

## HUMAN OSTEOLOGY (ANTH 116a)



Summer 2024

Instructor: Javier Urcid

Class meetings:

M, T and Th 1:50 – 4:20 pm

Brown 218 (Bio Arch Lab)

Bio

Contact:

email: [urcid@brandeis.edu](mailto:urcid@brandeis.edu)

Office hours:

W 12 – 2pm

Want to have a [Virtual conversation](#)?

To set up a day/time for the virtual office conversation make sure to email me with at least 24 hours advance notice, to make sure there is an open slot for you.

### ***Course description***

This course reviews in detail human skeletal anatomy for the proper identification of the bones in the body, their biomechanical articulations and their relationship with the muscular system. Focus is then directed to studying forensic methods and techniques for the estimation of age at death, determination of sex, assessment of type of bone remodeling, identification of cultural modifications to bone, and of the impact of environmental processes on bony tissue. The class includes a case illustrating the use of forensic approaches to the study of the past. Students give a class presentation focusing on a bone of their preference, and engage in a library research project to write a final paper dealing with medical, forensic, archaeological, museographic, or ethical issues related to the human skeleton.

### ***Learning goals***

The aim of the course is for students to have full command of human skeletal anatomy and of basic forensic techniques, goals that will serve as foundational for those pursuing graduate training in medicine, forensic sciences, and archaeology, among other disciplines. The course also provides transferable skills such as the ability to conceptualize a scholarly project, conduct library research, and write a short paper.

### **Course plan**

<b>Sessions</b>	<b>Topics</b>	<b>Readings</b>
July M 8	Introduction to the course Generalities	None
July T 9	The Skull	Bass 1987: 291-299; Schwartz 2007, Chapter 1: 1-12
July Th 11	The Skull	Schwartz 2007, Chapters 2-3
July M 15	Dentition	Schwartz 2007, Chapter 7
July T 16	Postcranium: Axial skeleton	Schwartz 2007, Chapter 4
July Th 18	Postcranium: Upper extremities	Schwartz 2007, Chapter 5
July M 22	Postcranium: Lower extremities	Schwartz 2007, Chapter 6
July T 23	<b>First practice</b>	None
July Th 25	Assessment of age at death <b>Group project begins</b> Required readings for project:	Ubelaker 1989: 63-95 Iskan and Loth 1989 (suggested) Gejvall 1963; Shipman et al. 1984; Bohnert et al. 1998; Jaeger et al 2013
July M 29	Assessment of age and sex	Ubelaker 1989 pp. 52-60
July T 30	Bone Remodeling Documentary: <a href="#">The True Story of Joseph Merrick</a> Suggested Readings:	Wells 1967; Ubelaker 1989: 107-108 Cohen 1987; De Souza 2012
Aug Th 1	Cultural and natural skeletal modification	Ubelaker 1989: 96-107 Verano 2003 or Duncan-Hofling 2011; Gould 2002
Aug M 5	<b>Second practice</b> <b>Draft of Group research report due</b>	None
Aug T 7	Final Lab session <b>Comments on draft of Group research report returned</b>	None
Aug F9	<b>Final group research report due</b>	

### **Important dates**

- July 23 – First practice
- July 25 – Required readings to collectively do the research design for the group project

- Aug 5 – Second practice
- Aug 5- Draft of Research group project due
- Aug 9– Group research report due no later than midnight.

### **LATTE**

LATTE is the Brandeis on-line course website and the course will be managed through it. All the reading materials are available there. Assignment submissions, course related announcements, and any and all syllabus changes will be also communicated via LATTE. Login using your UNET ID and password at <http://latte.brandeis.edu>.

### **Library**

[The Brandeis Library](https://www.brandeis.edu/library/about/index.html) collections and staff offer resources and services to support Brandeis students, faculty and staff. These include workshops, consultations, collaboration, materials and instruction on emerging trends in technologies such as machine learning, emerging trends in research such as data visualization, and emerging trends in scholarship such as open access. Librarians at the Circulation Desk, Research Help Desk, Archives & Special Collections, Sound & Image Media Studios, MakerLab, AutomationLab, and Digital Scholarship Lab are available to help you.

<https://www.brandeis.edu/library/about/index.html>

### **Accommodations**

Brandeis faculty seeks to welcome and include all students. If you need accommodations as outlined in an accommodations letter issued by the Office of Student Accessibility Support, please get in touch with me and submit your letter within the first week of class. If you have questions about documenting diverse capacities or requesting particular accommodations, please contact [Student Accessibility Support](https://www.brandeis.edu/accessibility/) (SAS <https://www.brandeis.edu/accessibility/>) at 781.736.3470 or [access@brandeis.edu](mailto:access@brandeis.edu).

### **Student Support**

Brandeis University is committed to supporting all our students so they can thrive. The following resources are available to help with the many academic and non-academic factors that contribute to student success (finances, health, food supply, housing, mental health counseling, academic advising, physical and social activities, etc.). Please explore the many links on this [Support at Brandeis](https://www.brandeis.edu/support/undergraduate-students/browse.html) page (<https://www.brandeis.edu/support/undergraduate-students/browse.html>) to find out more about the resources that Brandeis provides to help you and your classmates to achieve success.

### **Four-Credit Course (with three hours of class-time per week)**

Success in this 4-credit hour course is based on the expectation that students will spend a minimum of 9 hours of study time per week in preparation for class (readings, response to questions, preparation for discussions, studying the skeletal remains in the BioArch Lab, writing the draft and final group research report, and preparation for in-class practices).

### **Class attendance**

Attendance to class is highly recommended because there are some assignments that are meant to be done during our sessions, either individually or in groups. If you are not be able to attend, please notify me by email **prior** to the intended absence. Post-class notifications will not be honored and these absences will be considered when assessing your overall performance in the course. If you miss a class,

you will be able to access the class notes and the readings posted on Latte for reviewing and studying purposes.

### **Reading assignments**

Reading assignments should be completed by the dates indicated above. The assigned readings on skeletal anatomy can be done using simultaneously any digital resource for the 3D visualization of individual bones or the entire skeleton. There are several online and free resources, but recommended products are from the company “Visual Body”, either “Human Anatomy Atlas” (\$ 25) and/or “Muscle Premium” (\$ 25-\$35 depending on the device) (for more information, visit [visiblebody.com](http://visiblebody.com)). These applications, which I will use at times in class, are useful for visualizing the anatomical context of the bones and muscles, but are not a substitute for the readings and the class notes, as the latter two go into much depth on the morphological traits of each bone. If you are having difficulty purchasing the application, please make an appointment with your Student Financial Services or Academic Services advisor to discuss possible funding options.

### **In-class practices**

There will be two in-class practices. Each one involves brief answers to a series of questions, the identification of complete and partial bones, and the relevant application of forensic techniques to specific “bone stations.” The practices are accumulative in order to reinforce your knowledge of skeletal anatomy.

### **Group Research Project**

Preparatory phase (individual)

On [July 25](#) the Group Research Project will begin, and we will have a discussion based on several assigned readings. Each student is expected to generate two or three questions from those readings, so that collectively we can design the research goals and methods. Detailed guidelines for this stage of the project are posted on Latte in the module titled “Group Research Project.”

Research phase (in groups)

The analysis of highly fragmented, commingled, and burned bones will be conducted by groups. On [August 5](#) groups will turn in at the beginning of class a printed draft of the research paper for revision. The commented draft will be returned to each group on [August 7](#). The final version of the research paper is due on [August 9](#) no later than 11:59 pm. The research paper contributes 40% of the final grade. Detailed guidelines for the preparation and submission of the draft and final versions are posted on Latte, under the module “Group Research Project.” The final version is to be sent to my email coordinates, and the files (except the Excel table) should be in pdf format. All files need to be properly labelled as: “Group [ID] final report.”

### **Summary of assessment weighting**

Class Element	Grade Percentage	Learning Goals
First practice	25%	Have basic command of skeletal anatomy
Second practice	35%	Have full command of skeletal anatomy and forensic techniques
Group Research Report	40%	Conceptualize a science project, conduct forensic analysis, and write a final group report to develop research and leadership abilities

### ***Academic Integrity***

Every member of the University community is expected to maintain the highest standards of academic integrity. A student shall not submit work that is falsified or is not the result of the student's own effort. Infringement of academic honesty by a student subjects that student to serious penalties, which may include failure on the assignment, failure in the course, suspension from the University or other sanctions (see section 20 of R&R). Please consult Brandeis University Rights and Responsibilities for all policies and procedures related to academic integrity. A student who is in doubt regarding standards of academic honesty as they apply to a specific course or assignment should consult the faculty member responsible for that course or assignment before submitting the work. Allegations of alleged academic dishonesty will be forwarded to the Department of Student Rights and Community Standards. Citation and research assistance can be found at [Brandeis Library Guides - Citing Sources \(https://guides.library.brandeis.edu/c.php?g=301723\)](https://guides.library.brandeis.edu/c.php?g=301723).

### ***Readings (on LATTE)***

Bass, William M.

- 1987 Appendix 1-Glossary and Miscellaneous Information for the Osteology Student. In *Human Osteology: A Laboratory and Field Manual of the Human Skeleton*. Missouri Archaeological Society, University of Missouri, Columbia (Third edition).

Cohen, Michael, M. Jr

- 1987 The Elephant Man did not have Neurofibromatosis. *Proceedings of the Greenwood Genetic Center* 6: 187-192.

Gould, Richard A.

- 2002 WTC Archaeology: What we Saw, What we Learned, and What we did about it. *The SAA Archaeological Record*, vol. 2 (5): 11-17.

De Souza, Rag

- 2012 Origins of the Elephant Man: Mosaic Somatic Mutations cause Proteus Syndrome. *Clinical Genetics* 81: 123-127.

Duncan, William N., and Charles Andrew Hofling

- 2011 Why the Head? Cranial Modification as Protection and Ensoulment among the Maya. *Ancient Mesoamerica* 22 (1): 199-210.

Iskan, Mehmet Yasar, and Susan R. Loth

- 1989 Osteological Manifestations of Age in the Adult. In *Reconstruction of Life from the Skeleton*, edited by Mehmet Yasar Iskan and Kenneth A. R. Kennedy, pp. 23-40. Alan R. Liss, Inc., New York.

Schwartz, Jeffrey, H.

- 2007 *Skeleton Keys: An Introduction to Human Skeletal Morphology, Development, and Analysis*. Oxford University Press, New York (Second edition).

Ubelaker, Douglas, H.

- 1989 *Human Skeletal Remains: Excavation, Analysis, Interpretation*. Manuals on Archaeology 2. Taraxacum, Washington.

Verano, John

- 2003 Mummified Trophy Heads from Peru: Diagnostic Features and Medicolegal Significance. *Journal of Forensic Sciences*, vol. 48 (3): 1-6.

Wells, C.

- 1967 Pseudopathology. In *Diseases in antiquity*, edited by Don Brothwell and Sandison, pp. 5-19. Charles C. Thomas, Springfield Il.

### ***Required Readings for Group project***

Bohnert, Michael, Thomas Rost, and Stefan Pollak

- 1998 The degree of destruction of human bodies in relation to the duration of the fire. *Forensic Science International*, vol. 95: 11-21.

Gejvall, Nils-Gustaf

- 1963 Cremations. In *Science in Archaeology*, edited by Don Brothwell and Eric Higgs, pp. 379-390. Thames and Hudson, London.

Jaeger, Jonas Holm, and Veronica Liv Johansen

- 2013 The cremation of infants and small children: an archaeological experiment concerning the effects of fire on bone weight. *Cadernos do GEEvH 2 (2)*: 13-26.

Shipman, Pat, Giraud Foster, and Margaret Schoeninger

- 1984 Burnt Bone and Teeth: An Experimental Study Color, Morphology, Crystal Structure and Shrinkage. *Journal of Archaeological Science* 11: 307-325.