

## Food and Fire: Archaeology in the Laboratory

Hi Interested Students! The 2025 version of the course will have different dates but be even better! Let me know if you have questions.

**Instructor:** Katherine M. Moore, Ph.D. ([kmmoore@upenn.edu](mailto:kmmoore@upenn.edu)), Department of Anthropology-  
Office for student appointments: (Museum 338 in Academic Wing) Phone 215-898-6306  
Student appointment time: Thurs 9:30-11:30 am; Lab office hours Mon 2:50-4:30. Request a Calendly link if these times don't work.  
Zooarchaeology Lab in CAAM (Museum 160) 8-4060  
Teaching Assistants: to be determined  
**Class Schedule** Lectures Mon and Wed 1:45-2:45 pm in **Widener Lecture Hall**, Penn Museum.

**Recitation Sections.** Recitations will meet in the **CAAM Classroom Museum 190**. Recitations are essential, unique chances for you to learn core material, build skills and begin graded work. Recitations are NOT OPTIONAL nor are they review sessions. You must attend your assigned recitation unless we have made arrangements for a specific planned swap.

Sections:       Section 402 Thurs 1:45-2:45 pm (Faeth)  
                  Section 403 Thurs 3:30-4:30 pm (Faeth)  
                  Section 404 Friday 12-1pm (Luurtsema)  
                  Section 405 Friday 1:45-2:45 pm (Luurtsema)

**Welcome to Archaeology as a Science:** In "Food and Fire", students explore the essential heritage of human technology through archaeology. People have been transforming their environment from the first use of fire for cooking. Since then, humans have adapted to the world they created using the resources around them. As we follow the human innovation from the use of stone tools to the manufacture of pottery, the development of textiles and the evolution of metal implements; we will also experience analytic approaches covered in the Center for Analysis of Archaeological Materials at the Penn Museum. Materials include animal bones, plant remains, human skeletons, ceramics, metals, and stone. Students will become familiar with the Museum's collections and the scientific methods used to study different materials. Recitation/lab sections will cover analytical techniques, hands-on examination of raw materials, and study of Penn Museum collections. Students will do a final object study of an object or group of objects from the Penn Museum collections.

No Prerequisites. (Fulfills General Ed: Sector IV: Social Science/Humanities, foundation course for Minor in Archaeological Science, Object Based Learning course, Attributes in Classics, ANCH, SEAS, WH, Nursing).

### Objectives:

- To become familiar with basic archaeological research methods, scientific analysis of archaeological materials and museum practice
- To learn how archaeologists study change in a technological context
- To learn the most important materials transformed by humans and studied by archaeologists (stone, bone, plant materials, fibers, ceramics, metals)
- To learn how human skeletons from archaeological sites are handled and analyzed
- To practice the major techniques of description and analysis in archaeological research and conservation
- To become familiar with key instruments and laboratory approaches and with digital data storage and analysis

- To communicate about archaeological research to different audiences

**Content Advice:** Class presentations, readings (including the course textbook) and Museum displays will involve images of human remains and in viewing human remain on exhibit. We may handle replicas, but no real human remains. Please let your instructors know if you have questions.

### Graded Coursework:

**Attendance (lectures and recitations) (15%)** ungraded assignments (checked-off in class), active participation with objects, and discussions. We take attendance and expect a Course Absence Notice if you are not in class arrange make-up. Participation will be scored by your instructor and TA, let us know if you have questions. Your phone out and in use suggests non-participation.

**Written assignments (30%):** 6 lab reports on paper, due in class unless otherwise posted

**Exams: Midterm (20% of grade)** In Class on Oct 28; short answer and essay, covering material up to Oct. 23. No final exam.

**Final Project: (35%)** Artifact biography based on Museum collections, written report and presentation.

**Course textbook: Archaeological Essentials: Theories, Methods, Practice**, 5<sup>rd</sup> (2024) ed., by Colin Renfrew, Paul Bahn, and Elizabeth DeMarrais. (Thames and Hudson. ISBN 978-0-500-84529-5) AND readings on Canvas: including general readings, just-for-your-project readings, and background resource readings.

### Grading and Evaluation:

1. Written assignments in this course are based on your own observations, experiences, and personal reflections. AI tools were not designed to help you with such tasks and are unlikely to be a useful resource on these assignments. Use of AI for research in archaeology is a weak strategy that can involve you in an Honor Code violation. See us for questions.
2. Deadlines are set to keep everyone on track and facilitate returning graded feedback to you on a timely basis. Most work will be turned in on paper and is DUE IN CLASS. Occasionally a post or Canvas assignment will be due at another time, so check Canvas. Written assignments can earn full credit on the *due date and two days following*. The Final project has a firm deadline so that we can grade these materials by the end of the semester. Early partial submissions of drafts and check-ins will help you be ready to make this deadline.
3. Numerical score equivalents and mastery levels for assignments (see Canvas for more complete information)

A (94-100)) Superior, creative work showing mastery of topics, careful attention to detail and instructions

A -(90-93.9) Clear, well-written work shows understanding of topic and task, attention to detail

B+ (87-89.9) Mostly complete work showing understanding of topic and task, details/instructions less complete

B (83-86.9) Shows understanding of topic and task, some aspects missing, less attention to detail

B- (80-82.9) Basic understanding of topic and task, details incomplete

C+ (77-79.9) Understanding of topic and task weaker, parts missing or incomplete

C (73-76.9) Most parts covered without clear understanding, details missing or incomplete

C-(70-72.9) No clear understanding of topic, incomplete

F (Below 69) Work missing or not acceptable

**Hands-on** experiences are required! Get ready to engage with **Material Boxes** in lecture, **Raw Materials** in recitation, **Museum objects** in galleries and research visits. You will complete Object Handling Training from a Museum staff member before you begin working on objects.

### College Resources:

**Weingarten Learning Center:** Services include Student Disability Services, for accommodations in the course.

<https://weingartencenter.universitylife.upenn.edu/>

**Museum Library:** Course books, reference assistance, study space, printing <https://www.library.upenn.edu/museum>  
**University of Pennsylvania Museum** <https://www.penn.museum/> Online Catalog <https://www.penn.museum/collections/>  
**Help with Student Stress:** <http://www.vpul.upenn.edu/caps/>. Counseling and Psychological Services provides free support to CAS and LPS students. Normally open to 5 pm, open until 7pm on Wednesday and Thursday.  
**Access** Help with course costs and other issues with access to a Penn education: <https://www.vpul.upenn.edu/gic/>

## Course Outline:

Week	Dates	Lectures and recitations for each topic	Activity	Due Dates for Assignments and checkoffs	Reading Assignments
1	Wed. Aug 28	Introducing Archaeology and the Penn Museum	Ice breaker task	First day form	Purchase textbook! Renfrew, Bahn, DeMarrais 5 <sup>th</sup> edition
	Thurs Aug 28, Fri Aug 30	Recitation	Tours of the Museum Galleries		Chapter 1 Searching for the Past; Museum history readings on Canvas
	Mon Sept 2	No Class today Labor Day Holiday			
2	Wed Sept 4	Introduction to archaeological thinking and fieldwork	Material Box 1, Material properties		Chapter 2 What is left? Chapter 4 When? And videos on methods
	Thurs Sept 5, Fri Sept 6	Recitation	Introduction to CAAM Labs and object study	Assignment 1: Museum object	<i>Resource: "Bad Penny"(pdf)</i>
3	Mon Sept 9	Archaeological Sites and landscapes, Prof. Jason Herrman			Chapter 3 Where? Gallery Links: <i>U2 Spy Planes</i>
	Wed Sept 11	Archaeological objects and technologies		Assignment 2: coin study	
	Thurs Sept 12, Friday Sept 13	Recitation	Object Handling, Observation of ceramics	Object handling check-off in class	Handouts; Gallery Links: Pachacamac in <i>Ancient Food and Flavor</i>
4	Monday Sept 16	Stones and stone tools in archaeology	Material box 2, Stone materials		Chapter 4, Chapter 7 (pp 210-215), Miller chapter 3 (pdf) and videos
	Wed Sept 18	Stone Tool Workshop, TAs and auxiliaries		Assignment 3: Inference from ceramics	Gallery Links: Obsidian and many other stones in <i>Ancient Mesoamerica</i>
	Thurs Sept 19, Fri Sept 20	Recitation	Using stone tools on different materials		
5	Monday Sept 23	Plant materials and food in archaeology Prof. Chantel White			Chapter 6 to pp 195 What was the environment?, Fuller and Lucas 2014 Gallery Link: Numayra/ Robenhausen in <i>Ancient Food and Flavor</i>
	Wed Sept 25	Plants and archaeology		Assignment 4: Stone use	
	Thurs Sept 26, Friday Sept 27	Recitation	Olives and Olive Oil	Check-off worksheet in class	

6	Monday Sept 30	Landscapes, Environments, Fire			Chapter 6, What was the environment? pp 195-207, <i>Why Fire makes us human</i> pdf
	Wed October 2 (Rosh Hashana)	Animal materials in archaeology	Material box 3, Animal materials		
<b>Week</b>	<b>Dates</b>	<b>Lectures and recitations for each topic</b>	<b>Activity</b>	<b>Due Dates for Assignments and checkoffs</b>	<b>Reading Assignments</b>
	Thurs and Fri Oct 3,4	Fall Break, No Classes			
7	Mon, Oct 7	Human remains in archaeology			Chapter 8 What were they like?
	Wed Oct 9	Genomic and molecular archaeology (A. Faeth and A. Luurtsema)			Chapter 6 (Environment) p. 205-206, Chapter 8 (What were they like?) pp 241-250
	Thurs Oct 10, Fri Oct 11 (Yom Kippur)	Recitation	Taphonomy and change with animal materials		
8	Mon Oct 14	Ceramics in archaeology Prof. Marie-Claude Boileau	Material box 4, ceramics and glass		Chapter 7 How were artifacts used?, pp 213-231, Miller chapter 4, Rye
	Wed Oct 16	Ceramic Materials in archaeology		Assignment 5: taphonomy	Gallery links: everywhere!, Asian Gallery and <i>Ancient Mediterranean</i>
	Thurs Oct 17, Fri Oct 18	Recitation	Ceramics in Thailand Culture	Check-off worksheet in class	
9	Mon Oct 21	Metals and ores in archaeology Prof. Vanessa Workman	Material box 5 minerals and metals		Chapter 7, How were artifacts used? additional reading as posted
	Wed Oct 23	Metals and ores in archaeology			Gallery link: <i>Spotlight Gallery</i> for Ancient Pseudomorphs, <i>Middle East Gallery</i> and the Ur collection
	Thurs Oct 24, Fri Oct 25	Recitation	Metal working and casting	Check-off worksheet in class	
<b>10</b>	<b>Mon Oct 28</b>	Midterm Exam in Class			Covers all readings to Oct 21(Chapters 1-8) all topics to Oct 23
	Wed Oct 30	Introducing the Final project			Readings on Canvas
	Thurs Oct 31, Fri Nov. 1 (Diwali)	Recitation Landscape Changes and GIS Prof. Jason Hermann	Spatial Archaeology		Drawing from Chapter 3 (Where?), 5 (Environments), and 7 (Artifacts)
11	Mon Nov 4	Mortuary contexts in archaeology, projects		<b>Project Part 1</b>	Drawing from Chapter 8 (What were they like) and 9 (What did they think?)
	Wed Nov 6	Landscape Change and digital tools Prof. Jason Herrman		Assignment 6: Maps and spatial data	
	Thurs Nov 7, Fri Nov 8	Recitation (meet in galleries, check canvas)	Museum tours and workshop		Galleries: <i>Ancient Egypt Discovery to Display, Greece</i>
12	Mon Nov 11	Object Biographies in Archaeology			Readings on Canvas for your project, AE Chapter 9

	Wed Nov 13	Project Research Workshop			"Library Guides" on Canvas
	Thurs Nov 14, Fri Nov 15	Recitation	Project research 1	<b>Project part 2 Background</b>	
<b>Week</b>	<b>Dates</b>	<b>Lectures and recitations for each topic</b>	<b>Activity</b>	<b>Due Dates for Assignments and checkoffs</b>	<b>Reading Assignments</b>
13	Mon Nov 18	Trade and politics with objects			Chapter 5 (Social Organization), Chapter 7 (Distribution) pp 219-230
	Wed Nov 20	Symbols and social change with objects		<b>Project part 3 Description</b>	Chapter 9 (What did they think?)
	Thurs Nov 21, Fri Nov 22	Recitation	Project research 2		
14	Mon Nov 25	Conservation of Museum objects, Conservator Chelsea Cohen			Resources in Canvas, including conservation guides for each project
	<b>TUES Nov 26 and Wed Nov 27 (Thurs/Fri Schedule)</b>	Recitation by appointment	Optional project visits		Don't forget museum exhibits for your specific study object.
	<b>Thurs-Fri Nov 28/29</b>	Thanksgiving Holiday No Class			
15	Mon Dec 2	Project workshop in class		<b>Project part 4 Interpretation</b>	
	Wed Dec 4	Cultural heritage and ethics in archaeology			Chapter 11 (Whose past?), 12 (Future of the past)
	Thurs Dec 5, Fri Dec 6	Project presentations in recitations	Individual project presentations	<b>Project Part 5 Presentations</b>	
16	Monday Dec. 9 Last Class	Ethics roundtable, wrap up			
	Tues, Wed Dec 10-11	Reading Days			
	Mon, Dec. 16	All final work submitted	See Canvas for procedures	Submission on paper	