CYA | Syllabus

BIOL / ANTH 363 | From Skeleton To Story: The Science Of Human Osteology
FALL 2026

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Course Description

What's in your bones? Bones do tell stories. Can you listen?

The skeleton supports, protects, and moves our body. Despite its strength, bone remains dynamic throughout life. It not only grows, but also constantly remodels through bodily demands, environmental parameters, and daily intakes. Thus, the skeleton accumulates a wealth of information on development and aging, health, disease and trauma, diet and behavior, residential mobility, and genetic history. It also records the way of death, burial, and disposal. Overall, our bones reflect our life history and ultimately our death account, composing an osteo-biographical tale.

This course is designed as an introduction to human skeletal studies. Using lectures, supplementary materials, and hands-on lab sessions, we will cover basic human osteology, and the methodologies most used in skeletal analysis. Course materials will focus upon two main themes: forensic anthropology and bioarchaeology. We will explore case studies and related topics from both fields, including ethics, curation, body and burial treatment, pathology and anatomical variation, dental anthropology, biological profiling, and taphonomy.

We will alternate between classroom lectures and lab sessions. Lectures will take place at the CYA facilities. Osteology lab sessions will take place at the Hellenic Center for Bioarchaeology (www.bioarch.gr), a 15-20 min walk from CYA. The lab sessions will provide hands-on experience and training using educational casts and human skeletal reference collections. We visit academic institutes, museums, and laboratories in the context of forensic anthropology and bioarchaeology. Evaluation will be based on attendance and participation, lab quizzes, weekly responses, and a classroom presentation as a final project.

Learning Objectives

By the end of the course, students will be able to:

- Name the 206 bones and 32 teeth of the adult human skeleton
- Identify and describe major skeletal elements and teeth
- Distinguish between human and non-human, adult and juvenile skeletal remains
- Properly handle human remains; work and behave in an osteological laboratory
- Comprehend human skeletal anatomy, development, and variation
- Understand and reflect on osteological data and methods, including estimation of biological profile and paleopathology
- Assess the basic principles of forensic anthropology and bioarchaeology
- Gain an appreciation of the wealth of information stored in the human skeleton, as well as the potential and limitations of human skeletal studies

Course Requirements

Attendance and Participation: 10%

Attendance at all meetings is required, as well as contribution and active participation. Due to the nature of this course, students are expected to be punctual and follow class and lab etiquette. Late arrivals in lab sessions will not be accepted. Students must treat human remains with great care and respect, always adhering to instructions. Inappropriate behavior will not be tolerated. The lab sessions will take place at the Hellenic Center for Bioarchaeology (www.bioarch.gr), at 32 Timotheou st., a 15-20 min walk from CYA, as noted on the schedule. Required readings refer to human osteology and bone quiz materials. Suggested readings are a great start for the final presentation (see below).

Absences: Attendance and participation are essential to this course. Only excused absences approved by the Student Affairs Office according to the CYA policy will be accepted. Unexcused absences will be reported to CYA and will have an immediate effect on participation grade. More than two unexcused absences will automatically lower the final grade. It is the student's responsibility to reach out for make-up work.

Content warning: This course focuses upon human osteology. We will be handling skeletal remains and we will be dealing with sensitive topics such as death, decomposition, disease, trauma, and violence.

Bone Quizzes: 40%

There will be a total of 5 bone quizzes on basic human osteology. These will be lab practical quizzes, with a combination of test questions and hands-on workstations. Students must rotate simultaneously between timed stations. The quizzes will take place at the beginning of lab sessions on Mondays (see schedule). Late arrivals during bone quizzes will not be admitted. Review sheets and study guides will be provided. The lowest quiz grade will be dropped (i.e., the four highest quiz grades will each count as 10% of the final grade).

Bone quiz absences: It is strongly advised not to miss lab quizzes. Dropping the lowest quiz grade does not provide an option for an unexcused absence. Missed bone quizzes due to unexcused absences will receive a zero (0) grade. Excused absences during a lab quiz can count as the lowest grade to be dropped. If needed, only for excused absences approved by the CYA Student Affair Office, and after prior communication, there will be only one chance for a make-up bone quiz at the end of the semester. The make-up bone quiz will be cumulative, i.e., it will cover all the osteology materials included in the 5 bone quizzes.

Weekly Response Papers: 20%

There will be a total of 5 weekly response papers, each counting towards 4% of the final grade. These will be short, reflective assignments (150 – 300 words, no more than a page), as a reaction and response to the topics and materials covered in the week's meetings (see schedule for due dates). Students must use specific examples from class but go beyond summarizing information. They should focus on materials from lectures, lab time, discussion, and student presentations. Comments on recommended readings may only be subsidiary to materials from class. They will be graded as complete / incomplete. Re-writing may be requested.

The response papers should demonstrate understanding and autonomous, curious, creative, or critical thinking about class materials. Original questions are welcome. Here are some suggestions that can help students with their responses:

- Why did you take this class? What do you want to get out of it? How does it relate to your background? What are your thoughts when learning about the skeleton and handling human remains?
- What is at least one thing you learned from class? Is there something you would like to know more about? Was there a difficult part or topic?
- What did you learn that you are still thinking about? You liked it, hated it, or did not understand it?
- What did you learn that helped explain something that happened in real life, or something you read or saw in the news?
- How does what you learn relate to topics, materials, and discussion from other weeks during the semester?
- Did you learn something unexpected about the human skeleton, development, health or death?
- Did you learn something about the human skeleton that you can identify in your own body? Would you think that trivial things such as dental cavities, hitting your shin or lifting weights, become part of your skeletal identity?
- How does what you learn relate to what you see in forensic and medical TV shows? What is your take on popular culture related to forensics? Do you now have a better understanding, and can you explain their popularity?
- How does what you learn relate to real-life applications and needs in the fields of bioarchaeology and forensic anthropology? Can you identify difficulties, limitations or potential?

Oral Presentations: 30%
At the last meetings of the semester, each student will deliver a classroom presentation, limited to 15-20 minutes, 15 to 20 slides, followed by discussion. Students will then submit electronically 1) the presentation abstract (300-word limit), 2) the presentation slides with notes, and 3) the bibliography (with revisions if necessary), no later than Friday December 11 at 11:59 pm. The delivery of the presentation will count towards 20% of your final grade. Submission of presentation materials will count towards 10% of your final grade. Completion of the presentation as a final project is required for completion of this course.

Presentation topics in the form of short proposals must be submitted for approval by Thursday October 22.

Optional: Students can submit a presentation outline with references and abstract for feedback no later than Tuesday November 10 at 11:59 pm.

Students will select a topic to focus, explore, and present to the rest of us in class as part of this course. Ideas, specifics, and logistics will be discussed in class. Going through the recommended readings can help with topic selection and provide bibliography. Class discussion, materials, weekly responses help with brainstorming. Topics should be of your liking, as imaginative and innovative as you want, as long as they focus on aspects related to human skeletal biology, anatomy and variation, paleopathology, bioarchaeology, and forensics. Here are some suggestions to get you started:

- Disease: history, paleopathology, diagnosis, impact. E.g., epidemics, tuberculosis, treponematosis (syphilis), plague (Black Death), Hansen's disease (leprosy), iron-deficiency anemia and genetic anemias, scurvy, rickets, joint disease, cancer
- Trauma: mechanism and skeletal response, identification, classification, interpretation, bioarchaeological and/or forensic applications (e.g., violence in the skeletal record)
- Congenital conditions and developmental anomalies (identification, antiquity)
- Diet (e.g., maize consumption in the Americas), weaning practices, malnutrition, stress indicators
- Occupational markers and activity
- Anatomical variation, medical procedures, amputation, trephination (trepanation)
- Body modification, potential for identity studies: e.g., cranial modification, foot binding, dental modification
- Dental variation, dental anthropology, dental pathology, ancient dentistry
- Biodistance and kin relations
- Experimental work in forensics (e.g., forensic taphonomy, cut marks)
- Method development and applications: e.g., positive identification, facial reconstruction, 3D scanning, aging parameters, radiology, legal implications
- Analytical methods and bioarchaeological and/or forensic applications: e.g., ancient DNA (identification, inter-individual relatedness, population history, pathogen and disease), isotopic analysis (diet, weaning, mobility)
- Osteology and burial practices: e.g., decapitation, vampire burials, modern cross-cultural perspectives, treatment of remains and afterlife beliefs, mortuary behavior and social implications
- Juvenile remains (e.g., juvenile osteology methods, approaches to age, contextual studies, mortuary treatment of infants and children)
- Cremation and burned remains
- Mummification in ancient Egypt, Andean frozen mummies (Inca child sacrifice), Ötzi the Iceman, the bog bodies, mummy pathology
- NAGPRA: repatriation, reburial, cultural context and perspectives on human remains, ethics
- Mass fatalities and mass graves (past or present)

Evaluation and Grading

The grade for this course will be based on the following distribution:

Percentages

- Attendance and Participation: 10%
- Bone Quizzes: 40%
- Weekly Response Papers: 20%
- Oral Presentations: 30% (20% for delivery and 10% for submission of presentation materials)

The **mid-term grade** will be calculated based on attendance and participation, bone quizzes, weekly responses, and submission and approval of final presentation topic.

400 level upgrade is available for the course upon discussion. Students will have to complete an additional 25% of work.

AI Policy

In this course, use of generative AI tools is NOT permitted. Using AI sources will not help you meet the learning objectives of this course. Bone quizzes will take place in class. The weekly response papers are based on original and critical reflection. Final presentations should be the result of you own work with all sources used properly cited. You will be asked to demonstrate knowledge of your topic and process. Use of AI tools for the final presentation is not permitted; if detected, it will have an immediate effect on the grade.

CYA Regulations and Accommodations

Attendance Policy

CYA regards attendance in class and on-site (in Athens or during field study trips) as essential. Absences are recorded and have consequences. Illness or other such compelling reasons which result in absences should be reported immediately to the Student Affairs Office, via the form available in the Student Portal.

Policy on Original Work

Unless otherwise specified, all submitted work must be your own original work. Any ideas taken from the work of others must be clearly identified as quotations, paraphrases, summaries, figures etc., and accurate internal citations and/or captions (for visuals) as well as an accompanying bibliography must be provided.

Use of Laptops

In-class or onsite use of laptops and other devices is permitted if this facilitates course-related activities such as note-taking, looking up references, etc. Laptop or other device privileges will be suspended if devices are not used for class-related work.

Class Schedule

Class Day	Day/Date/Place	Topic / Readings / Assignments Due
1	Monday Sept 7 CYA	**Introduction(s)** Course overview & syllabus Walk together from CYA to the Hellenic Center for Bioarchaeology (32 Timotheou st., 11633, at Pagkrati, 15-20 min walk)
2	Wednesday Sept 9 CYA	**From head to toe** Introduction to the human skeleton Bone basics Anatomical terminology and directions *Required readings: White et al., 2012, chapters 1, 2, 3* *Suggested readings: Stojanowski and Seidel, 2023, chapters 3, 4* **Weekly Response 1** due at 11:59 pm

3	Monday Sept 14 Hellenic Center for Bioarchaeology	**Out of your mind I** Lab session Bones of the skull (cranium, mandible) *Required readings: White et al., 2012, chapter 4* *Suggested readings: Mann 2017, chapter 1*
4	Wednesday Sept 16 Hellenic Center for Bioarchaeology	**Out of your mind II** Lab session Bones of the skull (cranium, mandible) *Required readings: White et al., 2012, chapter 4* *Suggested readings: Mann 2017, chapter 1*
	Sept 17-19	FS | Crete
5	Monday Sept 21 Hellenic Center for Bioarchaeology	**Bone Quiz 1** (cranium & mandible) at the beginning of class **To the core I** Lab session Hyoid, vertebral column (vertebrae, sacrum, coccyx) and thorax (sternum, ribs) *Required readings: White et al., 2012, chapters 6, 7, 11.1, 11.2* *Suggested readings: Mann 2017, chapter 2*
6	Wednesday Sept 23 Hellenic Center for Bioarchaeology	**To the core II** Lab session Hyoid, vertebral column (vertebrae, sacrum, coccyx) and thorax (sternum, ribs) *Required readings: White et al., 2012, chapters 6, 7, 11.1, 11.2* *Suggested readings: Mann 2017, chapter 2*
7	Monday Sept 28 Hellenic Center for Bioarchaeology	**Bone Quiz 2** (hyoid, vertebral column & thorax) at the beginning of class **Out on a limb I** Lab session Shoulder girdle (clavicle, scapula), arm (humerus, ulna, radius), and hand (carpals, metacarpals, phalanges) *Required readings: White et al., 2012, chapters 8, 9, 10* *Suggested readings: Mann 2017, chapter 3*
8	Wednesday Sept 30 Hellenic Center for Bioarchaeology	**Out on a limb II** Lab session Shoulder girdle (clavicle, scapula), arm (humerus, ulna, radius), and hand (carpals, metacarpals, phalanges) *Required readings: White et al., 2012, chapters 8, 9, 10* *Suggested readings: Mann 2017, chapter 3*
9	Monday Oct 5 Hellenic Center for Bioarchaeology	**Bone Quiz 3** (shoulder & upper limb) at the beginning of class **The bone collector** Lab session Introduction to forensic anthropology & bioarchaeology Contexts, concepts, and ethics Procedures and reporting Discussion of presentation topics *Suggested readings: text chapters 16, 17; Eliopoulos et al., 2011; Mann, 2017, chapter 6; Walker, 2008; Stojanowski and Seidel, 2023, chapter 5*

	Oct 8-10	FS | Peloponnese
10	Monday Oct 12 Hellenic Center for Bioarchaeology	**Just for kicks I** Lab session Os coxae, leg (femur, patella, tibia, fibula), and foot (tarsals, metatarsals, phalanges) *Required readings: White et al., 2012, chapters 11.3, 12, 13* *Suggested readings: Mann 2017, chapter 4*
11	Wednesday Oct 14 Hellenic Center for Bioarchaeology	**Just for kicks II** Lab session Os coxae, leg (femur, patella, tibia, fibula), and foot (tarsals, metatarsals, phalanges) *Required readings: White et al., 2012, chapters 11.3, 12, 13* *Suggested readings: Mann 2017, chapter 4*
12	Monday Oct 19 (Midterm week) Hellenic Center for Bioarchaeology	**Bone Quiz 4** (os coxae & lower limb) at the beginning of class **After death I** Lab session Taphonomy, decomposition, recovery, postmortem treatment Discussion of presentation topics *Suggested readings: text chapter 20; Jefferson 2000; Marks et al., 2016a*
13	Wednesday Oct 21 (Midterm week) Hellenic Center for Bioarchaeology	**Before death I** Lab session Concepts and definitions Health, disease, and trauma Congenital and developmental conditions *Suggested readings: text chapters 19, 24, 25; Lagia et al., 2007; Liston and Rotroff, 2013; Roberts and Manchester, 2005*
	Thursday Oct 22	Submission of presentation topic for approval due at 11:59 pm
	Oct 23 - Nov 1	Fall Break [no classes]
14	Monday Nov 2 Hellenic Center for Bioarchaeology	**The tooth fairy I** Lab session The dentition *Required readings: text chapter 5*
15	Wednesday Nov 4 Hellenic Center for Bioarchaeology	**The tooth fairy II** Lab session The dentition *Required readings: text chapter 5*
16	Monday Nov 9 Hellenic Center for Bioarchaeology	**Bone Quiz 5** (dentition) at the beginning of class **Face-off I** Lab session Biological profile, variation, and identification *Suggested readings: text chapters 11.4–11.5, 18; Stojanowski and Seidel, 2023, chapters 6-11*

	Tuesday Nov 10	Submission of presentation outline, references & abstract for feedback due at 11:59 pm (optional)
	Nov 11-14	FS | Abroad
17	Monday Nov 16 Hellenic Center for Bioarchaeology	**Face-off II** Lab session Biological profile, variation, and identification *Suggested readings: text chapter 21; Adserias-Garriga et al., 2024; Burns, 2016; Kinaston et al., 2019 (p. 749-772); Wolfe Steadman and Andersen, 2016; Scott, 2008*
18	Wednesday Nov 18 Hellenic Center for Bioarchaeology	**Before death II** Concepts and definitions Health, disease, and trauma Congenital and developmental conditions *Suggested readings: text chapters 19, 24, 25; Kanz and Grossschmidt, 2006; Marks et al., 2016b; Smith et al., 2016; Stojanowski and Seidel, 2023, chapters 12-14; Waldron, 2009* **Weekly Response 2** due at 11:59 pm
19	Monday Nov 23 CYA	**After death II** Taphonomy, decomposition, recovery, postmortem treatment Discussion of final presentations *Suggested readings: text chapters 15, 23; Liston and Papadopoulos, 2004; Stojanowski and Seidel, 2023, chapter 15; Tung, 2008; Wolfe Steadman, 2016*
20	Wednesday Nov 25 CYA	**Fun, Fact or Fiction I** Analytical methods Discussion of final presentations *Suggested readings: Melton, 2016; Kinaston et al., 2019 (p. 772-781); Knudson et al., 2009; Papathanasiou and Richards, 2015; Skourtanioti et al., 2023; Stone and Ozga, 2019; Torres-Rouff and Knudson, 2017* **Weekly Response 3** due at 11:59 pm
	Nov 26-29	Thanksgiving Break
21	Monday Nov 30 CYA	**Fun, Fact or Fiction II** Analytical methods Discussion of final presentations *Suggested readings: text chapters 21, 22*
22	Wednesday Dec 2 CYA	**Student oral presentations** Discussion **Weekly Response 4** due at 11:59 pm
23	Monday Dec 7 CYA	**Student oral presentations** Discussion

24	Wednesday Dec 9 CYA	**Student oral presentations** Discussion & closing **Weekly Response 5** due at 11:59 pm
	Friday Dec 11	**Final project** electronic submission due at 11:59 pm
	Dec 14-17	Final Exam Week [no classes]

N.B.: The course schedule, in terms of subjects and readings, may be subject to change to benefit student learning and to keep up to date with current research.

COURSE BIBLIOGRAPHY

Required textbook

- White, T.D., Black, M.T., and Folkens, P.A. 2012. Human Osteology (3rd edition). Burlington, MA. Elsevier Academic Press (eBook available through CYA library)

Helpful texts (eBooks available through CYA library):

- Mann, R. W. 2017. The Bone Book: A Photographic Lab Manual for Identifying and Siding Human Bones. Charles C Thomas Publisher.
- Stojanowski, C. M. and Seidel, A. C. 2023. Forensic Anthropology: An Introductory Lab Manual. University of Florida Press.

Helpful link

https://www.eskeletons.org

Suggested readings

- Adserias-Garriga, J., Feirstein, S., Bell, D., Skropits, H., Dirkmaat, D.C. 2024. Human identification through forensic skeletal analysis: three case reviews. *Forensic Sciences Research* 9: owae053.
- Burns, K.R. 2016. The Herring case: an outlier. In: Wolfe Steadman, D. (ed.). Hard evidence: case studies in forensic anthropology. Routledge, p. 34-46.
- Eliopoulos, C., Moraitis, K., Reyes, F., Spiliopoulou, C., Manolis, S. 2011. Guidelines for the recognition of cemetery remains in Greece. *The American Journal of Forensic Medicine and Pathology* 32: 153-156.
- Jefferson, J. 2000. Down on the Body Farm: A Bizarre Research Facility in Tennessee Boasts a Bumber Crop of Corpses –and Helps Convicts Killers. *ABA Journal* 86: 62-65.
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- Kinaston, R., Willis, A., Miszkiewicz, J.J., Tromp, M., Oxenham, M.F. 2019. The dentition: development, disturbances, disease, diet, and chemistry. In: Buikstra, J.E. (ed.). Ortner's identification of pathological conditions in human skeletal remains. Academic Press. p. 749-798.
- Knudson, K.J., Williams, S.R., Osborn, R., Forgey, K., Williams, P.R. 2009. The geographic origins of Nasca trophy heads using strontium, oxygen, and carbon isotope data. *Journal of Anthropological Archaeology* 28: 244-257.
- Liston, M.A. and Papadopoulos, J.K. 2004. The "rich Athenian lady" was pregnant: the anthropology of a Geometric tomb reconsidered. *Hesperia* 73: 7-38.
- Liston, M.A. and Rotroff, S.I. 2013. Babies in the well: archaeological evidence for newborn disposal in Hellenistic Greece. In: Grubbs, J.E., and Parkin, T. The Oxford handbook of childhood and education in the Classical world. Oxford University Press. p. 62-82.

- Marks, M.K., Love, J.C, Dadour, I.R. 2016(a). Taphonomy and time: Estimating the postmortem interval. In: Wolfe Steadman, D. (ed.). Hard evidence: case studies in forensic anthropology. Routledge. p. 165-178 (chapter 13).
- Marks, M.K., Marden, K. Mileusnic-Polchan, D. 2016(b). Forensic osteology of child abuse. In: Wolfe Steadman, D. (ed.). Hard evidence: case studies in forensic anthropology. Routledge. p. 205-220 (chapter 16).
- Melton, T. 2016. Mitochondrial DNA: solving the mystery of Anna Anderson. In: Wolfe Steadman, D. (ed.). Hard evidence: case studies in forensic anthropology. Routledge, p. 233-238 (chapter 18).
- Papathanasiou, A. and Richards, M.P. 2015. Summary: patterns in the carbon and nitrogen isotope data through time. In: Papathanasiou, A., Richards, M.P., Fox, S.C. Archaeodiet in the Greek world: Dietary reconstruction from stable isotope analysis. The American School of Classical Studies at Athens. p. 195-203.
- Roberts, C. and Manchester, K. 2005. The study of paleopathology. In: The archaeology of disease. Cornell University Press. p. 1-21.
- Scott, R.G. 2008. Dental morphology. In: Katzenberg, M.A. and Saunders, S.R. (eds). Biological anthropology of the human skeleton. John Wiley & Sons. p. 265-298.
- Skourtanioti, E., Ringbauer, H., Gnecchi Ruscone, G.A. et al. 2023. Ancient DNA reveals admixture history and endogamy in the prehistoric Aegean. *Nature Ecology & Evolution* 7: 290–303.
- Smith, O.C., Pope, E.J., Symes, A. 2016. Look until you see: Identification of trauma in skeletal material. In: Wolfe Steadman, D. (ed.). Hard evidence: case studies in forensic anthropology. Routledge. p. 190-204 (chapter 15).
- Stone, A. and Ozga, A. T. 2019. Ancient DNA in the Study of Ancient Disease. In: Buikstra, J.E. (ed.). Ortner's identification of pathological conditions in human skeletal remains. Academic Press. p. 183-210.
- Torres-Rouff, C. and Knudson, K.J. 2017. Integrating identities: An innovative bioarchaeological and biogeochemical approach to analyzing the multiplicity of identities in the mortuary record. *Current Anthropology* 58: 381-409.
- Tung, T.A. 2008. Dismembering bodies for display: a bioarchaeological study of trophy heads from the Wari site of Conchopata, Peru. *American Journal of Physical Anthropology* 136: 294-308.
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- Wolfe Steadman, D. and Andersen, S.A. 2016. The Marty Miller case: introducing forensic anthropology. In: Wolfe Steadman, D. (ed.). Hard evidence: case studies in forensic anthropology. Routledge. p. 258-270 (chapter 1).