2000: 3-35;

*Assignment*: Start Lab notebook with list of ALL items you buy AND throw away (separately) over the next week – includes food/takeout/etc (until class Thursday 9/17).

9/12 (Thurs) **Lecture:** Climate and Environmental change: natural and human action

*Readings:* Dinacauze 2000: 36-79, 139-187

Week 3: Earth Sciences in Environmental Archaeology

9/17 (Tues) **Practical:** Archaeological Analogies: ModernGarbage and historical inference

*Readings*: Rathje and Murphy 2001: 59-78, 133-150; Scott 2008: 357-374

9/19 (Thurs) **Lecture:** Measuring Time: Dendrochronology, Radiocarbon, OSL and other chronometric techniques

*Readings*: Dincauze 2000: 81-136

Week 4: Earth Sciences in Environmental Archaeology

9/24 (Tues) **Practical:** Dating in archaeology: Evaluating Radiocarbon Datasets

*Readings*: Schiffer 1986; Kim et al. 2019; Manning et al. 2019; Bronk Ramsey 2009

9/26 (Thurs) **Lecture:** Soils, Sediments and Stratigraphy

*Readings*: Goldberg and Macphail 2006: 11-71

Week 5: Earth Sciences in Environmental Archaeology

10/1 (Tues) **Lecture**: Landscapes and Geomorphology

*Readings*: Goldberg and Macphail 2006: 72-117

10/3 (Thurs) **Practical**: ‘Reading’ landscapes: Geology and landscape of Rhode Island

*Readings*: Frederick 2001: 55-72; GISRI website

Week 6: Archaeobotany: Macroremains

10/8 (Tues) **Lecture**: Seeds and Charcoal

*Readings:* Dincauze 2000: 332-343; Asouti and Austin 2005;

10/10 (Thurs) **Seminar**: Case studies of human-environmental interactions with macroremains

*Readings:* Miller 1996; Hillman et al. 1997; Marston 2009

Week 7: Archaeobotany: Microremains

10/15 (Tues) **Lecture:** Phytoliths, Pollen, Starch

*Readings:* Piperno 2006: 1-44 (Phytoliths); Pearsall 2015: 185-203, 226-252 (Pollen) 341-355, 375-384 (Starch)

10/17 (Thurs) **Field Trip:** Geoarchaeological field sampling at Moses Brown School

Week 8: Lab Week

10/21 (Mon) **Practical:** Introduction to soil micromorphology **(2:00-4:00pm)**

10/22 (Tues) **No class (potential time for lab makeup for 2-3 students)**

10/24 (Thurs) **No class (potential time for lab makeup for 2-3 students)**

10/25 (Friday) **Practical**: Phytolith analysis and paleoenvironmental reconstruction **(4:00-6:00pm)**  
 *Readings:* Piperno 2006: (Appendix); Ball et al. 2016; Neumann et al. 2019 (ICPN 2.0)

Week 9: Zooarchaeology

10/29 (Tues) **Lecture**: Animals and Environments

*Readings:* Dincauze 2000: 409-494; Reitz et al. 2008: XX-XXX

10/31 (Thurs) **Seminar:** Reconstructing human-environment interactions with faunal remains

*Readings:* Isaac 1989; Pringle 1998; Carter 1998

*Assignments:* Short topical paper DUE.

Week 10: Human and Animal Isotopic Studies

11/5 (Tues) **Lecture:** Isotope Studies: Local and Global Scale

*Readings:* Pate 1994; Larsen 2002; Pearsall 2015: 399-411

11/7 (Thurs) **Seminar:** Stable Isotopes and Human Diet

*Readings:* Reitsema and Vercellotti 2012 (Local); Wright et al. 2019 (Regional)

Week 11: Case Studies and Applications in Environmental Archaeology

11/12 (Tues) **Lecture:** Climate Change and Archaeology

*Readings:* Dincauze 2000: 139-191;

11/14 (Thurs) **Seminar:** Collapse of Civilization:Environmental Determinism?

*Readings:* Weiss et al. 1993; Butzer 2012; Rosen and Rivera-Collazo 2012; Büntgen et al 2016

Week 12: Case Studies and Applications in Environmental Archaeology

11/19 (Tues) **Lecture**: Animal Dung as Indicators of Human-Environment Interaction

*Readings*: Shahack-Gross 2011; Dunseth et al. 2019

*Assignment:* Topics for Final Reports DUE

11/21 (Thurs) **Guest Lecture:** Kathleen Forste (Lecture title TBA)

*Readings:* TBA

Week 13: Case Studies in Environmental Archaeology

11/26 (Tues) **Guest Lecture: Darcy Hackley**

*Readings:* TBA

11/28 (Thurs) **Thanksgiving Holiday [NO CLASS]**

Week 14

12/3 (Tues) **Final** **Seminar:** TheAnthropocene and Modern Climate Change

*Readings:* Erlandson and Braje 2013; Petursdottir 2017

(Week 16)

12/14 **Final exam date:** Final report DUE