

STUDY GUIDE FOR MIDTERM

Written Exam: March 8, 2007, 1:30-2:45 pm

Preparation for Written portion of exam: Review all assigned reading since the beginning of the course including the first nine chapters in Bryers (2005).

Exam format: A choice of short answer, definitions, short essay

Topics to be covered: Introduction to the field, forensic context (human vs. nonhuman, recent vs. old etc.), estimating the postmortem interval, initial treatment (preparation, treatment, commingling), ancestry, age determination in subadults and adults.

Some examples of short definitions, short answer, and short essay questions are attached.

PRINT OR WRITE CLEARLY AND USE PEN OR DARK PENCIL. POINTS WILL BE DEDUCTED IF THESE DIRECTIONS ARE NOT FOLLOWED. BRING A HAND CALCULATOR TO THE EXAM.

Examples of Short Answer type questions:

1. Briefly, define "forensic science" and "forensic anthropology". What do forensic anthropologists do and what kinds of information are they most frequently ask to provide in forensic cases?
2. What is meant by **time interval since death**? Why is it important to determine? How can this be determined for a) recent dead, and b) more than recent dead? What would you record?
3. If you suspected that you had the skeletal remains of three individuals, commingled together, how would you segregate them?
4. What is (are) the most reliable method(s) of determining the age-at-death of a fetal skeleton, aged between five lunar months and birth? Briefly discuss each method (assuming there is more than one).
5. List three anatomical points distinguishing a skinned bear paw from a skinned human foot. Both specimens lack the distal phalanges. What similarities may contribute to confusing human appendages for bear paws or *vice versa*?
6. Define forensic taphonomy. Why is taphonomy important in forensic investigations? What are some of the taphonomic features which are investigated.
7. You are asked by the prosecution in court why you give an age range for an individual rather than a specific age. What is your reason for giving a range, and how broad should that range be?

8. A body dressed in 19th-century clothing is discovered in a decaying wooden coffin. The skeleton is held together by a small amount of desiccated soft tissue. Determine the forensic significance of this find and state the reasoning behind your assessment.
9. A human skull is brought in for analysis. The skull is dark in color, very fragmented, fragile, light in weight, and very dry, but one of its molar teeth contains a silver amalgam filling. There is no clinging soft tissue on the surface of the bone. On the basis of these traits, determine the skull's medicolegal significance, if any? Explain.
10. A disarticulated body is found in rocky terrain characterized by crevices and other hard to reach places. How far would you extend your search for missing body parts such as hands and feet? State your reasoning. What methods would you employ in your search?
11. An adult os coxae is found with a pubic face with smooth surface bone surrounded by a rim. The posterior ilium of the same person exhibits an auricular surface with no transverse organization, microporosity, slight apical activity, and a smooth retroauricular area. A skull found with these remains exhibits palatal and endocranial sutures that are fully fused and obliterated and the summed score of the anterior-lateral sutures is 10. What is the approximate age at death from this information? Is there a conflict with the data provided by the pubic face?
12. What are the main demographic characteristics that a forensic anthropologist should be able to estimate from human skeletal remains?
13. Special characteristics of the human skeleton can be identified by forensic anthropologists to help in obtaining a "positive" identification. What are some of these characteristics? Explain their value in positive identification.
14. Suppose that a body is found that is only partially skeletonized. Under these circumstances, would it be appropriate to call in a forensic anthropologist? Why? Suppose that a forensic pathologist, in attendance when the body is brought in, says that he or she could not perform an autopsy. Would it be appropriate now to call in a forensic anthropologist?
15. The skeleton of Jesse James has been examined on several occasions in the past to determine the aspects surrounding his death. Since little of the soft tissue was left, a forensic anthropologist (Michael Finnegan) has done much of this analysis. Why do you suppose a forensic anthropologist, who is normally interested in bodies of medicolegal significance, would get involved in such work?
16. How do forensic anthropologists determine if skeletal remains are human or nonhuman? How do forensic anthropologists determine if skeletal remains are recent or not recent? Outline the various methods that are available to investigators in each situation.
17. A grave is uncovered that contains three bodies; two lie next to each other in an extended position, while the third lies at an angle across the top of them. From this information alone, is it possible to determine the forensic significance of these remains, and what is the reason for your decision?

18. When excavating a fairly fresh body, you find several corroded and new shotgun shells, a rusty tin can, and a dirty soft drink bottle. Which of these findings are more likely to be forensically important and which are more likely to have been in the area prior to the interment? State your reasoning.
19. A body discovered on the surface in the Arizona desert with most of the soft tissue present, both arms removed, and the skull and legs attached to thorax. The police think these are the remains of a person missing for over a year. Is the state of preservation consistent with that time period? Why or why not? Is the amount of scavenging consistent? Why or why not?
20. A body is found on surface of the West Mesa near Albuquerque, New Mexico. The skeleton shows some desiccated connective tissue at the joints, but is completely disarticulated. There are a few blowflies, but none of their larvae; also, a few beetles were recovered. A small tree, found growing through the obturator foramen of an os coxae, exhibits four rings. The remains of a wallet with what looks like paper money in it, nylon stockings, and possibly a cotton blouse and skirt are found near the bones. What is the time since death based on decomposition? On carnivore scavenging? Insect life cycle? Insect succession? Plant growth? Money and clothing deterioration? Overall?
21. A body is found in a grave south of Chattanooga, Tennessee. It is in the postbloating stage. Plant roots in the grave show two rings. The body was found partially clothed in a silk shirt, which is in poor condition. Also, jeans found covering the legs are in poor condition. Acrylic socks found in the grave are in good condition. What is the time since death based on decomposition? Carnivore scavenging? Insect succession? Plants? Items of clothing? Overall?
22. Suppose that a skull is brought in for analysis that manifests a projecting nasal root and bridge with a prominent nasal spine and sharp lower border. Additionally the face is nonprojecting, while the muscle markings are heavy and the brow ridges are large. The police believe that it is from a Black woman from the area in which it was found. Does this seem likely? If not, why not? Further, a skull exhibiting a wide nose with guttered lower border is found in the same area as the first skull. It has a projecting face with rectangular eye orbits and a depression behind bregma. Could this be from the missing Black woman?
23. A skull is found with an even number of Black and White characteristics. In addition, a small amount of hair is tightly curled and dark brown in color. What is the most likely ancestral group of this person and why?
24. A lower and upper jaw are discovered and brought in for analysis. The teeth are large, the dental arcade is gently curved, and the incisors manifest shoveling. Could these remains belong to a White person who has been missing from the area? If so, why? If not, why not?

25. Remains are brought in for analysis with a small amount of black skin and curly brown hair. The nose is wide and nonprojecting, and the skull has simple sutures, with small muscle markings and brow bridges. The police believe that the remains are from a Black person missing from the area. Could they be right? If so, why? If not, why?
26. Determine the sex of a pelvis with the following characteristics: wide subpubic angle, ovoid obturator foramen, wide greater sciatic notch, deep and wide preauricular sulcus, high and vertical ilium, and wide sacrum. Suppose that the pubic bone of this same individual displays a prominent and curving ventral arc, a deep subpubic concavity, and a wide medial border. Does this change the determination of sex? If so, why?
27. A braincase is found without any facial bones below the frontal. If the mastoids are large, the nuchal area smooth, and the frontal sloping with large browridges, what is the most likely sex of this individual? Why?
28. A Black skull is found with the following measurements: cranial length = 175 mm, cranial width = 125 mm, bizygomatic width = 128 mm, mastoid length = 26 mm, and basion-bregma = 130 mm. Using Table 8.6, what is the most likely sex of this individual? Show work.
29. A subadult skull with partial mandible is brought in for analysis. After x-raying, it is revealed that the crown of the lower right deciduous canine is fully formed, but the root has not yet developed. What was the approximate age of the person represented by this mandible? This same person has a lower left deciduous first molar whose crown is fully formed with a partially developed root. What is the age of the person from this source? Is there a conflict between these two sources of information?
30. A subadult skeleton is found with its permanent teeth (except the third molar) fully erupted and in their final place. In addition, none of the epiphyses on the femur, tibia, and fibula has begun to fuse with its respective diaphyses. What was the approximate age of this individual at the time of death?
31. Suppose the posterior ilium of the same person exhibited an auricular surface with no transverse organization, microporosity, slight apical activity, and slight activity in the retroauricular. What is the approximate age at death from this information? Is there a conflict with the data provided by the pubic face? A skull found with the remains has palatal and endocranial sutures fully fused. In addition, the summed score for the lateral-anterior ectocranial sutures is 6. What is the approximate age at death of this individual based on this information? What is the best estimate of age at death for this person using all the evidence?

Examples of More comprehensive Questions.

1. Describe the age changes that continue through life in the adult skeleton. How are these changes used in the major methods of macroscopic determination of age now utilized by forensic anthropologists? How reliable are these methods.
2. In the past, various methods for determining the age of adults from the symphysis pubis have been proposed. Describe the general sequelae of changes that occur in this region of the skeleton. What are the three major methods of pubic bone aging used by forensic anthropologists? What are the merits of each method and which, in your informed opinion, is more reliable.
3. There are various methods or techniques which may be employed in ascertaining how long ago an individual died (for the purposes of this question, let's assume death occurred in early summer in the state of Virginia and the remains were found in an open field near some woods in a fairly remote area)?
 - a. What methods may be employed for material dead less than 6 weeks?
 - b. What methods may be employed for material recovered 2-10 years since death?
 - c. Comment on the reliability of each of the above methods.Note: In each answer segment, for each method, comment on the material used, the condition and state the remains are likely to be in, the amount of material necessary, and the advantages and disadvantages of the technique.
4. What is involved in crime scene investigation? How might you, as a forensic anthropologist, be best used in a crime scene investigation of scattered, broken human bone suspected of being a homicide? What are some of the visual search indicators of crime scene investigation?
5. List the four most important macroscopic methods for determining age in the adult skeleton. Briefly discuss each of these techniques including anatomy, scoring system, interpretation of the results, age ranges that can be obtained, and any limitations of the method.
6. How is ancestry determined from human skeletal remains? How is the term, "race", used in forensic anthropology? Identify (these can be listed as bullets) several useful morphological features that would enable you to distinguish the skulls of an American-White, a Asian, and an African-American found in the United States in 1986. Do you expect there to be any variation within these groups for these traits? What other methods would you pursue given that you had ample time and resources?
7. A complete skeleton, representing a single adult individual, has been brought in for analysis. Which methods (and which bones) would you use to determine the sex of these remains? List at least five specific morphological features you would observe in the two best regions of the skeleton in making your determination. What other methods would you employ to determine sex besides morphological features to determine the sex of these remains?

Definitions. Terms everyone should be able to define in the context of forensic anthropology and, where appropriate, cite an example.

Diplomate in ABFA	Gustafson's method
forensic anthropology	Arikara
forensic science	Libben site
forensic archaeology	body farm
forensic odontology	carrion
Terry Collection	American Academy of Forensic
Hammann collection	Sciences (AAFS)
Todd collection	dental calcification
osteon	tooth eruption
<i>rigor mortis</i>	fontanelle
PMI	metopic suture
parturition pits	costal cartilage
preauricular sulcus	decedent
ventral rampart	autolysis
commingling	putrefaction
retroarticular area	McKern & Stewart
adipocere	Suchey-Brooks method
necrophagous insects	dorsal/ventral ramparts
ABFA	chain of custody/evidence
discriminant function analysis	repatriation
regression equations	premortem
Ellis Kerley	antemortem
Thomas Dwight	postmortem
George Dorsey	perimortem
William Bass	subpubic angle
Milton Krogman	greater sciatic notch
T. D. Stewart	ischiopubic ramus
ungulates	ischium-pubic index
canid	supra-orbital ridge
<i>Ursus americanus</i>	mastoid process
taphonomy	anthroposcopy
ground penetrating radar	osteometry
forensic entomology	index
forensic taphonomy	DMORT
costal cartilage	Stryker saw
bloated stage	Guttered sill
<i>Diptera</i>	Wormian bones
diaphysis	costal cartilage
epiphysis	
lunar months	
auricular surface	
preauricular	
sternal end of the rib	
obelion	
Haversian system	
Haversian canal	
Colonel Shy	