8/10/10

ANTH (ECOL) 4210: ZOOARCHAEOLOGY

Fall, 2010 Carol Colaninno-Meeks
Class Time: 9:30-10:45 Tu,Th
Lab Time: 11:00-12:15 Tu
TA: Sarah Bergh
TA Email: sbergh@uga.edu
TA Office Hours: 11:00-12:15

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Text:
Zooarchaeology by E. J. Reitz and E. S. Wing. You will also be expected to read the reports and articles that will be available in the classroom that are appropriate to your sample.

Course Objectives and Goals:

- To identify and compare general theory, site formation processes, basic archaeological field techniques, and the disciplines that contribute to zooarchaeology, particularly as they apply to zoological evidence of human/environmental relationships.
- To identify and compare strengths and weaknesses in the materials, methods, and techniques used in zooarchaeology.
- To identify and compare the contributions zooarchaeology makes to studies of the relationships between humans and their environments and to the studies of current environmental issues by documenting historical trends.
- To practice professional level research skills needed to do lab-based research in archaeology and zooarchaeology. These skills include: 1) identification of mammal, bird, reptile, amphibian, and fish remains, 2) quantification of archaeofaunal remains using common zooarchaeological methods, and 3) interpretation of the results in terms of human behaviour and environmental relationships.

Schedule of Lectures:
August 17-19: Introduction to Zooarchaeology and Vertebrate Taxonomy
E. J. Reitz and E. S. Wing, Chapter 1 and Appendix A3. *Zooarchaeology*
Landmark and Directional Terminology

August 24-26: Comparative Osteology
E. J. Reitz and E. S. Wing, Chapter 3. *Zooarchaeology*
Lab: Mammals Osteology

August **31**-September 2: Comparative Osteology
E. J. Reitz and E. S. Wing, Chapter 3. *Zooarchaeology*
Lab: Birds Osteology

September **7**-9: Comparative Osteology
E. J. Reitz and E. S. Wing, Chapter 3. *Zooarchaeology*
Lab: Reptiles and Amphibians Osteology

September **14**-16: Comparative Osteology and Zooarchaeological History
E. J. Reitz and E. S. Wing, Chapter 3 and 2. *Zooarchaeology*
Lab: Sharks, Rays, and Fishes

September **21**-23: Zooarchaeological Theory and Ecology
E. J. Reitz and E. S. Wing, Chapter 2 and 4. *Zooarchaeology*
M. A. Zierden and E. J. Reitz. 2009. Animal Use and the Urban Landscape in Colonial Charleston, South Carolina, USA. *International Journal of Historical Archaeology* 13:327:365.

September 28-30: Ecology and First Order Changes
E. J. Reitz and E. S. Wing, Chapter 4 and 5. *Zooarchaeology*
M. A. Zierden and E. J. Reitz. 2002. Eighteenth-century Charleston: Aftermath of the Siege. *El Escribano* 39:113-131.

October 5-**7**: Second Order Changes; Review
E. J. Reitz and E. S. Wing, Chapter 5. *Zooarchaeology*
E. J. Reitz. 1986. Urban/Rural Contrasts in Vertebrate Fauna from the Southern Coastal Plain. *Historical Archaeology 20(2):47-58.*

October 12-14: Primary data
E. J. Reitz and E. S. Wing, Chapter 6. *Zooarchaeology*
C. E. Colaninno-Meeks and E. J. Reitz. 2010. Animal Remains the South Adger's Wharf and the Lower Market. Ms. on file, Zooarchaeology Laboratory, Georgia Museum of Natural History, University of Georgia. pp. 74

October 19-21: Secondary data
E. J. Reitz and E. S. Wing, Chapter 7. *Zooarchaeology*
E. J. Reitz. 1987. Vertebrate Fauna and Socio-Economic Status. In *Consumer Choice in Historical Archaeology*, edited by S. Spencer-Wood, pp. 101-119. Plenum Publishing Corporation, New York.

October 26-28: Secondary Data
E. J. Reitz and E. S. Wing, Chapter 7. *Zooarchaeology*
E. J. Reitz and B. Ruff. 1994. Morphometric Data for Cattle from North America and the Caribbean Prior to the 1950s. *Journal of Archaeological Science* 21(5):699-713.

November 2-4: Secondary Data
E. J. Reitz and E. S. Wing, Chapter 7. *Zooarchaeology*
M. A. Zierden. 2001. *Archaeology at the Miles Brewton House, 27 King Street*. The Charleston Museum Archaeological Contributions 29, Charleston.

November 9-11: Humans as Predators
E. J. Reitz and E. S. Wing, Chapter 8 and 9. *Zooarchaeology*
G. S. Lucas and E. J. Reitz. 2005. Animal Remains from the 2004 Charleston City Hall/Beef Market Project. Ms. on file, Zooarchaeology Laboratory, Georgia Museum of Natural History, University of Georgia. pp. 96.

November 16-18: Past Environments
E. J. Reitz and E. S. Wing, Chapters 10 and 11. *Zooarchaeology*

November 23-25: No Class, Thanksgiving Break

November 30-December 2: Past Environments, Summary and Conclusions
E. J. Reitz and E. S. Wing, Chapter 10 and 11. *Zooarchaeology*
Lab: Graduate Student Presentations

Important Dates and Grading Evaluations:
*Lab Tests **(30% of grade)**:*
August 31: Mammals (class; element; left/right)
September 7: Birds (proximal/distal)
September 14: Reptiles and Amphibians (epiphysis/diaphysis)
September 21: Sharks, Rays, and Fish (MNI; simple interpretation)

*Mid-term **(30% of grade)**:* October 7

*Report **(30% of grade)**:*
November 5: Review of identifications should be completed
November 12: Title, Abstract, Tables, and Figures turned in by 5:00 pm
November 30: Graduate student presentations
December 13: Research Report turned in by 5:00 pm

The remaining 10% of your grade is based on laboratory skills and class participation.

NO MAKE-UP LAB TESTS OR EXAMS WILL BE GIVEN.

Graduate Students:
Graduate students will be assigned more difficult and/or larger samples. Their papers should be thoughtful, thorough, and theoretical treatments of the assemblage studied. They will be expected to present a preliminary (15-20 minute) version of their papers to the class on Tuesday, November 30. The final version will be due on December 13 by 5:00 pm.

Evaluations:
You will be evaluated on the basis of performance on lab tests, the mid-term exam, the research report, class participation, and laboratory techniques. Lab tests will be cumulative and will be 30% of the grade. They will cover osteological materials as well as analysis and quantification techniques. The mid-term exam will test reading and lecture materials in conjunction with archaeological samples. It will be 30% of the grade. The research report will be 30% of the grade. The remaining 10% of your grade will be based on a subjective evaluation of laboratory skills and class participation.

Research Report: (30% of grade)
The research report will constitute the final exam. The paper will present the results of your identification and include analysis of the zooarchaeological sample assigned to you. The paper should represent a professional product in every respect, including timeliness and accuracy. It will be sent to the archaeologist who contributed the materials and will constitute your report to that person. Length is not as important as an adequate treatment of the research. Your title, abstract, tables, and figures will be due on November 12 by 5:00 pm; and the paper will be due December 13 by 5:00 pm. The title, abstract, tables, and figures and the final paper must be in hard copy form. No electronic submissions will be accepted. **NO PAPERS WILL BE ACCEPTED AFTER THIS DATE AND TIME.**

Follow the *American Antiquity* formatting style, which can be found at the back of Volume 57 [4] 1992 or at <http://www.saa.org/Publications/styleGuide/styleGuide.pdf>.

Laboratory Skills and Class Participation: (10% of grade):
This is a subjective evaluation of your performance in the class. Examples of skills that will be considered are attendance; participation in class and lab discussions; ability to work accurately, independently, and in a timely fashion; ability to follow instructions; ability to interact appropriately with staff and students, and ability to work in an organized fashion. This will also include a subjective evaluation of your use of the collections and the quality of your research skills. The materials you will be handling are priceless and, in many cases, irreplaceable. All comparative and archaeological materials should be handled with care, thoughtfulness, and respect. If you treat the comparative and/or archaeological materials in a manner that is not appropriate, points will be deducted from your grade. Failure to respond to a warning about inappropriate use of comparative and/or archaeological collections ***will*** result in dismissal from the class and a failing grade. You will be warned only once!

Attendance:
Students are expected to be in class. Students will be allowed three free skips for the lecture and lab portion of the class (no excuse required). After that, one point will be deducted from the final numerical grade for each absence.

Class Organization:
The scheduled lecture time (9:30-10:45) will be devoted primarily to lectures, demonstrations, and tests. Each student should plan to spend an additional ca. 40-50 hours in lab (3-4 hrs/wk) using the comparative collection and preparing tables.

Room 8 is reserved for the lab portion of the class on Tuesdays and Thursday from 11:00 to 12:15. The room may be available at other times, but this is the only time you can be assured the room is not being used for other purposes and that there will be someone there to help.

Attendance at lab on Tuesdays from 11:00-12:15 is required and counts toward your attendance record. Attendance at lab on Thursdays is recommended. I will lead lab on Tuesdays; Thursdays will be informal for you to work at your own pace. Sarah will hold her office hours during lab on Thursday and be available to answer questions at that time. Otherwise, you are responsible for scheduling your additional lab hours. This must be during normal operating hours of the University; between **8-5 Monday-Friday**, when no other classes are using the classroom. The privilege of using the collection after hours is extended only to lab employees and students who have completed this course with an A. **DO NOT ASK TO USE THE LAB AFTER HOURS** even if someone authorized to do so will be here. Do not get authorized users in trouble by asking them to let you in. **NO EXCEPTIONS WILL BE MADE FOR ANY REASON.** One of the objectives of the class is to train students in the importance of managing their time and planning in advance so as to get assignments completed.

Room 8 will be closed after 5:00 and on weekends. It may also be closed at other times if other Museum programs need to use the room. Note that a class is held in Room 8, Tuesday and Thursday from 2:00-3:15. Make sure all materials are put up and your work space is cleaned by 1:45 on Tuesdays and Thursdays. Please do not delay the start of this class.

Sample Review:
Before beginning your report, your identifications will be reviewed for accuracy. Scheduling for the review will be done after the mid-term. Appointment slots of 3 hours will be available on a first come, first served basis. The appointments will begin on approximately October 14 and run through November 5. However, if you do not sign up, an appointment will be assigned to you. **ALL REVIEWS MUST BE COMPLETED BY 5:00 pm ON NOVEMBER 5**.

For the review you will need to have your labels filled out, cards completed (except for specimen weight and MNI), your measurements done, and the skeletal drawings completed. More details will be provided prior to the reviews.

Other Notes:
The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary. Absence from class is not an excuse for being unaware of such changes.

University Policies:
All university policies with regard to withdrawals, academic honesty, etc. will be strictly followed. As a University of Georgia student, you have agreed to abide by the University's academic honesty policy, A Culture of Honesty, and the Student Honor Code. All academic work must meet the standards described in A Culture of Honesty found at: www.uga.edu/honesty. The unattributed quotation or extensive paraphrasing of material not conceived and composed by the student will initiate action in accordance with the University's policies on academic honesty, as outlined in A Culture of Honesty. Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. It is your responsibility to be familiar with these policies before performing any academic work. Questions related to course assignments and the academic honesty policy should be directed to the instructor.
Syllabus: The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary. Absence from class is not an excuse for being unaware of such changes

LANDMARK TERMS

Anterior/Posterior
Appendicular skeleton (Pelvic and Pectoral girdles and extremities
Axial skeleton (skull, vertebrae, ribs, sternum)
Canal: tunnel. Sacral canal
Caudal/Cranial
Condyle: rounded eminence. proximal tibia
Crest: a sharp border. sacral crest, iliac crest
Dorsal/Ventral
Diaphysis: Shaft
Digitigrade: phalanges only touch ground
Epiphysis: Articular end
Flat Bones: Protection and broad muscle support. Examples: scapula, skull
Foramen: Hole. Examples: obturator foramen, nutrient foramina
Fossa: depression. acetabular fossa, iliac fossa, olecranon fossa, radial fossa, masseteric fossa
Head: a smooth rounded eminence for articulation, humerus, femur
Incisure: a notch. greater sciatic notch of pelvis, acetabular notch
Irregular Bones: vertebrae, maxilla
Lateral/Medial
Lip: margin of a groove, crest or line
Long Bones: Sustains weight, provide muscle attachments. Examples: radius, femur
Metaphysis: line of fusion
Pectoral girdle (Scapula)
Pelvic girdle (Innominates and Sacrum)
Proximal/Distal
Process: projection. coronoid process of ulna, styloid process, coracoid process of scapula, transverse processes
Plantigrade: podials, metapodials, phalanges touch ground
Ridge: long spine. transverse ridge of sacrum
Sinus: cavity lined with mucus membrane
Short Bones: Compact, elasticity, limited motion.
Examples: Phalanges (Phalanx), Metacarpus, Metatarsus
Spine: a sharp prominence. neural spine, acromion spine
Sulcus: a groove. medial epicondyle and trochlea of humerus
Suture: a junction between bones
Symphysis: where bones come together. Pubic symphysis, mandibular symphysis
Trochanter: a large prominence for muscle attachments. greater and less trochanters of femur
Trochlea: a pulley. distal humerus
Unguligrade: only last phalanx touches the ground

SKELETAL ELEMENTS TO KNOW

Skull:

- Dentary/Mandible
- Maxilla
- Premaxilla
- Nasal
- Frontal
- Parietal
- Squamosal (Temporal)
- Occipital
- Zygomatic Arch (Jugal)
- Incisor
- Canine
- Premolar
- Molar
- Endocranium
- Vomer
- Quadrate
- Hyomandibula
- Operculum
- Preoperculum
- Articular
- Cleithrum
- Otolith

Axial:

- Centrum
- Zygopophysis
- Pygostyle
- Cervical
- Thoracic
- Lumbar
- Caudal
- Sacrum
- Atlas
- Axis
- Urostyle

Pectoral Girdle:

- Coracoid
- Scapula
- Furculum
- Sternum
- Clavicle

Appendicular Skeleton:

- Humerus
- Radius
- Ulna
- Femur
- Tibia
- Metapodia
- Patella
- Tarsal, Carpal
- Calcaneus
- Astragalus
- Carpometacarpus
- Tarsometatarsus
- Tibiotarsus
- Phalanx

Pelvic Girdle:

- Synsacrum
- Ilium
- Ishium
- Pubis
- Acetabulum

Other:

- Epiplastron
- Entoplastron
- Hyoplastron
- Hypoplastron
- Xiphiplastron
- Peripheral
- Costal
- Nuchal
- Neural
- Pygal

KNOW LEFTS AND RIGHTS

Mammal:	Scapula
	Humerus
	Mandible
	Innominate
	Femur
	Tibia
Bird:	Dentary
	Coracoid
	Femur
Herptiles:	Dentary
Fish:	Articular
	Dentary
	Premaxilla
	Maxilla

ELEMENTS AND ORDER OR GENUS TO KNOW FROM MEMORY

Didelphis virginiana	Cervical vertebra
Artiodactyl	Astragalus Calcaneus Metacarpus Metatarsus
Galliformes	Tarsometatarsus, male
Alligator sp.	Osteoderm
Apalone spp.	Carapace/plastron
Lepisosteus spp.	Vertebra Scales
Amia calva	Vertebra
Mugil spp.	Vertebra

For the Herptiles, you must know class, order, and suborder for all elements because there are significant morphological differences at all of these taxonomic levels.

4/3/03

PREFERRED (IN BOLD) AND OTHER TERMS FOR CARPALS AND TARSALS

PREFERRED TERM (Sisson and Grossman primarily)

CARPALS

Radial carpal	Scaphoid	Navicular		
Intermediate carpal	Lunar	Semilunar	Lunate	Central
Ulnar carpal	Pyramidal	Medial	Triangular	Triquetrum
Accessory carpal	Pisiform			
1st carpal	Trapezium	Greater multangular	(not in Bovidae)	
2nd carpal	Trapazoid	Lesser multangular	(fused in Bovidae)	
3rd carpal	Capitate	(fused in Bovids)		
4th carpal	Unciform	Hamate Os crochu		

Fused Carpals:

Scapho-lunar	Intermedioradiale	(fused in Felidae and Canidae)		
Carpals 2+3	Magnum	capitato-trapezoid	trapezoideocapitatum	(fused in Bovidae)

TARSALS

Calcaneus	Fibular tarsal			
Astragalus	Tibial tarsal	Talus		
Os Malleolare	Fibula	Lateral malleolare		
Navicular	Central tarsal	Scaphoid	(Fused with cuboid in Bovidae)	
1st tarsal	Internal tarsal	Medial cuneiform	Entocuneiform	Grand Cuneiform
2nd tarsal	Middle tarsal	Intermediate cuneiform	Mesocuneiform	(fused in Bovidae)
3rd tarsal	External tarsal	Lateral cuneiform	Ectocuneiform	(fused in Bovidae)
Cuboid	4th tarsal	(Fused with navicular in Bovidae)		

Fused Tarsals (Artiodactyla):

Cubonavicular	Central + 4th tarsal	Centroquartale	Naviculocuboideum
Tarsal 2+3			

The order is from the first range of carpals/tarsals to the second range; and the medial side to the lateral one.

3/3/03

PREFERRED (Ernst & Barbour) AND OTHER NAMES FOR TURTLE BONES AND SCUTES

BONE

Ernst & Barbour	Carr	Romer	Obst
nuchal	proneural	nuchal	nuchal
--	--	--	proneural
peripheral	peripheral	marginal	peripheral
costal	pleural	costal	pleural
neural	neural	neural	neural
suprapygal	suprapygal	suprapygal	metaneural
pygal	pygal	pygal	pygal
epiplastron	epiplastron		epiplastron
entoplastron	entoplastron		entoplastron
hyoplastron	hyoplastron		hyoplastron
hypoplastron	hypoplastron		hypoplastron
xiphiplastron	xiphiplastron		xiphiplastron

SCUTES

Ernst & Barbour	Carr
cervical	precentral
marginal	marginal
pleural	lateral
vertebral	central
(B)	postcentral
gular	gular
humeral	humeral
pectoral	pectoral
abdominal	abdominal
femoral	femoral
anal	anal

NOTE ON PECTORAL GIRDLE: There are two bones: the scapula and the coracoid. The scapula has two branches. The longest of these branches is the scapula itself. The shorter branch is the acromial process following Romer (1956). This is correctly labeled on the Carolina Biological Supply bioreview sheet. It is called the precoracoid on the Ward's sheet. The Turtox Key Card has the precoracoid (acromial process) and the scapula itself reversed. For a discussion of this read Romer 1956:307-310.

CURATORIAL INFORMATION AND PRIMARY DATA
FOR LABELS AND DATA CARDS

LABELS

Site name
Site number
Provenience and level
Field sample number (accession number, lot number, etc.)
Catalogue number from the data card
Taxonomic identification from the data card

DATA CARDS

Taxon
Site number
Accession number
Serial number
Site name
Provenience and level
Field sample number (or accession number, lot number, etc.)
Screen size
Number of specimens (not necessary for UID Vertebrate or UID Invertebrate)
Element represented
Symmetry (left, right, axial, indeterminate)
Portion (proximal, distal, shaft)
Modifications (weathered, carnivore-gnawed, rodent-gnawed, burned, hacked, cut, sawed, worked, pathologies, etc.)
Degree of fusion (diaphysis/epiphysis is used only for unfused specimens)
Deciduous/permanent dentition
Tooth wear (see Payne 1973)
Other evidence of age. This will primarily be condition of deciduous P_4)
Sex
Measurements, in mm, may be recorded on a separate form (see Driesch 1976)
Other notes
Weight, in g
Estimate of Minimum Number of Individuals (MNI)
For Mammals also prepare the element drawings. This will be primarily for taxa identified below Artiodactyla but others may also require this step. The element drawings should have the catalogue number, fusion, and side noted beside each specimen drawn so it can be correlated with the data cards.

CHECKLIST FOR ZOOARCHAEOLOGY REPORTS

Section	Comments
Title Page	Title of paper, author, author's address, and date
Abstract	No more than 100 words (see Landes 1966)
Introduction	Purpose of paper, literature review, set up for presentation of data from specific assemblage being reported
Materials	Description of archaeological site
Methods	Field recovery methods and zooarchaeological methods
Results	Description of what was found; no interpretation
Discussion	Interpret results and tie them to purpose as outlined in the Introduction
Conclusions	Summarize what was concluded as a result of the research
Acknowledgments	Acknowledge the funding source, owner of the site, and field personnel
Bibliography	Follow Chicago Manual of Style or some other widely-used style guide
Figures	
Tables	
Species List	
Summary Table	
Elements Represented	
Modifications	
Age	
Measurements, in mm	
Others as appropriate to the research goals	
Appendices	
List of Proveniences	
Others as appropriate to the research goals	