

STUDY GUIDE FOR FINAL WRITTEN EXAM

General: Review all the assigned reading, lecture notes, etc. since the first written exam. The topics to be included on this exam:

1. Bone biology. Review the histological structure of cartilage (hyaline, elastic, fibro-cartilage) and bone tissue. Where are the various types of cartilage found in the living. Review the gross anatomy of a typical bone (e.g., epiphysis, diaphysis, medullary cavity, etc.) and functions of the skeleton.
2. Bone growth. How do bones grow in length and girth? Review intramembranous and endochondrial ossification. Be able to outline (and illustrate) the general stages of bone grown from the hyaline precursor stage through epiphyseal appearance and fusion, including general times.
3. Recovery and preparation of human remains. What are the general steps in the recovery and preparation of human skeletal remains. What is meant by mortuary practices (give examples). What is MNI?
4. Analysis of skeletal remains: measurement, instruments, photography, radiography, microscopy, biochemical and microstructural techniques used in the analysis of human remains.
5. Aging: subadult years. Review the methods for determining age in sub-adult skeletal and dental remains. Know some of the specific times the following appear (or close): fontanelle, metopic suture, symphysis menti, occipital bone development etc. Know (memorize) times of deciduous and permanent dental eruption. Know the generalizations regarding epiphyseal/diaphyseal development, early and late appearing/fusing centers, etc.
6. Adult aging. Know the general methods of aging using the symphysis pubis, auricular surface, rib end, cranial suture etc.
8. Ancestry. What are the current methods for determining ancestry from the skeleton? What are some of the morphological features that differentiate an individual cranium of European, Asian, or Black ancestry?
9. Forensic anthropology. What is forensic anthropology? What do forensic anthropologists do?
10. Metric variation/stature. Contrast continuous and discontinuous variation including their modes of inheritance. Why measure? What is the statistical background for estimating stature from skeletal remains?
11. Non-metric variation. What is the mode of inheritance of non-metric skeletal/dental variation. What kinds of evidence establish their mode of inheritance? Be familiar with some examples of non-metric variation in the skull, skeleton, and teeth.
12. Population studies/statistics. Review univariate and multivariate statistics. What is typology? What are multivariate statistical procedures? Provide some examples. Review the basic descriptive statistics and tests of significance (Lab #10) used to analyze osteological data (e.g., means, S.D., chi-square, Student's t-test).
13. Dental anthropology. Review the general histological structure of teeth: size, shape, form, dental non-metric traits. Review dental paleopathology: e.g., caries, dental abscessing, attrition, premortem/postmortem tooth loss, periodontal disease etc.
14. Paleopathology. Review the classification of paleopathological conditions. What kinds of disease affect bone? Be able to provide both general as well as specific examples of

- diseases.
15. Indicators of stress. What are the three categories of stress indicators in the skeleton? Provide some examples of each. Be familiar with Harris lines, enamel hypoplasias, porotic hyperostosis, infectious disease, and degenerative joint disease in particular.
 16. Paleodemography. What are mortality and survivorship curves and how are they constructed. What are composite, or abridged, life tables? Know how to interpret information contained in a life table.
 17. Ethics. What are some of the ethical issues facing osteologists today?

Exam Mechanics: Short definitions, short answers, short essays.

Some examples of terms, concepts for short definitions:

mesenchyme	Martin & Saller
collagen	Biometric School
cartilage	Karl Pearson
hyaline/elastic/fibro-cartilage	anthropometry
chondrocyte, perichondrium	cranial index
collagen	Frankfurt Convention (1882)
lamellar and non-lamellar bone	epigenetic
cancellous/compact bone	discrete traits
Haversian system (osteon)	hypostotic
canaliculi, lamellae, lacuna	hyperostotic
osteocyte, osteoblasts, osteoclasts	Gruneberg
Volkman's canals	mortality/survivorship curves
Howship's lacunae	agricultural revolution
intramembranous/ endochondral ossification	Boserup
primary/secondary centers of ossification	cumulative stress
diaphysis/epiphysis	episodic stress
fontanelle	fluctuating random symmetry
metopic suture	Harris lines
symphysis menti	Wilson's bands
spheno-occipital synchondrosis (basal)	dental enamel hypoplasias
symphysis pubis	porotic hyperostosis
McKern & Stewart	cribra orbitalia
Todd method	tuberculosis
Suchey & Brooks	syphilis
dorsal & ventral plateaus	osteomyelitis
Meindl & Lovejoy	osteoarthritis
osteon counting	periodontal disease
Giles & Elliot	dental caries
greater sciatic notch	dental calculus
ventral arc	enamel microdefects
scars of parturition	tooth ablation
preauricular sulcus	spondylolysis
ABFA	achondroplasia
Terry Collection	spina bifida
Hammann & Todd collection	trauma
discontinuous/ continuous variation	osteophytosis
Retzius	craniostenosis

trephination
head shaping
Colle's fracture
Treponemal disease
degenerative joint disease (DJD)
rickets
acromegaly
giantism
osteomas
biodistance analysis
Mahalanobis' generalized distance
discriminant function analysis
tooth summary figure
agenesis of third molar
shovel-shaped incisors
Carabelli's cusp
taurodontism
hypercementosis
enamel extensions
Y-5 cusp pattern
Sinodonty
Sundadonty
Albert Dahlberg
guttered nasal sill
alveolar prognathism
dolicho-, meso, brachycranial
prognathous, orthognathous
platymeria
platycnemic index
pilastric index
intermembral index
Trotter and Gleser
JPAC
mean
median
mode
standard deviation
range
variance
Student's t-test
Chi-square
NAGPRA
repatriation

Greenstick fracture

life tables
abridged life tables
composite life tables
mortality statistic
life expectancy
age-at-death
Trace Element Analysis
Isotope Analysis
Cultural Alteration of Bone
Ban Chaing
Non Nok Tha

Some examples of Short Answer/Short Essay Questions:

1. What are the 3 major kinds of cartilage found in living humans? Contrast the histological structure of each. Provide an example where each type is incorporated into normal human anatomy/physiology.
2. How do bones grow in length and in girth? Provide a general schematic representation, as well, that illustrates the development of a typical long limb bone including the approximate times of these stages.
3. List at least 5 major (anatomical/physiological) functions of the skeleton provides.
4. Outline the major stages of ossification in cartilage (intracartilaginous ossification).
5. What are the major methods available for determining age in the sub-adult skeleton, including neonate. Name at least 4.
6. What generalizations apply to the timing, appearance, and fusion of primary and secondary centers of ossification in the human skeleton? (i.e. 3 general time events and 4 generalizations).
7. Outline the growth and development of an a) occipital bone; b) os coxae; typical long limb bone.
8. When do the following occur: a) normal obliteration of the metopic suture; b) fusion of the symphysis menti; c) fusion of cranial basal suture; d) closure of the anterior fontanelle; e) appearance of the deciduous central incisor; f) appearance of the first permanent tooth; g) fusion of the acetabulum/ etc.
9. What are at least 4 major methods (each from a different part of the skeleton) for aging adult skeletal remains.
10. What is the morphological basis on which the symphysis pubis aging methods is based? What is observed? What do the reference samples consist of? What are the basic methods available.
11. What is the difference between a forensic anthropologists and an skeletal biologists (i.e. osteologists)?
12. Contrast continuous and discontinuous variation. What is meant by each category. Provide an example of each.
13. What is the mode of inheritance of metric and non-metric traits.
14. Define and provide examples of hypostotic and hyperostotic traits.
15. What is the statistical basis for determining stature from skeletal remains.
16. What are the histological (fine) structure of a typical tooth.
17. Outline some of the major sequelae that lead to premortem tooth loss in ancient human populations.
18. What is paleodemography? Provide some examples of the kinds of information that paleodemographers are interested in.
19. Provide a morphological description of at least 3 major differences found in a Asian, European, and African skull.
20. How do osteologists determine ancestry from skeletal remains? Include in your answer: what methods are available; specific examples where appropriate, the reliability of results etc.
21. Briefly outline the major paleopathological classification of disturbances that are observed in the human skeleton and provide at least one specific example of each.
22. What are some of the major ethical issues facing osteologists, today?
23. What are biodistance studies. Provide an example from your assigned reading.