

Department of Anthropology
ANTH 455/ANTH 655: Skeletal Biology and Forensics

Instructor: Maria Liston

Meeting Times: Monday, Wednesday 1:00-2:20

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Office Hours: Monday, Wednesday—before or after class, or by appointment.

Please note: For e-mail messages, please include the Course number or some other clear identifier in the subject line, This will ensure that your message is opened promptly.

Course Description: 0.5 credit

This laboratory course will focus on the evaluation of human skeletal remains in archaeological and forensic contexts. Topics will include determination of basic biological categories, e.g. age, sex, race, paleopathological conditions, personal identification, and aspects of forensic anthropology.

Required Texts:

White, Tim, and Peter Folkens, *Human Bone Manual* (textbook from ANTH 355)

Buikstra, Jane and Douglass Ubelaker, *Standards for Data Collection from Human Skeletal Remains*

DiGangi, E.A. and M.K. Moore, eds. *Research Methods in Biological Anthropology*

Additional required readings are listed in the course syllabus. There may be some additional readings assigned as the term progresses. Most of these will be on-line articles, but some may be readings held on reserve in the Porter Library. There will be additional research materials available in the laboratory. These materials must be used in the lab, and may not be removed for any reason.

Undergraduate Course Requirements:

Weekly reading assignments (see course schedule)

In class lab exams	40%
Quizzes/lab assignments	10%
Research Proposal	15%
Osteobiography Report	35%

Graduate Course Requirements:

Weekly reading assignments (see course schedule)

In class lab exams	30%
Quizzes/lab assignments	credit (-10% if not completed)
Osteobiography Report	20%
In-class presentation	20%
Research project	30%

There will be two midterm exams and occasional quizzes and lab assignments. Each student will also prepare a research proposal associated with one of the subject areas of the course. There is

no final exam, but there is a final project that will cover most of the material in the course. There will be no make-up for lab assignments, quizzes and exams without a verifiable medical excuse or documentation of a family emergency. Travel plans during reading week or at the end of term do not constitute an emergency.

Participation in class is essential to success in this course. Although the textbooks and other materials can be useful, there is no substitute for attending lectures and participating in labs. Additional lab hours will be available for students who want further review of the material.

Research proposal assignment:

Understanding how to write a proposal for a project or research is critical to just about any field for which you need a university degree, and is an essential part of any archaeological/forensics/skeletal biology/paleontology career, whether in academia, museums, or cultural resource management. For this assignment you may work singly or in pairs. You will prepare a proposal for a research project. This will include developing an appropriate research question, researching the background of the field of research, identifying an appropriate collection on which to conduct the research, preparing a budget for the work, etc. The final presentation will be no more than 6 pages including bibliography, budget, and project summary. Your work should reflect the discussion in Chapter 17 of *Research Methods in Human Skeletal Biology*.

Osteobiography Skeleton report:

Each student will be assigned one of the complete skeletons in the department's collections. Due to the limited number of skeletons, a skeleton may be shared by two or more students, and two (but only two) students may choose to write a joint report.

Over the course of the term, you will be required to evaluate this skeleton using **all** of the non-destructive methodologies presented in the course. When appropriate, you will use the data sheets available in the back of the Standards for Data Collection manual to record your information. Some information may not be covered by the data sheets, and you will devise a method of recording the information.

Part of the assignment is figuring out which data forms are most appropriate, or devising your own, so please do not ask repeatedly which data forms must be included. You need to include what is necessary to thoroughly describe the skeleton. You will also prepare a narrative summary report of 3-5 pages on the skeleton in the form of an osteobiography or forensic anthropological report (whichever style you prefer).

Graduate requirements: The topics and format of the class presentation and research project will be arranged in consultation with the professor.

Course Schedule: All readings refer to the course textbooks, and article or reference book assignments. Readings marked with an asterisk (*) are required for the graduate students, but recommended for everyone. All other readings are required for both graduate and undergraduate students.

The readings are intended to familiarize you with both the historical origins of the basic techniques of skeletal analysis, and the more recent developments and applications.

Where possible, the readings are from on-line sources. Others are available in the lab, or are available in the library. Because it is increasingly clear that many students are not familiar with the methods of finding journal articles, you are responsible for accessing these materials on your own. If you have trouble, contact the professor, the TA, or the library liaison officer for anthropology for assistance.

You should complete the reading assignments that accompany each chapter by the Monday of the week in which it is assigned. There is a significant amount of reading required for this course. In order to benefit from the class and labs, you must keep up with the readings. It will be assumed that you have completed the readings at the beginning of the week in which they are assigned.

Week beginning Topic/Lab/Readings

Textbooks

HBM = White, Tim, and Peter Folkens, *Human Bone Manual* (textbook from ANTH 355)

Standards= Buikstra, Jane and Douglass Ubelaker, *Standards for Data Collection from Human Skeletal Remains*

Methods = DiGangi, E.A. and M.K. Moore, eds. *Research Methods in Biological Anthropology*

Other readings are in various journals available through the UW library website

1. 1/7 Introduction, theory and practice. Skeletal Inventory

Readings:

Methods: Forward, Preface and Section 1, pp. 3-59

2. 1/14 **Morphological Attribution of Sex**
Lab: evaluation of sex and stature

Readings:

HBM: pp. 385-397; 398-400

Standards: pp. 1-21, Methods: ch. 4 (pp. 91-116), ch. 6 (pp. 151-180)

Phenice, TW 1969. A newly developed visual method of sexing the os pubis
American Journal of Physical Anthropology, 30: pp. 297-301.

Lovell, NC 1989. Test of Phenice's technique for determining sex from the os pubis
American Journal of Physical Anthropology 79: 117-120

*Walrath, DE, Turner, P, and Bruzek, J, 2004. Reliability test of the visual assessment of cranial traits for sex determination, *American Journal of Physical Anthropology* 125: 132-137

3. 1/21 **Anatomical landmarks/ metric analysis of sex, ancestry and stature**

Lab: identifying anatomical landmarks

Readings:

HBM: terms on pp. 73-74;

Standards: pp. 69-78, review long bone measurements, pp. 80-84.

http://www.redwoods.edu/Instruct/AGarwin/anth_6_cranial-landmarks.htm

*Deshmukh AG & Devershi DB , 2006. Comparison of Cranial Sex Determination by Univariate and Multivariate, Analysis. *J.Anat.Soc. India* 55 (2) 48-51 2006
<http://medind.nic.in/jae/t06/i2/jaet06i2p48.pdf>

Giles, E, and Elliot, O. 1963. Sex determination by discriminant function analysis of crania
American Journal of Physical Anthropology 21: Pages: 53-68

4. 1/28 Morphological and metric evaluation of ancestry

Lab: ancestry—morphological and metric evaluation

Readings:

HBM: pp. 400-404

Methods: Ch. 5, pp. 117-150

5. 2/4

Age at death--adults

Lab: evaluation of adult age

Readings:

HBM: pp. 380-384

Standards: pp. 21-38

Methods: Ch. 4, pp. 70-86; Ch. 11, pp. 293-319; ch. 12 (pp. 325-359)

Note: Thou Shalt Not Freak Out About the Statistics in Chapter 12!!!!

*Todd, TW 1920, Age changes in the pubic bone. I. The male white pubis

American Journal of Physical Anthropology, 3: Pages: 285-334

Lovejoy,CO, Meindl, RS, Pryzbeck,TR, Mensforth, RP. 1985. Chronological metamorphosis of the auricular surface of the ilium: A new method for the determination of adult skeletal age at death. American Journal of Physical Anthropology 68: Pages: 15-28

6. 2/11

Age at death--juveniles

Lab: evaluation of subadult skeletal age and dental age

Readings:

HBM: pp. 363-373

Standards: pp. 39-46

Methods: pp. 63-64

Cardoso, HFV. 2007. Environmental effects on skeletal versus dental development: Using a documented subadult skeletal sample to test a basic assumption in human osteological research, American Journal of Physical Anthropology 132, 223-233

Other references:

Developmental Juvenile Osteology, The Juvenile Skeleton, Forensic Fetal Osteology

Wednesday, midterm exam, in class

7. 2/ 18-22 Reading Week: No classes

8. 2/25

Dental Anthropology

Lab: Recording Dental Data

Readings:

Methods: Ch. 10, pp. 262-288

See Also: Hillson, S. *Dental Anthropology*

- 9. 3/34** Non-metric traits and relatedness
Lab: scoring non-metric traits
Readings:
HBM: pp. 406-410
Standards: pp. 85-95
- 10. 3/11** Stable Isotopes, DNA and other chemical analyses of bone
Readings:
Methods: Ch. 15, pp. 425-448; Ch. 16, pp. 449-478

Knudson KJ and Stojanowski CM. 2008. New Directions in Bioarchaeology: Recent Contributions to the Study of Human Social Identities. *Journal of Archaeological Research* 16(4):397-432.

Larsen, C.S. 2002. Bioarchaeology: The lives and lifestyles of past people. *Journal of Archaeological Research* 10(2):119-166
- 11. 3/18** Time since death, cremated remains and taphonomy
Lab: cremated remains
Readings:
Standards: pp. 164-173
Methods: ch. 9, pp. 241-262

Liston, M.A. 2007 "Funerary Ritual and Symbolic Representation in Secondary Cremation Burials at Kavousi Vronda, Crete" *Hesperia* vol. 76, pp. 57-71.

Liston, M.A. and J.K. Papadopoulos 2004 "The Rich Athenian Lady was Pregnant: The Anthropology of and Early Iron Age Tomb reconsidered." *Hesperia*, vol. 73, pp. 7-38.
- 12. 3/25** Paleopathology:, infectious disease, joint disease
Readings:
Methods: Ch. 7, pp. 181-218; Ch. 8, pp. 219-240.

Wood, J.G, Milner, G.R., Harpending, H.C. and Weiss, K.M. 1992. The osteological paradox: Problems of inferring prehistoric health from skeletal samples. *Current Anthropology* 33(4):343-370.

Wright L. E. and C. J. Yoder 2003 Recent progress in Bioarchaeology: approaches to the osteological paradox. *Journal of Archaeological Research* 11: 43-70.
- Second Midterm Exam: in class, Wednesday March 27.**
- 13. 4/1** Assorted Paleopathology and osteobiography preparation