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## Department of Anthropology



### ANTHROPOLOGY 3310B-001 ZOOARCHAEOLOGY Winter 2024

Instructor: Dr. Lisa Hodgetts

e-mail: [lisa.hodgetts@uwo.ca](mailto:lisa.hodgetts@uwo.ca)

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#### **Course Description and Objectives:**

This course aims to introduce you to the wide range of information that can be gleaned about past human groups from the animal remains they left behind after butchery, meals, toolmaking and other activities. You will also gain practical experience in the identification and analysis of faunal remains. The course will be divided into two parts: one lecture and one lab each week. The lectures (first half of each class) will cover topics in zooarchaeological theory and practice including taphonomy, quantification, seasonality, prey selection, domestication and behavioural ecology. The labs (second half of each class) will teach the basics of skeletal identification for the most common types of vertebrate remains recovered from archaeological sites: fish, birds, and mammals. They will also provide you with experience in the identification and recording of fragmentary archaeological remains.



#### **Learning Outcomes:**

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

- 1) identify complete and partially fragmented skeletal remains of fish, birds and mammals to skeletal element
- 2) identify a range of factors that impact an animal bone assemblage before it arrives in a zooarchaeology lab for analysis, and describe how each factor affects the assemblage
- 3) effectively use MS Excel to graph zooarchaeological and other relevant datasets
- 4) apply a range of theoretical and methodological approaches to the interpretation of animal bones from archaeological sites in order to reconstruct past human behavior
- 5) utilize other lines of archaeological evidence to support your interpretations of zooarchaeological evidence
- 6) evaluate the strength of others' interpretations of zooarchaeological evidence.

#### **Required readings:**

All of the required readings are available online through OWL. You can also access the lab manual in OWL. Please print yourself a hard copy of the manual.

**Evaluation:**

3 Assignments	30% (10% each)	LO: 2, 3, 4, 5
4 Bone quizzes	20% (5% each)	LO: 1
Lab Exam	20%	LO: 1, 2
Final exam	25%	LO: 2, 4, 5, 6
Participation	5%	LO: 1, 2, 3, 4, 5, 6

Your course grade will be determined based on your performance in both the lecture and laboratory components. Knowledge of lecture topics will be evaluated in a series of three assignments, each of which will ask you to interpret a small data set, and in a final exam during the exam period. Knowledge of the lab component will be evaluated in four short bone identification quizzes that will take place at the beginning of lab sessions (as outlined in the course schedule). Each quiz will include *all* of the material covered up to that point. It will also be assessed through a final lab exam, which will include a bone identification component, as well as fill-in-the-blank and short answer questions based on material from the labs. Your participation grade will be determined based on your attendance and the quantity and quality of your contributions to class discussions.

**Course Policies:**

**MENTAL WELLBEING:** If you are experiencing emotional/mental distress please refer to Health and Wellness at Western <https://www.uwo.ca/health/psych/index.html> for a complete list of supports.

**PREREQUISITES:** ANTH 2229F/G is a prerequisite for this course. Unless you have either the prerequisites for this course or written special permission from your Dean to enroll in it, you will be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

**ASSIGNED READINGS:** You are responsible for all assigned readings unless notified otherwise by the instructor. Please read them before class each week since we will discuss them in class.

**ATTENDANCE:** Attendance forms part of your participation grade. Since much of the course material is not in the readings, and the labs require hands-on interaction with the bones, it is important that you attend every class. Please keep in mind that all material covered in class may be tested on the exams. If you are unable to attend a class, please let me know in advance if possible, or as soon as possible afterwards, and be sure to get notes from a classmate.

**ASSIGNMENTS**

**Submission:** Please submit Assignments electronically through the Assignments tab in OWL. Assignments are due on Thursdays at 11:55 pm. You can continue to submit assignments, with no penalty, until 11:55pm on the Sunday after the due date. Late assignments submitted by the Sunday deadline will receive a number grade but may not receive feedback. After the Sunday late submission deadline, I will deduct a late penalty of 5% per day for each additional day late. **Unfortunately, assignments submitted more than one week after the due date will receive a zero** (but see the next section for exceptions!).

**Format:** All assignments must be submitted as Word documents (.docx files), double-spaced, 12 point Times New Roman font, with 2.5 cm (1 inch) margins

**Note: Additional instructions for each assignment will be provided in class and on OWL.**

**MISSED DEADLINES, QUIZES, or EXAMS:** Occasionally illness or other personal issues make it impossible to meet assignment deadlines or complete a quiz or exam. Reach out to me if there are extenuating circumstances preventing you from completing work on schedule! If you are seeking

academic consideration for work totaling 10% or more of the final grade, make that request as early as possible through Academic Counseling in your home faculty. Please see [What is Academic Consideration](#) and [Consideration for Medical Illness in the Academic Calendar](#).

If you are seeking consideration for work totaling less than 10% of the final grade, please contact me directly to make arrangements.

**ELECTRONIC DEVICES:** No electronic devices will be allowed during quizzes, tests and examinations. Please turn your phone off and keep it out of sight during class time so that it does not disturb others. You are welcome to bring your laptop/tablet to class for the purpose of taking notes. Please avoid using it for other things (social media etc), as it is distracting to those around you.

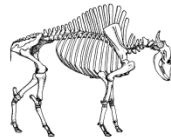
**ACADEMIC ACCOMMODATION, MEDICAL CONSIDERATION, PLAGIARISM and SCHOLASTIC OFFENCES:**

All students should familiarize themselves with Western's current academic policies regarding academic accommodation, medical consideration, and scholastic discipline (for offences like plagiarism). These policies are outlined below:

Academic accommodation: [Academic Calendar - Western University \(uwo.ca\)](#)

Medical consideration: [Academic Calendar - Western University \(uwo.ca\)](#)

Scholastic offences: [Academic Calendar - Western University \(uwo.ca\)](#)



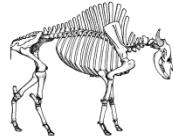
**CLASS SCHEDULE**

DATE	TOPIC	Assignments, Quizzes and Exams
WEEK 1 Jan. 11	<b>Lecture:</b> Introduction: What is zooarchaeology? <b>Lab:</b> The vertebrate skeleton <b>Readings:</b> Reitz & Wing 2008: Chapters 1 & 2 (selections); Davis 1987: Chapter 2 (pp. 47-55)	
WEEK 2 Jan. 18	<b>Lecture:</b> Taphonomy—the formation of the zooarchaeological record. Pre-depositional and post-depositional processes <b>Lab:</b> Fish vertebrae and selected cranial elements <b>Readings:</b> Peres 2010: pp. 15-20; O'Connor 2000: Chapter 3; Erlandson et al. 2007; Munson & Garniewicz 2003	

WEEK 3 Jan. 25	<p><b>Lecture:</b> From the field to the lab: recovery, processing, identification and recording</p> <p><b>Lab:</b> Bird skeleton—axial bones</p> <p><b>Readings:</b> Davis 1987: pp. 28-36; Peres 2010: 20-25; Shaffer 1992; Harland et al. 2003</p>	
WEEK 4 Feb. 1	<p><b>Lecture:</b> Quantification: Counting bones—NISP, MNI, MNE and MAU.</p> <p><b>Lab:</b> Bird skeleton—appendicular bones</p> <p><b>Readings:</b> Peres: pp. 25-27 [focus on NISP &amp; MNI]; Lyman &amp; Wolverton 2023 (pp. 1211-1214, 1218-1222) ; Grayson 1979</p>	Bone quiz 1 Assignment 1 goes live
WEEK 5 Feb. 8	<p><b>Lecture:</b> Species representation—what we can learn from the rank importance of different taxa?</p> <p><b>Lab:</b> Mammalian skeleton—axial bones</p> <p><b>Readings:</b> Davis 1987: pp. 61-72; Tellkamp 2014; Badenhorst &amp; Driver 2009</p>	Assignment 1 due in class
WEEK 6 Feb. 15	<p><b>Lecture:</b> Identifying butchery and transport in the faunal record—body part representation and food utility indices</p> <p><b>Lab:</b> Mammalian skeleton—forelimb bones</p> <p><b>Readings:</b> Hoffman et al. 2000; Trusler 2017</p>	Assignment 2 goes live
Feb. 22	<b>READING WEEK – no classes</b>	
WEEK 7 Feb. 29	<p><b>Lecture: COMPUTER TUTORIAL—MS Excel</b></p> <p><b>Lab:</b> Mammalian skeleton—hind limb bones</p> <p><b>Readings:</b> NONE</p>	Bone quiz 2
WEEK 8 March 7	<p><b>Lecture:</b> Seasonality: using bones to determine the season of occupation of a site</p> <p><b>Lab:</b> Mammalian skeleton—feet</p> <p><b>Readings:</b> Davis 1987: Chapter 4; Rowley-Conwy 1995; Landon 2008 <i>Lab Reading:</i> Davis 1987 Chapter 2 pp. 55-56</p>	Assignment 2 due in class Assignment 3 goes live
WEEK 9 March 14	<p><b>Lecture:</b> Prey selection and domestication—sexing bones, and determining age at death</p> <p><b>Lab:</b> Mammalian dentition</p> <p><b>Readings:</b> Davis 1987: Ageing &amp; Sexing, Domestication; Payne 1973; Reher 1974 <i>Lab Reading:</i> Davis 1987 Chapter 2 pp. 56-59</p>	Bone quiz 3
WEEK 10 March 21	<p><b>Lecture:</b> Animal bones and evolutionary ecology models of human behaviour</p> <p><b>Lab:</b> Ageing, sexing, seasonality and taphonomic markers</p>	Assignment 3 due in class

	<b>Readings:</b> Winterhalder 1981; Starkovitch 2014; Medina & Rivero 2020	
WEEK 11 March 28	<b>Lecture:</b> Animal bones and human social organization <b>Lab:</b> Identifying and recording archaeological materials; Review of lab component of course. <b>Readings:</b> Reitz & Wing 1999: pp. 273-278; Stokes 2000; Sharpe & Emery 2015; Valenzuela Lamas et al. 2020	Bone quiz 4
WEEK 12 April 4	<b>Lab:</b> LAB EXAM (1 hour) <b>Lecture:</b> Final course review. <b>Readings:</b> none	Lab Exam

**FINAL EXAM: 3 hours during Exam Period**



**READINGS ARE TAKEN FROM THE FOLLOWING SOURCES:**

- Badenhorst, S. and J.C. Driver  
2009 Faunal changes in farming communities from Basketmaker II to Pueblo III (A.D. 1-1300) in the San Juan Basin. *Journal of Archaeological Science* 36: 1832-1841.
- Davis, Simon  
1987 *The Archaeology of Animals*. Yale University Press, New Haven.
- Erlandson, J.M., T.C. Rick, P.W. Collins, D.A. Guthrie  
2007 Archaeological implications of a Bald Eagle nesting site at Ferello Point, San Miguel Island, California. *Journal of Archaeological Science* 34(2): 255-271.
- Grayson, D.K.  
1979 On the Quantification of Vertebrate Archaeofaunas. *Advances in Archaeological Method and Theory*, vol. 2, edited by M.B. Schiffer. Academic Press, New York, pp. 199-237.
- Harland, Jennifer F., James H. Barrett, John Carrott, Keith Dobney and Deborah Jaques  
2003 The York System: An integrated zooarchaeological database for research and teaching. *Internet Archaeology* 13.  
[http://intarch.ac.uk/journal/issue13/harland\\_index.html](http://intarch.ac.uk/journal/issue13/harland_index.html)
- Hoffman, B. W., J.M.C. Czederpiltz and M.A. Partlow  
2000 Heads or tails: The zooarchaeology of Aleut salmon storage on Unimak Island, Alaska. *Journal of Archaeological Science* 27(8): 699-708.
- Landon, David B.  
2008 Seasonal slaughter cycles and urban food supply in the Colonial Chesapeake. In *Case Studies in Environmental Archaeology, 2<sup>nd</sup> edition*, edited by E.J. Reitz, C.M. Scarry and S.J. Scudder, pp. 375-390 of 463. Springer, New York.
- Lyman, R.L and S. Wolverton  
2023 Quantification in Zooarchaeology and Palaeoethno(Archaeo)botany. In *Handbook of Archaeological Sciences, Second Edition*. A. Mark Pollard, Ruth A. Armitage and Cheryl A. Makarewicz, pp. 1211-1225. John Wiley & Sons Ltd.
- Medina, M.E. and D.E. Rivero  
2020 Hunting and skeletal element abundance of guanaco during the Holocene of Sierras of Cordoba, Argentina. *Journal of Archaeological Science: Reports* 29: 102074.
- Munson, Patrick J., R.C. Garniewicz  
2003 Age-mediated survivorship of Ungulate mandibles and teeth in Canid-ravaged faunal assemblages. *Journal of Archaeological Science* 30(4):405-416.
- O'Connor, Terry  
2000 *The Archaeology of Animal Bones*. Texas A&M University Press, College Station.
- Payne, S.  
1973 Kill off patterns in sheep and goats: The mandibles from Asvan Kale. *Anatolian Studies* 23: 281-303
- Peres, T. M.  
2010 Methodological Issues in Zooarchaeology. In *Integrating Zooarchaeology and Paleoeethnobotany*. Edited by A. M. van Derwarker and T. M. Peres, pp. 15-36. Springer, New York.

- Reher, C.A.  
1974 Population study of the Casper Site bison. In *The Casper Site. A Hell Gap Bison Kill on the High Plains*, edited by G.C. Frison, pp. 113-124 of 266. Academic Press, New York.
- Reitz, E. J. and E.S. Wing  
2008 *Zooarchaeology*, Second Edition. Cambridge University Press, Cambridge.
- Rowley-Conwy, P.  
1995 Meat, furs and skins: Mesolithic animal bones from Ringkloster, a seasonal hunting camp in Jutland. *Journal of Danish Archaeology* 12: 87-98.
- Shaffer, Brian S.  
1992 Quarter-inch screening: understanding biases in recovery of vertebrate faunal remains. *American Antiquity* 57(1): 129-136.
- Sharpe, A.E. and K.F. Emery  
2015 Differential animal use within three Late Classic Maya states: Implications for politics and trade. *Journal of Anthropological Archaeology* 40:280-301.
- Starkovitch, B. M.  
2014 Optimal foraging, dietary change, and site use during the Paleolithic at Klissoura Cave 1 (southern Greece). *Journal of Archaeological Science* 52: 39-55.
- Stokes, P.  
2000 A cut above the rest? Officers and men at South Shields Roman Fort. In *Animal Bones, Human Societies*, edited by P.A. Rowley-Conwy. Oxbow Books, Oxford, pp. 145-151.
- Tellkamp, M. P.  
2014 Habitat change and trade explain the bird assemblage from the La Chimba archaeological site in the northeastern Andes of Ecuador. *Ibis* 156(4): 812-825.
- Trusler, A. K.  
2017 Evaluating socioeconomic status using *Sus scrofa* food utility indices in historical faunal assemblages. *Archaeological and Anthropological Sciences* 9: 831-841.
- Valenzuela-Lamas, S., L. Valenzuela-Suau, O. Saula, A. Colet, O. Mercadal, C. Subiranas, and J. Nadal  
2014 Shechita and Karhrut: Identifying Jewish populations through zooarchaeology and taphonomy. Two examples from Medieval Catalonia (North-Eastern Spain). *Quaternary International* 330:109-117.
- Winterhalder, B.  
1981 Optimal foraging strategies and hunter-gatherer research in anthropology: Theory and models. In *Hunter-Gatherer Foraging Strategies*, edited by B. Winterhalder and E. A. Smith, pp. 13-35 of 268. University of Chicago Press, Chicago.