

Food and Fire: Archaeology in the Laboratory

Please Note: the Academic Schedule for Fall 2022 is not Complete. The dates here are not accurate (they are based on 2021) but show the pace of work and the general way that recitations work with lectures and assignments. Please let me know if you have questions or concerns.

Instructor: Katherine M. Moore, Ph.D. (kmmoore@upenn.edu),

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Office (Museum 338 in Academic Wing) Phone 215-898-6306

Office Hours Tuesday 4-6 pm, Thurs 9:30-11:30 am (Lab office hours Monday 2:50-4:30)

Zooarchaeology Lab (Museum 160) 8-4060

Teaching Lab CAAM Multipurpose Lab Museum 181(6-2931)

CAAM Director: Marie-Claude Boileau Ph.D. (mboileau@upenn.edu, office: Museum 184)

Class Schedule Lectures Mon and Wed 1:45-2:45 pm in Widener Lecture Hall

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. Be aware of your section:

Section 402 Thurs 1:45-2:45 pm

Section 403 Thurs 3:30-4:30 pm

Section 404 Friday 12-1pm

Section 405 Friday 1:45-2:45 pm

Course Description: 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 through the use of stone tools, the manufacture of pottery, the development of textiles and the evolution of metal implements we will also experience analytic approaches covered in CAAM. These 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 Warning: Class presentations, readings (including the course textbook) and Museum displays will involve images of human remains and in some cases viewing human remain on exhibit. We will not handle any real human remains. Please let your instructors know if you have questions.

Graded Coursework:

Attendance (15%) to all classes and recitations, including preparation for discussion, participation (includes working with study guides of the Materials boxes used in class and ungraded work) You must submit a Course Absence Report for any missed class or missed recitation/lab to avoid a grade penalty.

Written assignments and ungraded assignments (30%) (6 of these will be graded as indicated on the course schedule in this syllabus and on Canvas, 4-5 will be checkoffs, often with a required Discussion prompt, for which you'll get feedback but no grade) Due dates on syllabus and on Canvas.

Exams: Midterm October 13(20%) Format: In Class; short answer and essay. No final exam

Final Project: (35%) Artifact biography based on Museum collections (Proposal, background, description, analysis, museum label; 10-12 pages plus illustrations and bibliography) and associated presentation in recitation; due dates for individual sections on syllabus). All parts in final draft due December 15.

Course textbook: Archaeological Essentials: Theories, Methods, *Practice*, 4th (2018) ed., by Colin Renfrew and Paul Bahn. (Thames and Hudson. ISBN 978-0-500-29157-7.) Available at the Penn Book Store/Barnes and Noble. See "About the Required Textbook" in Canvas for more information.

Other readings on Canvas: Other assigned readings posted in the weekly module on Campus, and linked to the Canvas schedule/syllabus. These files will be marked "Reading". Other items marked "Resource" include materials and links to take particular issues further, or in the "just for fun" category. Powerpoints will be available marked "Presentation". Most files for handouts will be available, marked "Handout".

Table Seating Policy: to encourage sharing different learning styles and ensure equal access to all, students will sit at assigned tables (you may choose your seat). Let me know if you need specific accommodations that involve seating.

Laptop Policy: Laptops may be used to take notes in class, but not to distract others or yourself with email, social media, or work for other classes. No laptops in recitations with some announced exceptions (particularly Nov. 4 and 5)

Original sources for other readings and "resource" readings posted on Canvas: in case you need to cite or consult.

Miller, Heather M.L (2009) *Archaeological Approaches to Technology*. Left Coast Press, Walnut Creek California. Selected from chapters 2, 3, 4, 5.

Craddock (1995) *Early Mining and Metal Production*. Chapters 1, 2, 3, 5.

Renfrew, Colin and Paul Bahn (2012) *Archaeology*. Chapter on Archaeometallurgy This is the longer version of Renfrew and Bahn, not your textbook.

Brown, S. et al (2015) *Object Stories: Artifacts and Archaeologists*. Left Coast Press, Walnut Creek, CA.

Expedition archive (<http://www.penn.museum/sites/expedition/> and on Canvas)

Gorelik, Leonard and A. John Guinnet (1976) Ancient seals and modern science: using the scanning electronic microscope as an aid in the study of ancient seals.

Gorelik, Leonard and A. John Guinnet (1981) The origin and development of the ancient Near Eastern cylinder seal.

Horne, Lee (1982) Fuel for the metalworker, the role of charcoal and charcoal production in ancient metallurgy.

Pezzetti, Alessandro (2012) Penn Museum: 125 years and still exploring.

For Reference: Particularly useful source on individual approaches, techniques, and instruments:

Most important for the final project: the Module tabs on Canvas for each project (look at the bottom of the list)

Banning, E.B. (2000) *The Archaeologists' Laboratory: The Analysis of Archaeological Data*. Kluwer Plenum, New York. Chapters 7, 8, 9, 16.

Cunliffe, B. C. Gosden, R. A. Joyce (2009) *The Oxford Handbook of Archaeology*. Oxford University Press, Oxford. (In Reference in the Museum Library)

Malainey, Mary (2011) *A Consumer's Guide to Archaeological Science: Analytical Techniques*. Springer, New York.

Smith, Claire (2014) *Encyclopedia of Global Archaeology*. Springer. 11 volumes in the Reference section of the Museum Library.

College Resources:

Weingarten Learning Center: Services including Student Disability Services, the official channel for receiving accommodations in the course. You must be registered with the WLC to get any special classroom accommodation such as help with note-taking or alternative exam arrangements.

Museum Library: Location of most of the books you might want to consult for the course, study spaces, reference librarians, and printing resources. 3rd floor of the Museum, see Canvas and the website to see updated hours as staffing increases.

University of Pennsylvania Museum You will swipe with your PennCard in every time you enter the building, either by a secure door or past a Visitor Services desk. Galleries are open until 5pm Tues to Sun. Offices and Library are open on Monday through Kress with your Penn Card. You must wear a MASK to enter the building or use a shared space or classroom.

Help with Canvas and Information technology: http://guides.library.upenn.edu/canvas_students . Also resources of Wiegles Information Commons: <https://guides.library.upenn.edu/computingindex/computing/wic>

Help with Academic Conduct: <http://www.upenn.edu/academicintegrity/>. This page summarizes the standards for academic work and appropriate use of scholarship. **All your work** must adhere to the Code of Academic Integrity.

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. Other wellness resources on Canvas and will be updated there.

Help with course costs and other issues with access to a Penn education: <https://www.vpul.upenn.edu/gic/>

Date	Class	Topic/Location	Reading/Writing Assignment
Wed, Aug 31	First Day of Class 1:45-pm-2:45pm	Introduction to the course/ <i>Widener Lecture Hall</i>	Look over your textbook
Thu Sept 2	Thursday Recitations 1:45-2:45, 3:30-4:30 pm	Tour of Museum and Galleries <i>Main Entrance, meet at the Sphinx</i>	See Canvas for readings <u>Museum Object Assignment</u>
Fri Sept 3	Friday Recitations 12-1. 1:45-2:45 pm		Miss the tour? See Canvas
Mon Sept 5	NO CLASS, Labor Day		
Wed Sep 8	Second Week of Class, only one lecture, 1:45-pm-2:45pm	About archaeology: Museums, objects, materials, time/ <i>Widener</i>	R&B Chapter 1 Canvas: Penn Museum: 125 years of Exploring (pdf), The sections (pdf)
Thu Sep 9	Thursday Recitations 1:45-2:45, 3:30-4:30 pm	Introduction to CAAM labs intro to spaces, lab safety, equipment/ <i>CAAM labs via Main Entrance</i>	Canvas: lab handout, handout on coins <u>Museum Object Assignment DUE</u>
Fri Sep 10	Friday Recitations 12-1. 1:45-2:45 pm		<u>Inferences from Objects assignment</u>
Mon Sep 13	Third Week of Class 1:45-pm-2:45pm	Archaeological landscapes and Survey: <i>Widener</i>	R&B chapter 2, chapter 3 (with most attention to pp 93-105)
Wed Sep 15	Third Week of Class 1:45-pm-2:45pm	Artifacts, Materials and Social organization. <i>Widener</i>	Chapter 4 (Chronology and take a look at p. 46-47 again) <u>Inferences from Objects DUE</u>
Thu Sep 16	Thursday Recitations 1:45-2:45, 3:30-4:30 pm	Object Handling training, approaching context <i>Mus 190</i>	Object Handling Guidelines handout; Pachacamac Resource on Canvas
Fri Sep 17	Friday Recitations 12-1. 1:45-2:45 pm		<u>Inferring from Context and Craft assignment</u>
Mon Sep 20	Fourth week of class 1:45-pm-2:45pm	Technology and People: thinking about stone	R&B Chapter 7, pp. 211-216. Chapter 4 pp. 134-140 is context for time periods.
Wed Sep 22	Fourth week of class 1:45-pm-2:45pm	Stone tool demonstration and workshop	Canvas: Miller (p 47-65) Stone and video links. <u>Inferring from Context and Craft DUE</u>
Thu Sep 23	Thursday Recitations 1:45-2:45, 3:30-4:30 pm	Stone tool workshop; Bring the tool you chose on Wednesday <i>Mus 190</i>	Lithic Worksheet assignment
Fri Sep 25	Friday Recitations 12-1. 1:45-2:45 pm		see above on Thurs: assignment on lithics
Mon Sep 27	Fifth week 1:45-pm-2:45pm	Environments, soil, animals, people in archaeology <i>Widener</i>	R&B Chapter 6 (186-189 and 197-202) Canvas: links
Wed Sep 29	Fifth week 1:45-pm-2:45pm	Animals evidence: behavior, food, changes Z	Material in R&B 6, Canvas: Taphonomy (pdf)

		MATERIAL BOX: BONE <i>Widener</i>	<u>Lithic Worksheet DUE</u>
Thu Sep 30	Thursday Recitations 1:30-2:30; 3-4 pm	Taphonomy and tracking change <i>Mus 190 and 160</i>	<u>Taphonomy worksheet assignment</u>
Fri Oct 1	Friday Recitations 12-1. 1:45-2:45		
Mon Oct 4	Sixth Week 1:45-pm-2:45pm	Plants, people environments <i>Widener</i>	Canvas: Fuller and Lucas (pdf) R&B Chapter 6, particularly pp. 191-198
Wed Oct 6	Sixth Week 1:45-pm-2:45pm	Recovery, bias, and recovering plant use. PLANT MATERIAL BOX <i>Widener</i>	Canvas: readings will be posted <u>Taphonomy Worksheet due</u>
Thu, Fri Oct 7,8	NO RECITATIONS: Fall Break		
Mon Oct 11	Seventh Week 1:45-pm-2:45pm	Fire, Fire making, environment, Pyrotechnology and transformations <i>Widener</i>	Canvas: "Why fire makes us human" and "Letter from California fires"
Wed Oct 13	Seventh Week 1:45-pm-2:45pm		
Mon Oct 18	Eighth Week 1:45-pm-2:45pm	Clays, tempers, and ceramics. ceramics <i>Widener</i>	R&B Chapter 7 pp. 216-218,
Thu Oct 21	Thursday Recitations	Ceramic material lab <i>Mus 190 and 182</i>	Worksheet checked Discussion Contribution
Wed Oct 20	Eighth Week 1:45-pm-2:45pm	Ceramics: Forming and Firing <i>Widener</i>	Canvas: Miller, Ceramics and Glassy materials, pp. 101-144
Fri Oct 22	Friday Recitations 12-1. 1:45-2:45		
Mon Oct 25	Ninth Week 1:45-pm- 2:45pm	Mining, metals, ores and technology <i>Widener</i>	Canvas: Renfrew and Bahn Chapter 7 (2012) (pdf, not your text) Canvas: readings will be posted
Wed Oct 27	Ninth Week 1:45-pm-2:45pm	Metal technology: Smelting and Forming <i>Widener</i>	
Thu Oct 28	Thursday Recitations 1:45-2:45, 3:30-4:30 pm	Metals, evidence for technology, Metallographic microscope <i>Mus 190</i>	Worksheet Checked Discussion Contribution
Fri Oct 29	Friday Recitations 12-1. 1:45-2:45 pm	Metal technology: Smelting and Forming <i>Widener</i>	Canvas: readings will be posted
Mon Nov 1	Tenth Week 1:45-pm-2:45pm	Project Starts: Object Biographies and Choosing an object Digital	Readings on object biographies on Canvas. Lists with information about object choices on Canvas
Wed Nov 3	Tenth Week 1:45-pm-2:45pm	archaeology: Working with Objects in Space. <i>Widener</i>	Canvas: readings in module tab

Thu Nov. 4	Thursday Recitations 1:45-2:45, 3:30-4:30 pm	Mapping and understanding object distributions <i>Mus 190</i>	<u>Map Assignment based on class activity</u>
Fri Nov 5	Friday Recitations 12-1. 1:45-2:45 pm	Digital archaeology: Working with Objects in Space. <i>Widener</i>	Canvas: readings in module tab
Mon Nov 8	Eleventh Week 1:45-pm-2:45pm	Object Biographies: Introducing the final project Information in Object Research: libraries, archives, and professional standards. <i>Widener</i>	<u>Project Part I. choice submitted, confirmed (via Discussion tab)</u> Canvas: at least 2 essays from Brown 2015 Canvas Tabs “Library Resources” and tab for each project at bottom of Modules <u>Map Assignment Due</u>
Wed Nov 10	Eleventh Week 1:45-pm-2:45pm		
Thu Nov 11	Thursday Recitations 1:45-2:45, 3:30-4:30 pm	Project session 1 Object Study (<i>Collections Study Room</i>)	<u>Final Project Part 2: Object background bibliography and location Due</u> <i>You must submit when you arrive in recitation to start project.</i> Canvas: using your project tabs, getting ready to collection information.
Fri Nov12	Friday Recitations 12-1. 1:45-2:45 pm	Information in Object Research: libraries, archives, and professional standards. <i>Widener</i>	Canvas Tabs “Library Resources” and tab for each project at bottom of Modules <u>Map Assignment Due</u>
Mon Nov 15	Twelfth Week 1:45-pm-2:45pm	Symbols in artifacts and archaeology <i>Widener</i> Conservation of archaeological objects: field, lab, museums. <i>Widener</i>	R&B Chapter 9 “What did they think?” R&B Chapter 10 “Why did things change?”) Canvas Resources, according to your project issues.
Wed Nov 17	Twelfth Week 1:45-pm-2:45pm		
Thu Nov 18	Thursday Recitations 1:45-2:45, 3:30-4:30 pm	Project session 2: Object Study <i>Collection study Classroom 2</i>	<u>Final Project Part 3 (description) due</u>
Fri Nov 19	Friday Recitations 12-1. 1:45-2:45 pm	Conservation of archaeological objects: field, lab, museums. <i>Widener</i>	Canvas Resources, according to your project issues.
Mon Nov 22	Thirteenth Week 1:45-pm-2:45pm	Object presentation and Museum labels. <i>Widener</i> Extra lab time: In advance, request object visit, appointment to get feedback and assistance, time to work on specialty analysis, time to work in wet lab BY APPOINTMENT ONLY	Canvas: tabs under ‘Museum labels’
Tues Nov 23	Thursday Recitations ON Tuesday 1:45-2:45, 3:30-4:30 pm		

Wed Nov. 24	Friday Recitations ON Wednesday 12-1. 1:45-2:45 pm	Object presentation and Museum labels. <i>Widener</i>	
Thur/Fri Nov 28,29	Thanksgiving Holiday: NO CLASSES or RECITATIONS	Human skeletons in Archaeological Context, the Biological Profile <i>Widener</i> R&B Chapter 5 pp 167-173 and Chapter 8 “ What were they like	
Mon Nov 29	Fourteenth Week 1:45-pm-2:45pm		
Wed Dec. 1	Fourteenth Week Mortuary Contexts and cultural contexts <i>Widener</i> 1:45-pm-2:45pm		
Thu Dec 2	Thursday Recitations 1:45-2:45, 3:30-4:30 pm	Study Tour of Egyptian Galleries: <i>Meet at the Sphinx at the Main Entrance</i>	<u>Final Project4 (Analysis and final bibliography) due</u> in recitation.
Fri Dec 3	Friday Recitations 12-1. 1:45-2:45 pm	Mortuary Contexts and cultural contexts <i>Widener</i>	
Mon Dec 6	Fifteenth Week 1:45-pm-2:45pm	Cultural Heritage, Museum archaeology, <i>Widener</i> Ethics roundtable, Wrap up <i>Widener</i>	R&B Chapter 11 and 12Canvas: Documents for Ethics codes and the Pennsylvania Declaration
Wed. Dec 8	Fifteenth Week 1:45-pm-2:45pm		R&B Chapter 11 and 12 Roundtable worksheet checked off. Discussion Contribution <u>Final Project 5: (Optional) drafts due</u>
Thu Dec 9	Project Presentations 1:45-2:45, 3:30-4:30 pm	<i>Museum 190</i> , post your slides beforehand, schedule will be pre-arranged.	This is <u>Final Project Part 6</u>
Fri Dec 10	Project Presentations 12-1. 1:45-2:45 pm	Ethics roundtable, Wrap up <i>Widener</i>	R&B Chapter 11 and 12 Roundtable worksheet checked off. Discussion Contribution <u>Final Project 5: (Optional) drafts due</u>
Wed Dec 15, 5 pm	<u>Final Project(complete, revised) DUE</u> Due in Museum 338, Academic wing		