Anthropology 2080
Osteoarcheology Laboratory
Fall 2022
Peabody Museum 35B (Zooarchaeology Laboratory)

Instructor: **Dr. Max Price** (maxprice@mit.edu)

Co-Instructor and Lab Assistant: **Dr. Jada Ko** (wingtungjadako@fas.harvard.edu)

Class Meeting: Friday 12-2:45 PM

Enrollment Limited to 12

The purpose of this class is to provide an introduction to the analysis of the kinds of osteological remains that commonly occur in archaeological contexts. Vertebrates, principally mammals, are considered, and the level of instruction assumes little prior acquaintance with vertebrate skeletons. The course will combine teaching the parts of the skeleton alongside the interpretation of faunal assemblages. We will especially focus on the issue of how animal remains shed light on human behavior, culture, politics, and society. Evaluation of student progress in skeletal identification will take the form of several bone quizzes. *Please note that it will be necessary to come to the lab to study the bones on your own. Lab time is in addition to lecture/discussion time.*

Much of the second half of the course will be devoted to the class project, which will be the analysis of a faunal assemblage. Each undergraduate will be responsible for producing **100 lines of code** — or unique types of specimens — in the assemblage. Graduate students are required to produce **200 lines of code** (or more if desired). This project will, again, be done on your own time in the lab (though you may want to schedule time with your peers so that you can help each other with the identifications of bone fragments). The instructors will be available during lab time to assist and (after the coding is complete) check the identification, but students are expected to produce the data by themselves.

The final project will consist of the interpretation of the produced dataset, in reference to class discussions, readings, and lectures.

The grading of this class will be as follows:
Quizzes: These will test students' mastery of faunal identification. You can drop your lowest grade: 40%
Attendance and participation (in discussions and in lab)*: 20%
Bone Coding: 10%
Final Project: 30%

*Please do not take this portion of the grade for granted. You will be expected to participate actively in class discussions and make a strong effort in labs.

GRADE SCALE

A	100-93	C	76.99-73
A-	92.99-90	C-	72.99-70
B+	89.99-87	D+	69.99-67
B	86.99-83	D	66.99-63
B-	82.99-80	D-	62.99-60
C+	79.99-77	F	<60

Use of the Zooarchaeology Laboratory

The Zooarchaeology Laboratory contains both archaeological collections and modern comparative skeletal material with the latter being particularly strong for New England species (including birds and some fish) and domesticates. Almost all of the comparative material has been labeled with a specimen number in the form ZM-###-AAA with ZM standing for Zooarchaeology Modern, ### being a sequential number, and AAA being three letters referring to a taxonomic group (e.g., CAR being carnivore). Some specimens are labeled H##-##, e.g., H89-27. This can be translated as Harappa 1989 - specimen 27. This latter material was collected in Pakistan at or near the site of Harappa in the Punjab. There are catalogues for both the ZM and the Harappa material that provide information on the animals from which the skeletons came. Collections of larger animals are housed in the Zooarchaeology Lab proper, while those of smaller mammals, birds, fish, amphibians, and reptiles are shelved in an adjoining hallway.

As a student in the Osteoarchaeology Lab course you will be introduced to the comparative skeletons that you will need to analyze your collection, but **you must take great care to return specimens to the box or tray whence they came. If there is any question, or you think there may be an error, ask! Ask rather than do something that you have any doubt about.** In addition, **you must keep all work areas neat and tidy and put your material away in your assigned space at the end of each work session** unless you have specific permission to do otherwise. Remember, **bones are fragile**. **Handle bones with care**. Do not drop them on the floor or otherwise abuse them. **Make sure that skulls and especially those with teeth are placed on padding**, not directly on a hard surface.

Academic Integrity

Collaboration Policy Statement

Students are expected to comply with the policies of the Faculty of Arts and Sciences of Harvard College regarding academic integrity. These policies are outlined in the undergraduate student handbook and can be found here: http://handbook.fas.harvard.edu/icb/icb.do?keyword=k104674&pageid=icb.page673405

Discussion and the exchange of ideas are essential to academic work. For assignments in this course, you are encouraged to consult with your classmates on the choice of paper topics and to share sources. You may find it useful to discuss your chosen topic with your peers, particularly if you are working on the same topic as a classmate. However, you should ensure that any written work you submit for evaluation is the result of your own research and writing and that it reflects your own approach to the topic. This also applies to presentations of final projects (Powerpoint slides, etc, should be your own). You must also adhere to standard citation practices in this discipline and properly cite any books, articles, websites, lectures, etc. that have helped you with your work. If you received any help with your writing (feedback on drafts, etc), you must also acknowledge this assistance. (Source: template provided by Harvard University.)

Citations and Plagiarism

Written work should cite sources in accordance with the guidelines of the *Harvard University Guide to Using Sources*: http://usingsources.fas.harvard.edu/icb/icb.do . Plagiarism includes but it not limited to: copying text directly from a published source without using quotation marks and citation, copying another students' work, reusing work from another class, improper citation of sources, or failure to cite sources. It is the student's responsibility to know and understand what constitutes plagiarism; thus, plagiarism is subject to disciplinary action whether or not it is intentional.

All instances of academic dishonesty will be reported to the Administrative Board. (Source: modified after the statement included for HEB 1530 by David Pilbeam.)

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Weekly Schedule

For most weeks, lecture time will be divided into two parts: first, we will investigate the part of the skeleton being studied that week; second, we will have a discussion of a particular social aspect of zooarchaeology. *It is important that students keep up with the readings in order to participate in these conversations*.

Week 1: Introduction [September 2]
Introduction to the skeletal system, bone/teeth biology and evolution, and why we study zooarchaeology.

Reading
Lyman 1994: 70-97
Weiner and Wagner 1998
Reitz and Wing 2008: 1-30 (Chs. 1 and 2)
O'Connor 1996

Week 2: Skull & Reconstructing Environments with Fauna [September 9]
How faunal analysis can be used in paleoenvironmental research.

Quiz on parts of the skeleton and directional terminology

Reading
Davis 2019
Stiner 1999
Plotnick and Koy 2020
Bovy 2007

**Lab*:* learn elements in the skull and morphological differences between select taxa

Week 3: Teeth & Taphonomy [September 16]
How faunal assemblages are formed, altered, and recovered.

Quiz on the skull

Reading
Lam et al. 2010
Meadow 1980
Behrensmeyer 1978
Munro and Bar-Oz 2005
Meier and Yeshuran 2020
Brain 1981: Chapter 2

**Lab: learn about tooth shape and features

Week 4: Ageing, Sexing & Culling Patterns [September 23]
Collecting demographic data from animal bones to understand human-animal relations

Quiz on teeth

Reading
Payne 1973
Grant 1982
Arbuckle 2014

Methodological critiques:
Zeder 2006
Price et al. 2016
Munson 2003
Legge 2013

**Lab: learn about vertebrae, ribs, sternum, and the pelvis of select taxa

Week 5: The Forelimb & Zooarchaeology in the Political Economy [September 30]
How do animals fuel economic behavior? How do animals get inserted into politics?

Quiz on axial skeleton

Readings:
Grossman and Paulette 2020
Zeder 1988
Marom et al. 2014
DeFrance 2009
Jackson and Scott 2003
Norman 2014
Crabtree 1996

**Lab: upper forelimbs of select taxa
(scapula, humerus, radius, and ulna)

Weak 6: The Distal Limbs & Food Taboos/Social Identity [October 7]
What meat and animals means in the construction of social identity.

Quiz on Forelimb

Readings:
Gifford-Gonzalez & Sunseri 2007
Porcasi 2016
Crader 1984
Ijzereef 1989

Dooly 2021
Price 2021: Chapter 6

**Lab: Learn features of Distal limbs
(carpals, tarsals, metapodials, and phalanges)

Week 7: The Quantification of Faunal Data & Hunting Strategies [October 14]
How we count. How we understanding hunting.

Quiz on Distal limb

Readings:
Pobinar 2020
Perri 2020

Readings for Quantification:
O'Connor 2008: Ch. 6
Lyman 2008 (selections)
Lyman 2019

**Lab: Lower limbs
(femur, tibia, fibula)

Week 8: Zooarchaeology and Conservation [October 21, Lecture by Jada Ko]
Can zooarchaeology help us in conservation efforts?

Readings:
Wolverton and Lyman (selections from book)

**Lab: Work on Project Collection (for rest of lab time in this class)

Week 9: Animals and Colonialism [October 28]
Understanding the role of livestock husbandry and hunting strategies in colonial contexts, esp. North America.

Readings:
Hamalainen 2003
Kennedy 2016
Wallman 2018

Week 10: Herding Sheep [November 4; Special Guest Lecture Wade Campbell]
Readings: TBD

Week 11: Zooarchaeology+ [November 11]

Readings:
Quintana Morales 2022
Makarewicz 2016
Otárola-Castillo and Torquato 2018
Janzen 2021

Week 12: Animal Domestication [November 18]
How we got the livestock production.

Quiz on Lower limbs

Readings:
Redding 2005
Lord et al. 2020
Zeder 2018

November 25 – No Class – Thanksgiving

Week 13: No Lecture B/C Classes End Thursday (But Lab is open all week!)

Some Useful/Interesting Books

Russell, N. 2012. *Social Zooarchaeology: Humans and Animals in Prehistory*. Cambridge: Cambridge University Press.

Davis, Simon JM. 1987. *The archaeology of animals*. New York: Routledge.

O'Connor, Terry P. 2008. *The Archaeology of Animal Bones*. College Station (TX): Texas A&M University Press.

Reitz, Elizabeth, and Elizabeth Wing. 2008. *Zooarchaeology. Second Edition*. Cambridge: Cambridge University Press.

Lyman, R Lee. 1994. *Vertebrate Taphonomy*. Cambridge: Cambridge University Press.

Lyman, R Lee. 2008. *Quantitative Paleozoology*. Cambridge: Cambridge University Press.

Faith, J Tyler, and R Lee Lyman. 2019. *Paleozoology and Paleoenvironments: Fundamentals, Assumptions, Techniques*. Cambridge University Press.

Arbuckle, Benjamin, and Sue Ann McCarty. 2014. "Animals and Inequality in the Ancient World." Boulder: University of Colorado Press.

Hillson, S. 2005. *Teeth*. 2nd ed. Cambridge: Cambridge University Press.

Gifford-Gonzalez, Diane. 2018. *An Introduction to Zooarchaeology*. Springer.

Sánchez-Villagra, Marcelo. 2022. *The Process of Animal Domestication*. Princeton University Press.

Hemmer, H. 1990. *Domestication: The Decline of Environmental Appreciation*. Cambridge: Cambridge University Press.

Wolverton, Steve, and R Lee Lyman. 2012. *Conservation Biology and Applied Zooarchaeology*. University of Arizona Press.

Anderson, V D. 2004. *Creatures of Empire: How Domestic Animals Transformed Early America*. Oxford: Oxford University Press.

Albarella, U, M Rizzetto, H Russ, K Vickers, and S Viner-Daniels. 2017. “The Oxford Handbook of Zooarchaeology.” Oxford: Oxford University Press.