

Anthropology 209: Forensic Anthropology

Fall 2012

Instructor: Adam Van Arsdale
Lecture: PNW 117, Tu/Fr 9:50-11:00
Lab: SC 314, W 10:00-12:00 (1 hour)
Office: PNE 348

Office Hours: Tuesday: 11-12,
Friday: 1-2, and by appointment
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Course Description:

This course will simultaneously address two goals: developing a detailed understanding of human skeletal anatomy and providing a basic overview of the theory and practice of forensic anthropology. The first half of the semester will have a heavy emphasis on understanding and analyzing biological variation through human skeletal remains. This will include the estimation of age, sex, stature and ancestry which form the basis of forensic identification of remains. The second half of the course will have a greater emphasis on the criminal, legal and ethical aspects of forensics. The course will include a regular weekly lab session in order to provide a hands-on opportunity to learn, study and analyze human skeletal material. Weekly online quizzes will be administered to assure proficiency in identifying human skeletal remains. Two of these quizzes will take the form of an in-lab practical quiz, the first one focusing on the head and dentition, the second one focusing on the post-cranial skeleton. A mid-term exam will be administered in class focusing largely on the development of a biological profile from a set of human remains. Students have an option of completing a take-home final exam or a critical literature review paper on a specific topic of the student's choice in consultation with Prof. Van Arsdale (choice of paper vs. final exam must be made by Nov. 9th).

Texts:

- Forensic Anthropology, (2008)
Debra A. Kumar & Jane E. Buikstra, Oxford University Press
- The Human Bone Manual, (2005)
Tim D. White & Peter A. Folkens, Academic Press
- To Know Where He Lies, (2008)
Sarah E. Wagner, University of California Press
- Primary literature (.PDFs available via Sakai and library website)

Course Goals:

- Thoroughly learn the details of human skeletal anatomy, including hands on analysis of skeletal material
- Develop an understanding of how the practice of forensic anthropology is conducted, from identification and analysis of remains, through potential criminal and academic implications of the findings
- Appreciate the complex ethical issues surrounding research with human remains
- Recognize the placement of forensic anthropology within the broader field of anthropology

Grading:

- 20% Weekly Quizzes (10) - No quizzes weeks 1, 7, 12, 14, 15
- 10% Practical quizzes (2), in lab (10/24 and 12/5)
- 20% Mid-term exam, in class (10/23)
- 20% Final exam **OR** Final Paper (critical literature review topic)
- Must choose which option by 11/6, due 12/20 5pm
- 20% Lab/course assignments (6) - short, practical assignments
- 10% Participation (in class, lab, and on Sakai)

Sakai:

The course will utilize the Sakai platform for facilitating the distribution of class resources and discussion outside of the classroom (<https://sakai.wellesley.edu/portal/>). The sakai site includes a “Resources” section which will contain folders for additional readings, lectures and other course materials. There will be an “Assignments” section that will house all of the course assignments, including weekly osteology quizzes.

Concerns:

If you have any concerns regarding your ability to complete the assignments of the course or trouble understanding specific concepts, I am always available for consultation. In addition to my office hours I can be reached with regularity via e-mail. Assistance is also available for students through the Pforzheimer Learning and Teaching Center. All work in this class is subject to the Wellesley Honor Code. While students are encouraged to discuss the course materials and assignments both in and out of class, all of your work must reflect your own independent efforts. All assignments must be turned in on time. Unless approval is granted from Prof. Van Arsdale, no late assignments will be accepted. No extra credit will be available for this course. Much of the material for this class is cumulative in nature – ***please contact me early if you feel yourself falling behind!***

COURSE SCHEDULE (subject to change)

Week 1: (Sept. 3-7) Introduction/What is Forensic Anthropology?

Tuesday, September 4 – First day of class, Introduction to Forensic Anthropology

Friday, September 7 – Ethics of working with human skeletal material

No lab session!

Readings:

- Ch. 1 K&B (1-22)
- Ch. 1 W&F (1-6)
- Introduction, Wagner (1-20)
- Walker (2000), “Bioarchaeological ethics”. From Biological Anthropology of the Human Skeleton, Wiley Liss 3-39.

Week 2: (Sept. 10-14): Bones and Biological Variation

Tuesday, September 11 – Bone biology

Wednesday, September 12 – *First Lab Session, Introduction to bones, bones of the skull*

Friday, September 14 – Statistics and biological variation

Readings:

- Ch. 5 K&B (115-153)
- Ch. 4 W&F (31-48)

Bones: Terminology/Cranium – *General bone terminology, Frontal, Parietals (Ch. 6, Ch. 7.1-7.6)*

First Osteology quiz (skeletal terminology), to be completed online by Sunday 5pm

Measurement assignment, due Friday 9/21

Week 3 (Sept. 17-21): Estimating Age

Tuesday, September 18 – Developing a forensic profile, part I: estimating age

Wednesday, September 19 – *Lab Session, bones of the skull*

Friday, September 21 – Human skeletal growth and development, case studies

Readings:

- Ch. 19.1-19.3 W&F (359-385)
- Lovejoy et al. (1985), “Multifactorial determination of skeletal age at death”. *American Journal of Physical Anthropology* 68:1-14
- Cardosa & Garcia (2009), “The Not-so-Dark Ages: Ecology for human growth in medieval and early Twentieth Century Portugal as inferred from skeletal growth profiles”. *American Journal of Physical Anthropology* 138(2):136-147.

Bones: Cranium – *Temporals, Occipital, Sphenoid, Auditory Ossicles (7.8-7.10, 7.19)*

Osteology quiz, to be completed online by Sunday 5pm

Week 4 (Sept. 24-28): Estimating Sex and Stature

Tuesday, September 25 – Developing a forensic profile, part II: estimating sex and stature

Wednesday, September 26 – *Lab Session, Estimations of sex and age from cranial remains*

Friday, September 28 – Case studies, group investigations

Readings:

- Ch. 19.4-19.5 W&F (385-400)
- Fukase et al. (2012), “Geographic variation in body form of prehistoric Jomon males in the Japanese archipelago: Its ecogeographic implications” *American Journal of Physical Anthropology* 10:463-514.

- Klales et al. (2012), “A revised method of sexing the human innominate using Phenice's nonmetric traits and statistical methods”. *American Journal of Physical Anthropology* 149(1):104-114.

Bones: Cranium – *Maxillae, Pallatines, Lacrimals, Nasals, Ethmoid, Vomer*, (Ch. 7.11-7.18)

- **Osteology quiz, to be completed online by Sunday 5pm**
- **Age and sex lab assignment, due Tuesday 10/2**

Week 5 (Oct. 1-5): Pathology and Trauma

Tuesday, October 2 – Developing a forensic profile, part III: pathology and trauma

Wednesday, October 3 – *Lab Session, review cranial bones, makeup age/sex assignment*

Friday, October 5 – Trauma, physics, and the body

Readings:

- Ch. 6 K&B (154-188)
- Ch. 17 W&F (309-332)

Bones: Mandible, cranium review – *Mandible* (Ch. 7.20)

- **Osteology quiz, to be completed online by Sunday 5pm**

Week 6 (Oct. 8-12): Taphonomy & Crime Scene Investigation (part I)

Tuesday, October 9 – (NO CLASS)

Wednesday, October 10 – *Lab Session, crime scene investigation* (meet by boathouse)*

Friday, October 12 – Dental anthropology

Readings:

- Ch. 7 K&B (189-207), Ch. 4 K&B (90-107)
- Ch. 2 W&F (7-20)

Bones: Teeth – *Incisors, Canines, Premolars* (Ch. 8), *Molars, Deciduous teeth* (Ch. 8)

- **Osteology quiz, to be completed online by Sunday 5pm**
- **Crime scene report, due Tuesday 10/16**

Week 7 (Oct. 15-19): Developing a profile, review

Tuesday, October 16 – Osteology and Forensic Profile Review w/case studies

Wednesday, October 17 – *Lab session review*

Friday, October 19 – Mid-term, in class

No Readings

No Quiz

Week 8 (Oct. 22-26): Personal Identification, Part I

Tuesday, October 23 – Developing a forensic match, part I

Wednesday, October 24 – **Lab Practical #1** (skull + teeth)

Friday, October 26 – The ethics and usage of identity (debate)

Readings:

- Ch. 8 K&B (208-238)
- Ch. 19.6-19.9 W&F (400-411)
- Ch. 1 Wagner (21-57)

Bones: Upper Postcranial Skeleton – *Hyoid, Vertebrae, Sternum, Ribs (Ch. 9-10)*

****Osteology quiz, to be completed online by Sunday 5pm****

Week 9 (Oct. 29-Nov. 2): Personal Identification, Part II

Tuesday, October 30 – Developing a forensic match, part II

Wednesday, October 31 – *Bones of the thorax*

Friday, November 2 – What does race mean in forensics?

Readings:

- Royal et al. (2010) “Inferring Genetic Ancestry: Opportunities, Challenges, and Implications”. *American Journal of Human Genetics* 86(5):661-673.
- Ousley et al. (2009) “Understanding race and human variation: Why forensic anthropologists are good at identifying race”. *American Journal of Physical Anthropology* 139(1):68-76.
- Ch. 2-3 Wagner (58-122)

Bones: Upper Postcranial Skeleton – *Clavicle, Scapula, Humerus, Radius, Ulna (Ch. 11-12)*

****Osteology quiz, to be completed online by Sunday 5pm****

****Axial skeleton lab assignment, due Tuesday 11/10****

Week 10 (Nov. 5-9): The Medico-Legal System

Tuesday, November 6 – Introduction to the medico-legal system

Wednesday, November 7 – *Bones of the upper limb*

Friday, November 9 – Interaction between scientific and legal spheres

Readings:

- Ch. 2 K&B (23-43)
- Ch. 3 W&F (21-30)
- Ch. 4-5, Wagner (123-184)
- Film, PBS Frontline: “Post-mortem - Death investigation in America”

Bones: Pelvis – *Sacrum, Coccyx, Os Coxae (Ch. 14)*

****Osteology quiz, to be completed online by Sunday 5pm****

****Final decision on Final Paper/Final Exam must be made by Friday, 11/6****

Week 11 (Nov. 12-16): Evidence & The Judicial System

Tuesday, November 13 – The “expert” witness

Wednesday, November 14 – *Sexing and aging the pelvis*

Friday, November 16 – Film, *Anastasia: Dead or Alive?* (in class)

Readings:

- Ch. 3 K&B (44-64)
- Ch. 6 Wagner (185-212)

Bones: Lower Limb – *Femora, Patellae, Tibiae, Fibulae (Ch. 15)*

****Osteology quiz, to be completed online by Sunday 5pm****

****Pelvis age and sex assignment, turned in (hard-copy) by Friday 5pm****

Week 12 (Nov. 19-23): Crime Scene Investigation (part II)

Tuesday, November 20– Taphonomy and crime scene investigation

Wednesday, November 21 – Lab makeup session (contact Prof. Van Arsdale)

Friday, November 23 – NO CLASS, THANKSGIVING HOLIDAY

Readings:

- Ch. 4 K&B (65-114)
- Ch. 7 Wagner (213-244)

Bones: Hands – *Carpals, Metacarpals, Phalanges (Ch. 13)*

Week 13 (Nov. 26-Nov. 30): Mass Death and Human Rights

Tuesday, November 27 – Srebrenica discussion, part I

Wednesday, November 28 –Bones of the lower limb

Friday, November 30 – Film, *Discovering Dominga* (in class)

Readings:

- Ch. 9 K&B (239-257)
- Juhl & Olsen (2006), “Societal safety, archaeology and the investigation of contemporary mass graves”. *Journal of Genocidal Research* 8:411-435.
- R. Mejia (2009), “Digging Guatemala: Anthropologists Look for Clues to Past Political Killings”, *Scientific American*, 3/23/09
- Ch. 8 + Epilogue Wagner (245-270)

Bones: Feet – *Tarsals, Metatarsals, Phalanges (Ch. 16)*

Osteology quiz, to be completed online by Sunday 5pm

Upper and lower limb assignment, due Tuesday 12/8

Week 14 (Dec. 3-7): Biohistories

Tuesday, December 4 – Srebrenica discussion, part II, ethics in Forensic Anthropology

Wednesday, December 5 – **Lab Practical #2**

Friday, December 7 – Biohistorical reconstruction,

Readings:

- Ch. 10 K&B (258-281)
- Ch. 19.10-19.11 W&F (411-418)
- Turner & Armelagos (2012), “Diet, residential origin, and pathology at Machu Picchu, Peru” *American Journal of Physical Anthropology* 149(1):71-83.

Week 15 (Dec. 10-14): Wrap up

Tuesday, December 11 – Final class review