

Bioarchaeology  
Anth 294-02, Spring 2010



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Office Hours: Monday and Friday, 12:00-2:00pm and by appointment

Class Time and Location: Monday, Wednesday, Friday, 2:00-2:50pm, Fitzelle 307

Required Texts:

- Larsen, Clark S. 1997. *Bioarchaeology: Interpreting behavior from the human skeleton*. Cambridge University Press.
- Articles – available on Angel.

**Course Catalog Listing:** This course will provide students the opportunity to learn about the multidisciplinary field of bioarchaeology. Students will be exposed to the various areas of inquiry within bioarchaeology, such as infectious disease, activity patterns, dietary reconstruction, and stress and deprivation. Students will examine photographs and casts of various pathological conditions in order for them to learn how to differentiate between the different conditions. Students will also learn the entire scientific procedure followed in bioarchaeology, from the development of hypotheses and collection of data through data analysis and interpretation. *Prerequisite:* Anth 130 or Anth 140.

Course Objectives:

- (1) To identify commonly encountered markers of stress, disease, trauma, diet, and activity.
- (2) To understand the causes, progression, and complications of various pathological conditions.
- (3) To explain the main theoretical principles of bioarchaeology.
- (4) To explain some of the major debates within this specialty.
- (5) To understand the major aspects of bioarchaeological research and inquiry.

Course Requirements:

- (1) **Lab Assignments (4)** – There will be four opportunities for hands-on learning. Each of the four lab assignments will be conducted during class hours. The assignments will include the description and identification of various pathological conditions observed on skeletal material, casts, and/or photographs.
- (2) **Discussion Questions/Participation** – Students will be required to bring in two discussion questions whenever additional readings are due (available on Angel). Students will be called on at random to share their questions. The questions should be more than simple recall; instead they should provoke some thought and discussion.
- (3) **Critical Essay** – Students will prepare a critical essay for one of the articles assigned during the semester. The student may choose which article to review. Further instructions will be provided.
- (4) **Midterm and Final Exams** – Both exams will be comprehensive and may include some lab portion. The exams will include multiple choice, short answer, matching, true/false, and/or essay questions. Details of the exam format will be provided prior to the exams.
- (5) **Research Project** – This project will focus on a regional study. Each student will choose a regional area (with approval of the instructor) and will write a paper giving an overview of the findings in that area. In addition, each student will come up with a bioarchaeological question for their regional area and decide what types of data would be collected. Students will then interpret mock results of their “research” and present their conclusions to the class.

### Course Evaluation:

Lab Assignments – 4 @ 15 points each:	60
Discussion Questions/Participation	40
Critical Essay	40
Midterm and Final Exams – 80 points each	160
Research Project	70

**TOTAL POINTS**

**370**

### Course Guidelines:

#### *Grading:*

Final grades are based on a standardized scale using the total number of points available for the course: (A: 339-370, A-: 332-338, B+: 324-331, B: 302-323, B-: 295-301, C+: 287-294, C: 265-286, C-: 258-264, D+: 250-257, D: 228-249, D-: 221-227, E: 0-220).

#### *Attendance:*

Attendance is mandatory. If you miss a lecture, lecture notes will not be provided. Of course, excused absences are permitted, such as illness, funerals, etc. In these cases, *documentation will be required* to avoid losing points. If you miss a lab assignment, you will need proper documentation in order to make it up. The class begins promptly, as a courtesy to the instructor and your fellow students, please be on time. You are responsible for any material missed due to tardiness. Remember that the course outline is only a guideline and is subject to change at the instructor's discretion. In addition to attending class, I expect you to spend extra time outside of class to practice.

#### *Participation:*

In this class, it is essential that you not only attend class, but that you participate as well. Participation includes active listening, preparation for class by reading materials and completing assignments, taking part in group exercises, and contributing to class discussions. While a certain amount of class time will be devoted to lecture, I expect you to participate by asking questions about materials or topics you do not understand. Furthermore, I expect you to respect others' opinions, so that everyone may feel comfortable participating in class.

#### *Office Hours:*

My office hours are a minimum; please feel free to stop by my office, email me, or call my office number if you have questions outside of class time. Please make use of me! These hours are set aside for you to address problems, clear up misunderstandings, or to receive extra help with course material. These hours are not substitutes for lectures. I strongly urge you to make use of this time. If you cannot come during these hours, I will be happy to make an appointment convenient to both of us. Alternate office hours will be announced in class should I have to miss my scheduled hours.

#### *Late Assignments:*

All late assignments will receive a 10% reduction of the grade for each day it is late.

#### *Academic Honesty*

Plagiarism and cheating WILL NOT BE TOLERATED IN ANY FORMAT. The work you do in this course should be your own. Please see the university's Code of Student Conduct (<http://www.oneonta.edu/development/judicial/code.asp#conduct>) to familiarize yourself with the university's rules and policies. Ignorance of the rules will NOT be accepted as an excuse.

#### *Cell Phones and Pagers:*

Out of courtesy to the instructor and your fellow students, *please turn off your pagers and cell phones prior to coming to class.*

Course Outline:

READING ASSIGNMENT

**WEEK 1**

January 20 (W) Introduction – Osteology Review

22 (F) Introduction to Bioarchaeology

Chapter 1  
Buikstra, 1977

**WEEK 2**

25 (M) Stress – Growth & Development

Chapter 2.1-2.3

27 (W) Stress – Porotic Hyperostosis

Chapter 2.4.1  
Stuart-Macadam, 1992  
Walker et al., 2009

29 (F) Stress – Adult Stress

Chapter 2.5  
Mays, 2006

**WEEK 3**

February 1 (M) Stress – Growth Arrest  
**Region Approval Due**

Chapter 2.4.2 – 2.4.3, 2.6  
Goodman & Rose, 1990\*\*  
\*\*(Only pages 59-64)

3 (W) Infectious Pathogens – Dental

Chapter 3.1-3.3

5 (F) Lab Exercise #1: Dental Pathological Conditions

**WEEK 4**

8 (M) Diet & Dentition

Larsen et al., 1991  
Larsen, 1983

10 (W) Infectious Pathogens – Nonspecific

Chapter 3.4  
Weston, 2008

12 (F) Infectious Pathogens – Specific

Chapter 3.5-3.6

**WEEK 5**

15 (M) Infectious Pathogens – Specific

Smith, 2006  
Santos & Roberts, 2006  
Rafi et al., 1994

17 (W) Infectious Disease in the New World

Merbs, 1992

19 (F) Lab Exercise #2: Infectious Diseases

**WEEK 6** NO CLASSES: Feb. 22-26

**WEEK 7**

March 1 (M) Noninfectious Disease  
**Regional Review Due**

Melikian, 2006  
Stirland, 1991

3 (W) Trauma: Accidental Injury

Chapter 4.1-4.2

5 (F) Trauma: Interpersonal Violence

Chapter 4.3  
Smith, 2003  
Walker, 2001

**WEEK 8**

- 8 (M) Trauma: Medical Intervention & Cultural Impact Chapter 4.4
- 10 (W) Trauma: Interpretation Chapter 4.5-4.6  
Lovell, 1997
- 12 (F) Lab Exercise #3: Trauma

**WEEK 9**

- 15 (M) **MIDTERM EXAM**
- 17 (W) Activity Patterns: Pathology Chapter 5.1-5.3  
Bridges, 1991
- 19 (F) Activity Patterns: Nonpathological / Nonarticular Chapter 5.4-5.6

**WEEK 10**

- 22 (M) Activity Patterns: Structural Adaptation Chapter 6 (pg 195-203,  
**Bioarchaeological Question & Data Due** 220-225)  
Ruff, 1987
- 24 (W) Lab Exercise #4: Degenerative Joint Disease
- 26 (F) Congenital Conditions Phillips & Silvilich, 2006  
Dickel & Doran, 1987

**WEEK 11**

- 29 (M) Dental Wear & Function Chapter 7.4  
Molnar, 1972
- 31 (W) Isotopic Analysis & Dietary Reconstruction Chapter 8.1-8.2
- April 2 (F) Impact of Status and Gender Cucina & Tiesler, 2003  
Sofaer Derevenski, 2000

**WEEK 12** NO CLASSES: April 5-9**WEEK 13**

- 12 (M) Populations in Transition Bridges, 1989  
**Critical Essays due** Larsen, 1995
- 14 (W) Biodistance Chapter 9
- 16 (F) Biodistance

**WEEK 14**

- 19 (M) Student Presentations
- 21(W) Student Presentations
- 23 (F) Student Presentations

**WEEK 15**

26 (M) Student Presentations

28 (W) Student Presentations

30 (F) Issues: Paleodemography

Chapter 10.1, 10.2  
Bocquet-Appel & Masset, 1982  
Van Gerven & Armelagos, 1983

**WEEK 16**

May 3 (M) Issues: Osteological Paradox  
**Research Papers Due**

Wood et al., 1992  
Cohen, 1994

5 (W) Issues: Ethics

Walker, 2008  
AAPA Ethics

7 (F) Issues: Cultural Patrimony

Chapter 10.4  
NAGPRA  
Deloria, 1992  
Ousley et al., 2005  
AAPA Position statement

**WEEK 17**

10 (M) Finishing Up!

**\*\*FINAL EXAM: Friday, May 14, 11:00am-1:30pm\*\***

### **Articles (available on Angel)**

American Association of Physical Anthropologists. 2003. Code of Ethics.

American Association of Physical Anthropologists. 2007. Position Statement on the Department of the Interior's Proposed Rule for the Disposition of Culturally Unidentifiable Human Remains.

Bocquet-Appel JP, Masset C. 1982. Farewell to paleodemography. *Journal of Human Evolution* 11:321-333.

Bridges PS. 1989. Changes in activities with the shift to agriculture in the southeastern United States. *Current Anthropology* 30:385-394.

Bridges PS. 1991. Degenerative joint disease in hunter-gatherers and agriculturalists from the southeastern United States. *American Journal of Physical Anthropology* 85:379-391.

Buikstra JE. 1977. Biocultural dimensions of archaeological study: a regional perspective. In: Blakely RL, editor. *Biocultural Adaptation in Prehistoric America*. University of Georgia Press. p 76-84.

Cohen, MN. 1994. The osteological paradox reconsidered. *Current Anthropology* 35:629-637.

Cucina A, Tiesler V. 2003. Dental caries and antemortem tooth loss in the Northern Peten area, Mexico: A biocultural perspective on social status differences among the Classic Maya. *American Journal of Physical Anthropology* 122:1-10.

Deloria, Jr. V. 1992. Indians, archaeologists, and the future. *American Antiquity* 57:595-598.

Dickel DN, Doran GH. 1989. Severe neural tube defect syndrome from the early Archaic of Florida. *American Journal of Physical Anthropology* 80:325-334.

Goodman AH, Rose JC. 1990. Assessment of systemic physiological perturbations from dental enamel hypoplasias and associated histological structures. *Yearbook of Physical Anthropology* 33:59-110.

Larsen CS. 1983. Behavioural implications of temporal change in cariogenesis. *Journal of Archaeological Science* 10:1-8.

Larsen CS. 1995. Biological changes in human populations with agriculture. *Annual Review of Anthropology* 24:185-213.

Larsen CS, Shavit R, Griffin MC. 1991. Dental caries evidence for dietary change: an archaeological context. In: Kelley MA, Larsen CS, editors. *Advances in Dental Anthropology*. New York: Wiley-Liss, Inc. p 179-202.

Lovell NC. 1997. Trauma analysis in paleopathology. *Yearbook of Physical Anthropology* 40:139-170.

Mays SA. 2006. Age-related cortical bone loss in women from a 3<sup>rd</sup>-4<sup>th</sup> century AD population from England. *American Journal of Physical Anthropology* 129: 518-528.

Melikian M. 2006. A case of metastatic carcinoma from 18<sup>th</sup> century London. *International Journal of Osteoarchaeology* 16:138-144.

Merbs CF. 1992. A new world of infectious disease. *Yearbook of Physical Anthropology* 35:3-42.

Molnar S. 1972. Tooth wear and culture: a survey of tooth functions among some prehistoric populations. *Current anthropology* 13:511-526.

Native American Graves Protection and Repatriation Act (NAGPRA). 1990.

- Ousley SD, Billeck WT, Hollinger RE. 2005. Federal repatriation legislation and the role of physical anthropology in repatriation. *Yearbook of Physical Anthropology* 48:2-32.
- Phillips SM, Silvilich M. 2006. Cleft palate: a case study of disability and survival in prehistoric North America. *International Journal of Osteoarchaeology* 16:528-535.
- Rafi A, Spigelman M, Stanford J, Lemma E, Donoghue H, Zias J. 1994. DNA of *Mycobacterium leprae* detected by PCR in ancient bone. *International Journal of Osteoarchaeology* 4:287-290.
- Ruff CB. 1987. Sexual dimorphism in human lower limb bone structure: relationship to subsistence strategy and sexual division of labor. *Journal of Human Evolution* 16:391-416.
- Santos AL, Roberts CA. 2006. Anatomy of a serial killer: differential diagnosis of tuberculosis based on rib lesions of adult individuals from the Coimbra Identified Skeletal Collection, Portugal. *American Journal of Physical Anthropology* 130:38-49.
- Smith MO. 2003. Beyond palisades: the nature and frequency of late prehistoric deliberate violent trauma in the Chickamauga Reservoir of East Tennessee. *American Journal of Physical Anthropology* 121:303-318.
- Smith MO. 2006. Treponemal disease in the Middle Archaic to Early Woodland periods of the Western Tennessee River Valley. *American Journal of Physical Anthropology* 131:205-217.
- Sofaer Derevenski JR 2000. Sex differences in activity-related osseous change in the spine and the gendered division of labor at Ensay and Wharram Percy, UK. *American Journal of Physical Anthropology* 111:333-354.
- Stirland A. 1991. Paget's disease (osteitis deformans): a classic case? *International Journal of Osteoarchaeology* 1:173-177.
- Stuart-Macadam P. 1992. Porotic hyperostosis: a new perspective. *American Journal of Physical Anthropology* 87:39-47.
- Van Gerven DP, Armelagos GJ. 1983. "Farewell to paleodemography?" Rumors of its death have been greatly exaggerated. *Journal of Human Evolution* 12:353-360.
- Walker PL. 2001. A bioarchaeological perspective on the history of violence. *Annual review of anthropology* 30:573-596.
- Walker PL. 2008. Bioarchaeological ethics: a historical perspective on the value of human remains. In: Katzenberg MA, Saunders SR, editors. *Biological anthropology of the human skeleton*, 2<sup>nd</sup> edition. New York: Wiley-Liss. p 3-40.
- Walker PL, Bathurst RR, Richman R, Gjerdrum T, Andrushko VA. 2009. The causes of porotic hyperostosis and cribra orbitalia: a reappraisal of the iron-deficiency-anemia hypothesis. *American Journal of Physical Anthropology* 139:109-125.
- Weston DA. 2008. Investigating the specificity of periosteal reactions in pathology museum specimens. *American Journal of Physical Anthropology* 137:48-59.
- Wood JW, Milner GR, Harpending HC, Weiss KM. 1992. The osteological paradox. *Current Anthropology* 33:343-370.