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FORMAT 2

Submit originals (including syllabus) and one copy and electronic copy to the Faculty Senate Office  
See <http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures/> for a complete description of the rules governing curriculum & course changes.

# CHANGE COURSE (MAJOR) and DROP COURSE PROPOSAL

Attach a syllabus, except if dropping a course.

## SUBMITTED BY:

Department	Anthropology	College/School	CLA
Prepared by	Dr. Jamie L. Clark	Phone	474-5911
Email Contact	jclark7@alaska.edu	Faculty Contact	Dr. Clark

## 1. COURSE IDENTIFICATION: As the course now exists.

Dept	ANTH	Course #	415	No. of Credits	3
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COURSE TITLE	Zooarchaeology and Taphonomy
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## 2. ACTION DESIRED: Check the changes to be made to the existing course.

Change Course	<input checked="" type="checkbox"/>	If Change, indicate below what is changing.	Drop Course	<input type="checkbox"/>
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NUMBER	<input type="checkbox"/>	TITLE	<input type="checkbox"/>	DESCRIPTION	<input checked="" type="checkbox"/>
PREREQUISITES*	<input checked="" type="checkbox"/>	FREQUENCY OF OFFERING			<input type="checkbox"/>

\*Prerequisites will be required before a student is allowed to enroll in the course.  
Reference the registration implications below due to Banner coding of these terms:  
Prerequisite: Course completed and grade of "C" (2.0) or higher prior to registering for the course that requires it.  
Concurrent: Course may be taken simultaneously (and allows for a course to have been previously completed).  
Co-requisite: Courses MUST be taken simultaneously and does NOT allow for fact that a course was previously completed!

CREDITS (including credit distribution)		COURSE CLASSIFICATION	<input type="checkbox"/>
ADD CROSS-LISTING See #8 if intent is to stop an existing cross-listing.	<input type="checkbox"/>	Dept.	<input type="checkbox"/>
STACKED (400/600) Include syllabi.	<input checked="" type="checkbox"/>	Dept.	ANTH
		Course #	F615

Stacked course applications are reviewed by the (Undergraduate) Curricular Review Committee and by the Graduate Academic and Advising Committee. Creating two different syllabi—undergraduate and graduate versions—will help emphasize the different qualities of what are supposed to be two different courses. The committees will determine: 1) whether the two versions are sufficiently different (i.e. is there undergraduate and graduate level content being offered); 2) are undergraduates being overtaxed?; 3) are graduate students being undertaxed? In this context, the committees are looking out for the interests of the students taking the course. Typically, if either committee has qualms, they both do. More info online – see URL at top of this page.

OTHER (please specify)	
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## 3. COURSE FORMAT

NOTE: Course hours may not be compressed into fewer than three days per credit. Any course compressed into fewer than six weeks must be approved by the college or school's curriculum council and the appropriate Faculty Senate curriculum committee. Furthermore, any core course compressed to less than six weeks must be approved by the core review committee.

COURSE FORMAT: (check all that apply)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input checked="" type="checkbox"/> 6 weeks to full semester
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OTHER FORMAT (specify all that apply)

Mode of delivery (specify lecture, field trips, labs, etc)

Lecture and Lab

## 4. COURSE CLASSIFICATIONS: (undergraduate courses only. Use approved criteria found on Page 10 & 17 of the manual. If justification is needed, attach on separate sheet.)

H = Humanities ☐ S = Social Sciences ☐

Will this course be used to fulfill a requirement for the baccalaureate core?

YES	<input type="checkbox"/>	NO	<input checked="" type="checkbox"/>
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IF YES\*, check which core requirements it could be used to fulfill:

O = Oral Intensive, *Format 6 also submitted	<input type="checkbox"/>	W = Writing Intensive, *Format 7 submitted	<input type="checkbox"/>	Natural Science, *Format 8 submitted	<input type="checkbox"/>
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4.A Is course content related to northern, arctic or circumpolar studies? If yes, a "snowflake" symbol will be added in the printed Catalog, and flagged in Banner.

YES ☐

NO ☒

5. COURSE REPEATABILITY:

Is this course repeatable for credit?

YES ☐

NO ☒

Justification: Indicate why the course can be repeated (for example, the course follows a different theme each time).

How many times may the course be repeated for credit?

TIMES

If the course can be repeated with variable credit, what is the maximum number of credit hours that may be earned for this course?

CREDITS

6. **COMPLETE CATALOG DESCRIPTION** including dept., number, title, credits, credit distribution, cross-listings and/or stacking, clearly showing the changes you want made. (Underline new wording ~~strike through old wording~~ and use complete catalog format including dept., number, title, credits and cross-listed and stacked.)

Example of a complete description:

**PS F450 Comparative ~~Aboriginal~~ Indigenous Rights and Policies (s)**

3 Credits

Offered As Demand Warrants

Case study Comparative approach in ~~assessing Aboriginal~~ to analyzing Indigenous rights and policies in different nation-state systems. ~~Seven Aboriginal situations~~ Multiple countries and specific policy developments examined for factors promoting or limiting self-determination. Prerequisites: Upper division standing or permission of instructor. (Cross-listed with ANS F450.) (3+0)

**ANTH F415 Zooarchaeology and Taphonomy**

3 Credits Offered Fall Even-numbered years

Identification of bones, how vertebrate bone remains may be used to study archaeological site formation processes, site organization, subsistence practices and animal procurement strategies. Preservation in modern depositional environments, paleoecology, vertebrate mortality profiles and demographic structure, site seasonality, bone breakage, taphonomy and faunal remains, and human land use practices. Prerequisites: ANTH 211 or permission of instructor. Stacked with ANTH F615. (2+3) (3+2)

ANTH F615 Zooarchaeology and Taphonomy

3 Credits Offered Fall Even-numbered years

Identification of bones, how vertebrate bone remains may be used to study archaeological site formation processes, site organization, subsistence practices and animal procurement strategies. Preservation in modern depositional environments, paleoecology, vertebrate mortality profiles and demographic structure, site seasonality, bone breakage, taphonomy and faunal remains, and human land use practices. Prerequisites: Graduate standing or permission of instructor. Stacked with ANTH F415. (3+2)

7. **COMPLETE CATALOG DESCRIPTION AS IT SHOULD APPEAR AFTER ALL CHANGES ARE MADE:**

**ANTH F415 Zooarchaeology and Taphonomy**

3 Credits Offered Fall Even-numbered years

Identification of bones, how vertebrate bone remains may be used to study archaeological site formation processes, site organization, subsistence practices and animal procurement strategies. Preservation in modern depositional environments, paleoecology, vertebrate mortality profiles and demographic structure, site seasonality, bone breakage, taphonomy and faunal remains, and human land use practices. Prerequisites: ANTH 211 or permission of instructor. Stacked with ANTH F615. (3+2)

**ANTH F615 Zooarchaeology and Taphonomy**

3 Credits Offered Fall Even-numbered years

Identification of bones, how vertebrate bone remains may be used to study archaeological site formation processes, site organization, subsistence practices and animal procurement strategies. Preservation in modern depositional environments, paleoecology, vertebrate mortality profiles and demographic structure, site seasonality, bone

breakage, taphonomy and faunal remains, and human land use practices. Prerequisites: Graduate standing or permission of instructor. Stacked with ANTH F415. (3+2)

**8. IS THIS COURSE CURRENTLY CROSS-LISTED?**

YES/NO ☒ NO

If Yes, DEPT

NUMBER

**DROPPING A CROSS-LISTING:**

YES ☐

DEPT

NUMBER

Changing or dropping requires written notification of each department and dean involved. **Attach a copy of written notification.**

**9. GRADING SYSTEM: Specify only one.**

LETTER: ☒ X

PASS/FAIL: ☐

**10. ESTIMATED IMPACT**

WHAT IMPACT, IF ANY, WILL THIS HAVE ON BUDGET, FACILITIES/SPACE, FACULTY, ETC.

**None. The course is already being taught, so we already have the requisite facilities/space/faculty. We are simply requesting for the course to be stacked.**

**11. LIBRARY COLLECTIONS**

Have you contacted the library collection development officer ([kljensen@alaska.edu](mailto:kljensen@alaska.edu), 474-6695) with regard to the adequacy of library/media collections, equipment, and services available for the proposed course? If so, give date of contact and resolution. If not, explain why not.

No ☒ X Yes ☐

**No new library items or services are required.**

**12. IMPACTS ON PROGRAMS/DEPTS:**

What programs/departments will be affected by this proposed action?  
Include information on the Programs/Departments contacted (e.g., email, memo)

**None, other than Anthropology.**

**13. POSITIVE AND NEGATIVE IMPACTS**

Please specify **positive and negative** impacts on other courses, programs and departments resulting from the proposed action.

**POSITIVE IMPACTS:**

- 1) Adding a prerequisite to F415 ensures that all students have an appropriate background in archaeology before beginning the course, promoting student success.
- 2) Stacking the course allows graduate students to receive graduate-level credit. The ability to assign a more intensive workload to graduate students means that these students would get more out of the class than they would taking it at the undergraduate level.

**There are no negative impacts to the requested change.**


**JUSTIFICATION FOR ACTION REQUESTED**

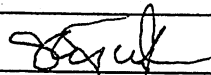
The purpose of the department and campus-wide curriculum committees is to scrutinize course change and new course applications to make sure that the quality of UAF education is not lowered as a result of the proposed change. Please address this in your response. This section needs to be self-explanatory. If you ask for a change in # of credits, explain why; are you increasing the amount of material covered in the class? If you drop a prerequisite, is it because the material is covered elsewhere? If course is changing to stacked (400/600), explain higher level of effort and performance required on part of students earning graduate credit. Use as much space as needed to fully justify the proposed change and explain what has been done to ensure that the quality of the course is not compromised as a result.

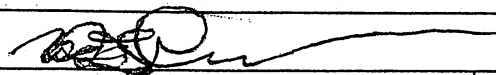
- 1) Justification for adding a prerequisite to F415: F415 is the only upper-level archaeology course on the books that does not already have a prerequisite in place. As indicated above, the justification for adding a prerequisite is to ensure that all students have an appropriate background in archaeology to succeed in this upper-level course.
- 2) Justification for stacking the course: As stated, stacking the course allows graduate students to receive graduate-level credit, while putting forth the increased level of effort expected for graduate students. As indicated in the attached syllabi, there are two primary components of the course that will be different for graduate students: graduate students must write critical summaries of all

assigned reading materials and they must write a research paper based on original research (unless they have their own data, they will be doing new analyses of previously published data). The breakdown for grades (in terms of the relative value assigned to each assignment) has also been altered for 615 to account for the additional assignments.

**APPROVALS:** (Additional signature blocks may be added as necessary.)

	Date	
Signature, Chair, Program/Department of: Anthropology		

	Date	7/8/13
Signature, Chair, College/School Curriculum Council for: CLA		

	Date	9/18/13
Signature, Dean, College/School of:		

Offerings above the level of approved programs must be approved in advance by the Provost:

	Date	
Signature of Provost (if applicable)		

**ALL SIGNATURES MUST BE OBTAINED PRIOR TO SUBMISSION TO THE GOVERNANCE OFFICE.**

	Date	
Signature, Chair		
Faculty Senate Review Committee: <input type="checkbox"/> Curriculum Review <input type="checkbox"/> GAAC		
<input type="checkbox"/> Core Review <input type="checkbox"/> SADAC		

**ADDITIONAL SIGNATURES:** (As needed for cross-listing and/or stacking; add more blocks as necessary.)

	Date	
Signature, Chair, Program/Department of:		

	Date	
Signature, Chair, College/School Curriculum Council for:		

	Date	
Signature, Dean, College/School of:		

## ANTH 415: Zooarchaeology and Taphonomy (3 credits; 3+2)

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**Instructor:** Jamie L. Clark  
**Email:** jlclark7@alaska.edu  
**Office:**  
**Office Hours:**  
**Office Phone:**

**TA:**  
**Email:**  
**Open lab hours:** TBD

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**Course Description:** This course is focused on the methods, techniques, and implications of the identification of animal bones from archaeological sites. Besides providing a direct source of data on human diet and past environmental conditions, animal bones can tell us about archaeological site formation processes, site organization, land use practices, animal procurement and processing strategies, urban production and distribution systems, and even about social status and ethnicity. The course can fulfill a major requirement for the B.S. in Anthropology, or can be utilized as an anthropology elective for the B.A. in Anthropology. Prerequisites: ANTH 211 or permission of the instructor.

**Course Goals:** Students will learn how to identify animal bones, from the identification of specific skeletal elements, to the species represented, to the age/sex of the animal. Students will also learn how to reconstruct the taphonomic history of an assemblage of animal bones, and will be able to identify and discuss the ways in which faunal remains can be used to address questions about the human past.

**Learning Outcomes:** By the end of the semester, students will be able to:

- 1) Identify mammalian skeletal remains (both complete and fragmentary), including the identification of specific elements and element portions
- 2) Distinguish bird and fish bones from mammalian remains
- 3) Perform basic taphonomic analyses, including the identification of major taphonomic signatures
- 4) Formulate questions about the past that can be addressed using faunal remains, and be able to apply the knowledge gained as part of an original research project.

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**Instructional Methods:** The course will consist of lectures, discussions, and a lab component (labs will meet in XXX). Generally speaking, Tuesday will consist of a 90 minute lecture, while Thursday's course time will be divided between lecture, student presentations, discussion, and occasional activities. Labs will meet on Wednesdays from 3-5 pm.

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**Readings:** There is no textbook for the course—the readings are primarily taken from journal articles and book chapters (details in the bibliography at the end of the syllabus). These readings will be posted on Blackboard and available for download. However, we will be doing some reading from three different texts which I would recommend purchasing if you are interested in pursuing further work in zooarchaeology:

Reitz, Elizabeth J. and Elizabeth S. Wing. 2008. Zooarchaeology. 2<sup>nd</sup> edition. New York: Cambridge University Press.

Lyman, R. Lee. 1994. Vertebrate Taphonomy. New York: Cambridge University Press.

Lyman, R. Lee. 2008. Quantitative Paleozoology. New York: Cambridge University Press.

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**Grading:**

Lab Notebook	20%
Quizzes	10%
Lab Assignments/Project	15%
Lab Practical Exam	15%
Discussion Questions	10%
Presentation of Articles for Discussion	10%
Participation in Discussion	05%
Final Paper	15%

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**Lab Notebook:** You will be responsible for creating a notebook which contains images of all of the major bones in the mammalian skeleton (from multiple views) with the primary features labeled. While you **must hand-draw at least 10 bones**, you may take photographs *as long as* the photos are clear, have been printed and labeled, and are placed within a physical notebook. In addition to these drawings, you are welcome to include notes, definitions, reference articles, etc. You should be working on your drawings as we learn the various parts of the skeleton during the first half of the term.

**Lab notebooks will be due on XXX.** Grades will be based on completeness, not on your drawing skills. You will be allowed to use this notebook on the lab practical exam at the end of the course.

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**Quizzes:** There will be 7 quizzes in the class; these will test your ability to identify bones and bone fragments. Quizzes will be held in the first 10 minutes of lab on Thursdays, and **there will be no make-up quizzes**. Your lowest quiz score of the semester will be dropped.

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**Lab Assignments/Project:** In the first half of the term, you will complete a series of lab activities and exercises. These assignments will be completed during class and must be checked by myself or John before you leave the lab. During the last 6 weeks of the course, we will be undertaking a major project: re-cataloging the comparative collections owned by the Department of Anthropology (currently stored in xxx). Students will be responsible for recording information in hard copy and digital form (your digital catalog will be due at the end of the last day in the lab; xxx), and we will work together to re-house material that is not properly stored.

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**Lab Practical Exam:** The lab practical exam will be a cumulative test of your identification skills and will also incorporate information from readings and lab assignments (e.g., quantification methods, measurements, etc.) **You will be able to use your lab notebooks on the exam.**

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**Discussion Questions:** All students will be required to submit one discussion question for each assigned reading. These questions will form the basis of our class discussions on Thursday mornings. Note that your question may be about something raised in the reading that you would like to discuss further, something you didn't fully understand, or even something you disagree with. It can also raise a topic that the writer left out but you think is relevant. These are NOT meant to be yes/no questions, or questions about definitions, but rather questions that will facilitate discussion. Your questions must be posted **on Blackboard by noon on Wednesdays**; please also bring a copy of your questions with you to class. Each set of questions will be worth 10 points; submissions turned in late (but received prior to class on Thursday) will receive 5 points, otherwise you will receive a zero for the week.

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**Presentation of Articles for Discussion:** Students will work in pairs; each pair will be responsible for presenting the articles for a given topic (I will post a sign-up sheet in the lab, xxx). In addition to presenting critical summaries of the papers, you will lead a discussion of the articles, based in part on the questions posted on Blackboard by your classmates.

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**Participation:** This grade will be based on your degree of participation in class discussions.

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**Final Paper:** Each student must write a paper (~10 pages, double spaced) based on the topic that you chose to present to the class. Your paper must focus on the ways in which zooarchaeology can address/answer questions relating to your topic. Where relevant, you must include a discussion of the particular analytical methods used to address these questions (i.e., what sort of specific zooarchaeological data/analyses are useful?) After providing this background, you must present and critically analyze two case studies on the topic BEYOND those assigned for the class. Note that although you will have prepared your presentation with a partner, your paper must be written independently, and, wherever possible, your case studies should not be the same.

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#### **Student Support:**

I am here to help, so please feel free to drop by my office if there are any problems. There are also a number of different offices on campus designed to provide student support, including the Writing Center (801 Gruening Bldg., 474-5314) and the Office of Student Support Services (514 Gruening Bldg, 474-6844). UAF also has an Office of Disability Services that implements the Americans with Disabilities Act (ADA), and ensures that UAF students have equal access to the campus and course materials. I will work with the office to provide academic accommodations to enrolled students who are eligible for these services. If you believe you are eligible, please contact the office as early in the semester as possible (208 Whitaker Building, 474-5655 or 474-1827 (TTY), email: [uaf-disabilityservices@alaska.edu](mailto:uaf-disabilityservices@alaska.edu)).

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#### **Other Information/Course policies:**

-Grades will be based the following scale: 100-98, A+; 97-93 A; 92-90, A-; 89-87, B+, 86-83, B, 82-80, B-, etc.

-Attendance is critical to your success in the class, and participation in lab and discussions is part of your grade. In order for absences to be excused, you must have your absence cleared with me in advance of class. Assignments missed as a result of an unexcused absence cannot be made up.

-Please be considerate of your fellow students (and instructors); cell phones should be silenced before entering class, and if you must enter late (or leave early), please do so as unobtrusively as possible. Please note that food and drink are not allowed in the lab.

-Students are expected to read and abide by the Student Code of Conduct (found in the UAF Catalog). Plagiarism will result in an automatic zero for the offending assignment. If you have questions about how to properly cite material, just ask!

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### **Course Outline (subject to change, see bibliography for full citation information for the assigned readings)**

#### **Week 1:**

##### **Introduction to the course**

#### **Week 2:**

##### **Collecting faunal data: recovery methods and quantification**

Readings: 1. Reitz and Wing 2008 (pp. 117-123; 146-152)  
 2. Shaffer 1992  
 3. Lyman 2008 (pp 21-82)  
 4. Yeshurun et al. 2007

##### **Lab: The basics: Bone biology/terminology/etc.**

Activity: Quantification exercise  
 Please skim Reitz and Wing 2008 pp. 31-88

#### **Week 3:**

##### **Tues, Sept 11: Intro to Taphonomy and Identifying Agents of Accumulation**

Readings: 1. Lyman 1994 (pp. 1-40)  
 2. Blumenschine et al. 1996  
 3. Kreutzer 1988  
 4. Villa et al. 2004

##### **Lab: Cranial remains/teeth**

Activity: Taphonomy exercise

#### **Week 4:**

##### **Skeletal Part Frequencies I: Bone density and utility indices**

- Readings:
1. Reitz and Wing (pp. 202-221)
  2. Lyman 2008 (pp. 214-263)
  3. Lyman 1985
  4. Metcalfe and Jones 1988
  5. Lam and Pearson 2005

**Lab: Axial skeleton**

Activity: Quiz #1 Crania/teeth  
Density exercise

**Week 5:**

**SPF II: Characterizing transport and processing decisions**

- Readings:
1. Marean and Frey 1997
  2. Stiner 2002
  3. Cleghorn and Marean 2004
  4. Lupo 2006
  5. Bar-Oz and Munro 2004 (*recommended, but not required*)

**Lab: Limb bones**

Activity: Quiz #2 Axial skeleton

**Week 6:**

**Paleoecology I: Reconstructing past environments using species-level data**

- Readings:
1. Bobe et al. 2002
  2. Pokines 2000
  3. Hill et al. 2008
  4. Grayson 1981

**Lab: Carpals/tarsals and feet**

Activity: Quiz #3 Limb bones

**Week 7:**

**Paleoecology II: Reconstructing past environments using isotopic data**

- Readings:
1. Meltzer 2006
  2. Emery et al. 2000
  3. White et al. 2009 (read also SOM sections on isotopes)

**Lab:** Taphonomy Lab/Review whole skeleton

**Activity:** Quiz #4 Carpals/tarsals/feet

**Week 8:**

**Paleoecology III: Human impacts on ancient environments**

**Readings:** 1. Grayson 2001  
2. Dean 2005  
3. Emery and Thornton 2008

**Lab:** Bird Lab

**Activity:** Quiz #5 Complete skeleton

**Week 9:**

**Seasonality**

**Readings:** 1. Enloe and David 1997  
2. Monks 1981  
3. Todd 1991  
4. Simmons and Nadel 1998

**Lab:** Fish Lab (& Marine Mammals?)

**Activity:** Quiz #6 Bird remains  
**LAB NOTEBOOKS DUE**

**Week 10:**

**The evolution of human diets: the human hunting adaptation**

**Readings:** 1. Dominguez-Rodrigo 2002  
2. Stiner 1990  
3. Stiner 2002

**Lab:** Introduction to Lab Project/Cataloging Procedures

**Activity:** Quiz #7 Fish remains

**Week 11:**

**The Later Pleistocene/Early Holocene: Megafaunal Extinctions and Intensification**

- Readings: 1. Koch and Barnosky 2006  
2. Prescott et al. 2012  
3. Munro 2004

Lab: Cataloging/Rehousing Collections

**Week 12:**

**The evolution of human diets: the origins of agriculture**

- Readings: 1. Reitz and Wing 2008 Ch. 9  
2. Zeder and Hesse 2000  
3. Zeder et al. 2006 (focus on parts about animal domestication)  
4. Greenfield et al. 1988

Lab: Cataloging/Rehousing Collections

**Week 13:**

**\*\*LAB PRACTICAL EXAM (OPEN NOTEBOOK) Tuesday class will be held in the lab\*\***

**Week 14:**

**The zooarchaeology of complex societies**

- Readings: 1. Crabtree 1990  
2. Zeder 1988  
3. Stein 1987  
4. Landon 2008

Lab: Cataloging/Rehousing Collections

**Week 15:**

**Ethnicity/social status/ideology**

- Readings: 1. Scott 2008  
2. Spielmann et al. 2009  
3. Schulz and Gust 1983  
4. Pauketat et al. 2002.

Lab: Catalog sheets due at the end of lab

**PAPER DUE DURING SCHEDULED FINAL EXAM TIME:**

## Course Bibliography

Bar-Oz, G. and N. D. Munro

2004 Beyond cautionary tales: a multivariate taphonomic approach for resolving equifinality in zooarchaeological studies. *Journal of Taphonomy* 2(4):201-222.

Blumenschine, R. J., C. W. Marean and S. D. Capaldo

1996 Blind test of inter-analyst correspondence and accuracy in the identification of cut marks, percussion marks and carnivore tooth marks on bone surfaces. *Journal of Archaeological Science* 23:493-507.

Bobe, R., A. K. Behrensmeyer and R. E. Chapman

2002 Faunal change, environmental variability and late Pliocene hominin evolution. *Journal of Human Evolution* 42:475-497.

Cleghorn, N. and C. W. Marean

2004 Distinguishing selective transport and in situ attrition: a critical review of analytical approaches. *Journal of Taphonomy* 2(2):43-67.

Crabtree, P. J.

1990 Zooarchaeology and Complex Societies: Some Uses of Faunal Analysis for the Study of Trade, Social Status and Ethnicity. *Archaeological Method and Theory* 2:155-205.

Dean, R. M.

2005 Site-Use Intensity, Cultural Modification of the Environment, and the Development of Agricultural Communities in Southern Arizona. *American Antiquity* 70(3):403-431.

Dominguez-Rodrigo, M.

2002 Hunting and Scavenging by Early Humans: the State of the Debate. *Journal of World Prehistory* 16(1):1-54.

Emery, K. F. and E. K. Thornton

2008 Zooarchaeological Habitat Analysis of Ancient Maya Landscape Changes. *Journal of Ethnobiology* 28(2):154-178.

Emery, Kitty F., Lori E. Wright, Henry Schwarcz.

2000. Isotopic Analysis of Ancient Deer Bone: Biotic Stability in Collapse Period Maya Land Use. *Journal of Archaeological Science* 27: 537-550.

Enloe, J. G. and F. David

1997 *Rangifer* herd behavior: seasonality of hunting in the Magdalenian of the Paris Basin. In *Caribou and Reindeer Hunters of the Northern Hemisphere*, edited by L. J. Jackson and P. Thacker, pp. 47-63. Avebury Press.

- Grayson, D. K.  
 1981 A critical view of the use of archaeological vertebrates in paleoenvironmental reconstruction. *Journal of Ethnobiology* 1:28-38.  
 2001 The Archaeological Record of Human Impacts on Animal Populations. *Journal of World Prehistory* 15(1):1-68.
- Greenfield, Haskel J, John Chapman, A.T. Clason, Allas S. Gilbert, Brian Hesse, Sarunas Milisauskas.  
 1988. The Origins of Milk and Wool Production in the Old World: A Zooarchaeological Perspective from the Central Balkans. *Current Anthropology* 29(4) 573-593.
- Hill, M. E., M. G. Hill and C. C. Widga  
 2008 Late Quaternary Bison diminution on the Great Plains of North America: evaluating the role of human hunting vs. climate change. *Quaternary Science Reviews* 27:1752-1771.
- Koch, P. L. and A. D. Barnosky  
 2006 Late Quaternary extinctions: state of the debate. *Annual Review of Ecology, Evolution, and Systematics* 37:215-250
- Kreutzer, L. A.  
 1988 Megafaunal butchering at Lubbock Lake, Texas: a taphonomic reanalysis. *Quaternary Research* 30:221-231.
- Lam, Y. M. and O. M. Pearson  
 2005 Bone Density Studies and the Interpretation of the Faunal Record. *Evolutionary Anthropology* 14:99-108.
- Landon, D. B.  
 2008 Seasonal Slaughter Cycles and Urban Food Supply in Colonial Chesapeake. In *Case Studies in Environmental Archaeology*, edited by E. Reitz, C. M. Scarry and S. J. Scudder, pp. 375-390. 2nd ed. Springer, Dordrecht, The Netherlands.
- Lupo, K. D.  
 2006 What explain the carcass field processing and transport decisions of contemporary hunter-gatherers? Measures of economic anatomy and zooarchaeological skeletal part frequencies. *Journal of Archaeological Method and Theory* 13(1):19-66.
- Lyman, R. L.  
 1985 Bone Frequencies: Differential Transport, In Situ Destruction, and the MGUI. *Journal of Archaeological Science* 12:221-236.  
 1994 *Vertebrate Taphonomy*. Cambridge University Press, Cambridge.

- 2008 *Quantitative Paleozoology*. Cambridge University Press, New York.
- Marean, C. W. and C. J. Frey  
1997 Animal Bones from Caves to Cities: Reverse Utility Curves as Methodological Artifacts. *American Antiquity* 62(4):698-711.
- Meltzer, D.J.  
2006. Late Glacial Environment and Climate (sections on isotopic analysis) in: Folsom: New Archaeological Investigations of a Classic Paleoindian Bison Kill. University of California Press, Berkeley. Pp 189-204
- Metcalf, D. and K. T. Jones  
1988 A reconsideration of animal body-part utility indices. *American Antiquity* 53(3):486-504.
- Monks, G. G.  
1981 Seasonality Studies. *Advances in Archaeological Method and Theory* 4:177-240.
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2000 Microfaunal Research Design in the Cantabrian Spanish Paleolithic. *Journal of Anthropological Research* 56(1):95-112.
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2008 *Zooarchaeology*. 2nd ed. Cambridge University Press, Cambridge.
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1983 Faunal Remains and Social Status in 19th Century Sacramento. *Historical Archaeology* 17(1):44-53.
- Scott, E. M.  
2008 Who Ate What? Archaeological Food Remains and Cultural Diversity. In *Case*

*Studies in Environmental Archaeology*, edited by E. Reitz, C. M. Scarry and S. J. Scudder, pp. 357-374. 2nd ed. Springer, Dordrecht, The Netherlands.

Shaffer, B. S.

1992 Quarter-inch screening: understanding biases in recovery of vertebrate faunal remains. *American Antiquity* 57(1):129-136.

Simmons, T. and D. Nadel

1998 The Avifauna of the Early Epipaleolithic Site of Ohalo II (19,400 years BP), Israel: Species Diversity, Habitat and Seasonality. *International Journal of Osteoarchaeology* 8:76-96.

Spielmann, K. A., T. Clark, D. Hawkey, K. Rainey and S. K. Fish

2009 '...being weary, they had rebelled': Pueblo subsistence and labor under Spanish colonialism. *Journal of Anthropological Archaeology* 28:102-125.

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1987 Regional Economic Integration in Early State Societies: Third Millennium B.C. Pastoral Production at Gritille, Southeast Turkey. *Paleorient* 13(2):101-111.

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White, T.D., S.H. Ambrose, G. Suwa, D.F. Su, D. DeGusta, R.L. Bernor, J.-R. Boisserie, M. Brunet, E. Delson, S. Frost, N. Garcia, I.X. Giaourtsakis, Y. Haile-Selassie, F.C.

Howell, T. Lehmann, A. Likies, C. Pehlevan, H. Saegusa, G. Semprebon, M. Teaford, E. Vbra.

2009. Macrovertebrate Paleontology and the Pliocene Habitat of *Ardipithecus ramidus*. *Science* 326: 87-93. (ALSO READ THE SUPPLEMENTAL MATERIAL, which is a separate file—but only the isotope portion, which

*begins on page 9)*

Yeshurun, R., N. Marom, G. Bar-Oz

2007 Differential fragmentation of different ungulate body-size: a comparison of gazelle and fallow deer bone fragmentation in Levantine prehistoric assemblages. *Journal of Taphonomy* 5:137-148.

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2006 Documenting domestication: the intersection of genetics and archaeology. *TRENDS in Genetics* 22(3):139-155.

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2000 The Initial Domestication of Goats (*Capra hircus*) in the Zagros Mountains 10,000 Years Ago. *Science* 287:2255-2257.

## ANTH 615: Zooarchaeology and Taphonomy (3 credits; 3+2)

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**Instructor:** Jamie L. Clark

**Email:** jlclark7@alaska.edu

**Office:**

**Office Hours:**

**Office Phone:**

**TA:**

**Email:**

**Open lab hours:**

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**Course Description:** This course is focused on the methods, techniques, and implications of the identification of animal bones from archaeological sites. Besides providing a direct source of data on human diet and past environmental conditions, animal bones can tell us about archaeological site formation processes, site organization, land use practices, animal procurement and processing strategies, urban production and distribution systems, and even about social status and ethnicity. The course can fulfill a major requirement for the B.S. in Anthropology, or can be utilized as an anthropology elective for the B.A. in Anthropology. Prerequisites: ANTH 211 or permission of the instructor.

**Course Goals:** Students will learn how to identify animal bones, from the identification of specific skeletal elements, to the species represented, to the age/sex of the animal. Students will also learn how to reconstruct the taphonomic history of an assemblage of animal bones, and will be able to identify and discuss the ways in which faunal remains can be used to address questions about the human past.

**Learning Outcomes:** By the end of the semester, students will be able to:

- 1) Identify mammalian skeletal remains (both complete and fragmentary), including the identification of specific elements and element portions
- 2) Distinguish bird and fish bones from mammalian remains
- 3) Perform basic taphonomic analyses, including the identification of major taphonomic signatures
- 4) Formulate questions about the past that can be addressed using faunal remains, and be able to apply the knowledge gained as part of an original research project.

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**Instructional Methods:** The course will consist of lectures, discussions, and a lab component (labs will meet in XXX). Generally speaking, Tuesday will consist of a 90 minute lecture, while Thursday's course time will be divided between lecture, student presentations, discussion, and occasional activities. Labs will meet on Wednesdays from 3-5 pm.

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**Readings:** There is no textbook for the course—the readings are primarily taken from journal articles and book chapters (details in the bibliography at the end of the syllabus). These readings will be posted on Blackboard and available for download. However, we will be doing some reading from three different texts which I would recommend purchasing if you are interested in pursuing further work in zooarchaeology:

Reitz, Elizabeth J. and Elizabeth S. Wing. 2008. Zooarchaeology. 2<sup>nd</sup> edition. New York: Cambridge University Press.

Lyman, R. Lee. 1994. Vertebrate Taphonomy. New York: Cambridge University Press.

Lyman, R. Lee. 2008. Quantitative Paleozoology. New York: Cambridge University Press.

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**Grading:**

Lab Notebook	15%
Quizzes	10%
Lab Assignments/Project	10%
Lab Practical Exam	15%
Discussion Questions	10%
Critical Summaries	10%
Presentation of Articles for Discussion	05%
Participation in Discussion	05%
Final Paper	20%

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**Lab Notebook:** You will be responsible for creating a notebook which contains images of all of the major bones in the mammalian skeleton (from multiple views) with the primary features labeled. While you **must hand-draw at least 10 bones**, you may take photographs *as long as* the photos are clear, have been printed and labeled, and are placed within a physical notebook. In addition to these drawings, you are welcome to include notes, definitions, reference articles, etc. You should be working on your drawings as we learn the various parts of the skeleton during the first half of the term. **Lab notebooks will be due on XXX.** Grades will be based on completeness, not on your drawing skills. You will be allowed to use this notebook on the lab practical exam at the end of the course.

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**Quizzes:** There will be 7 quizzes in the class; these will test your ability to identify bones and bone fragments. Quizzes will be held in the first 10 minutes of lab on Thursdays, and **there will be no make-up quizzes.** Your lowest quiz score of the semester will be dropped.

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**Lab Assignments/Project:** In the first half of the term, you will complete a series of lab activities and exercises. These assignments will be completed during class and must be checked by myself or John before you leave the lab. During the last 6 weeks of the course, we will be undertaking a major project: re-cataloging the comparative collections owned by the Department of Anthropology (currently stored in xxx). Students will be responsible for recording information in hard copy and digital form (your digital catalog will be due at the end of the last day in the lab; xxx), and we will work together to re-house material that is not properly stored.

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**Lab Practical Exam:** The lab practical exam will be a cumulative test of your identification skills and will also incorporate information from readings and lab

assignments (e.g., quantification methods, measurements, etc.) **You will be able to use your lab notebooks on the exam.**

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**Discussion Questions:** All students will be required to submit one discussion question for each assigned reading. These questions will form the basis of our class discussions on Thursday mornings. Note that your question may be about something raised in the reading that you would like to discuss further, something you didn't fully understand, or even something you disagree with. It can also raise a topic that the writer left out but you think is relevant. These are NOT meant to be yes/no questions, or questions about definitions, but rather questions that will facilitate discussion. Your questions must be posted **on Blackboard by noon on Wednesdays**; please also bring a copy of your questions with you to class. Each set of questions will be worth 10 points; submissions turned in late (but received prior to class on Thursday) will receive 5 points, otherwise you will receive a zero for the week.

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**Critical Summaries:** Students will be responsible for writing critical summaries of the articles assigned for the week. I would recommend splitting these up; for example, each person writing one critical summary per week (note that some weeks have three readings, others have five). One student will be responsible for compiling these critical summaries each week, which I will copy and distribute to the class. See the attached handout for more details on what should be included within these critical summaries.

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**Presentation of Articles for Discussion:** Students will work in pairs; each pair will be responsible for presenting the articles for a given topic (I will post a sign-up sheet in the lab, xxx). In addition to presenting critical summaries of the papers, you will lead a discussion of the articles, based in part on the questions posted on Blackboard by your classmates.

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**Participation:** This grade will be based on your degree of participation in class discussions.

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**Final Paper:** Each student will write a research paper (~20 pages, double spaced), which must involve new analysis of a previously published data set; research question and time period/geographic location will be chosen by each student in consultation with myself.

**Your topic must be chosen by the end of Week 7.**

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### **Student Support:**

I am here to help, so please feel free to drop by my office if there are any problems. There are also a number of different offices on campus designed to provide student support, including the Writing Center (801 Gruening Bldg., 474-5314) and the Office of Student Support Services (514 Gruening Bldg, 474-6844). UAF also has an Office of Disability Services that implements the Americans with Disabilities Act (ADA), and ensures that UAF students have equal access to the campus and course materials. I will work with the office to provide academic accommodations to enrolled students who are eligible for these services. If you believe you are eligible, please contact the office as early in the semester as possible (208 Whitaker Building, 474-5655 or 474-1827 (TTY), email: [uaf-disabilityservices@alaska.edu](mailto:uaf-disabilityservices@alaska.edu)).

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**Other Information/Course policies:**

- Grades will be based the following scale: 100-98, A+; 97-93 A; 92-90, A-; 89-87, B+, 86-83, B, 82-80, B-, etc.
  - Attendance is critical to your success in the class, and participation in lab and discussions is part of your grade. In order for absences to be excused, you must have your absence cleared with me in advance of class. Assignments missed as a result of an unexcused absence cannot be made up.
  - Please be considerate of your fellow students (and instructors); cell phones should be silenced before entering class, and if you must enter late (or leave early), please do so as unobtrusively as possible. Please note that food and drink are not allowed in the lab.
  - Students are expected to read and abide by the Student Code of Conduct (found in the UAF Catalog). Plagiarism will result in an automatic zero for the offending assignment. If you have questions about how to properly cite material, just ask!
- 

**Course Outline (subject to change, see bibliography for full citation information for the assigned readings) \*\*NOTE: The 615 syllabus will ultimately include some readings beyond those assigned for the undergraduates; these readings are TBD\*\***

**Week 1:**

**Introduction to the course**

**Week 2:**

**Collecting faunal data: recovery methods and quantification**

Readings: 1. Reitz and Wing 2008 (pp. 117-123; 146-152)  
 2. Shaffer 1992  
 3. Lyman 2008 (pp 21-82)  
 4. Yeshurun et al. 2007

**Lab: The basics: Bone biology/terminology/etc.**

**Activity: Quantification exercise**

**Please skim Reitz and Wing 2008 pp. 31-88**

**Week 3:**

**Tues, Sept 11: Intro to Taphonomy and Identifying Agents of Accumulation**

Readings: 1. Lyman 1994 (pp. 1-40)  
 2. Blumenschine et al. 1996  
 3. Kreutzer 1988  
 4. Villa et al. 2004

**Lab: Cranial remains/teeth**

Activity: Taphonomy exercise

**Week 4:**

**Skeletal Part Frequencies I: Bone density and utility indices**

- Readings:
1. Reitz and Wing (pp. 202-221)
  2. Lyman 2008 (pp. 214-263)
  3. Lyman 1985
  4. Metcalfe and Jones 1988
  5. Lam and Pearson 2005

**Lab: Axial skeleton**

Activity: Quiz #1 Crania/teeth  
Density exercise

**Week 5:**

**SPF II: Characterizing transport and processing decisions**

- Readings:
1. Marean and Frey 1997
  2. Stiner 2002
  3. Cleghorn and Marean 2004
  4. Lupo 2006
  5. Bar-Oz and Munro 2004 (*recommended, but not required*)

**Lab: Limb bones**

Activity: Quiz #2 Axial skeleton

**Week 6:**

**Paleoecology I: Reconstructing past environments using species-level data**

- Readings:
1. Bobe et al. 2002
  2. Pokines 2000
  3. Hill et al. 2008
  4. Grayson 1981

**Lab: Carpals/tarsals and feet**

Activity: Quiz #3 Limb bones

**Week 7:**

## **Paleoecology II: Reconstructing past environments using isotopic data**

Readings: 1. Meltzer 2006  
2. Emery et al. 2000  
3. White et al. 2009 (read also SOM sections on isotopes)

Lab: Taphonomy Lab/Review whole skeleton

Activity: Quiz #4 Carpals/tarsals/feet

### **Week 8:**

## **Paleoecology III: Human impacts on ancient environments**

Readings: 1. Grayson 2001  
2. Dean 2005  
3. Emery and Thornton 2008

Lab: Bird Lab

Activity: Quiz #5 Complete skeleton

### **Week 9:**

## **Seasonality**

Readings: 1. Enloe and David 1997  
2. Monks 1981  
3. Todd 1991  
4. Simmons and Nadel 1998

Lab: Fish Lab (& Marine Mammals?)

Activity: Quiz #6 Bird remains  
**LAB NOTEBOOKS DUE**

### **Week 10:**

## **The evolution of human diets: the human hunting adaptation**

Readings: 1. Dominguez-Rodrigo 2002  
2. Stiner 1990  
3. Stiner 2002

Lab: Introduction to Lab Project/Cataloging Procedures

Activity: Quiz #7 Fish remains

**Week 11:****The Later Pleistocene/Early Holocene: Megafaunal Extinctions and Intensification**

- Readings:
1. Koch and Barnosky 2006
  2. Prescott et al. 2012
  3. Munro 2004

Lab: Cataloging/Rehousing Collections

**Week 12:****The evolution of human diets: the origins of agriculture**

- Readings:
1. Reitz and Wing 2008 Ch. 9
  2. Zeder and Hesse 2000
  3. Zeder et al. 2006 (focus on parts about animal domestication)
  4. Greenfield et al. 1988

Lab: Cataloging/Rehousing Collections

**Week 13:**

**\*\*LAB PRACTICAL EXAM (OPEN NOTEBOOK) Tuesday class will be held in the lab\*\***

**Week 14:****The zooarchaeology of complex societies**

- Readings:
1. Crabtree 1990
  2. Zeder 1988
  3. Stein 1987
  4. Landon 2008

Lab: Cataloging/Rehousing Collections

**Week 15:****Ethnicity/social status/ideology**

- Readings:
1. Scott 2008
  2. Spielmann et al. 2009
  3. Schulz and Gust 1983
  4. Pauketat et al. 2002.

Lab: Catalog sheets due at the end of lab

## PAPER DUE DURING SCHEDULED FINAL EXAM TIME: XXX

### Course Bibliography

Bar-Oz, G. and N. D. Munro

2004 Beyond cautionary tales: a multivariate taphonomic approach for resolving equifinality in zooarchaeological studies. *Journal of Taphonomy* 2(4):201-222.

Blumenschine, R. J., C. W. Marean and S. D. Capaldo

1996 Blind test of inter-analyst correspondence and accuracy in the identification of cut marks, percussion marks and carnivore tooth marks on bone surfaces. *Journal of Archaeological Science* 23:493-507.

Bobe, R., A. K. Behrensmeyer and R. E. Chapman

2002 Faunal change, environmental variability and late Pliocene hominin evolution. *Journal of Human Evolution* 42:475-497.

Cleghorn, N. and C. W. Marean

2004 Distinguishing selective transport and in situ attrition: a critical review of analytical approaches. *Journal of Taphonomy* 2(2):43-67.

Crabtree, P. J.

1990 Zooarchaeology and Complex Societies: Some Uses of Faunal Analysis for the Study of Trade, Social Status and Ethnicity. *Archaeological Method and Theory* 2:155-205.

Dean, R. M.

2005 Site-Use Intensity, Cultural Modification of the Environment, and the Development of Agricultural Communities in Southern Arizona. *American Antiquity* 70(3):403-431.

Dominguez-Rodrigo, M.

2002 Hunting and Scavenging by Early Humans: the State of the Debate. *Journal of World Prehistory* 16(1):1-54.

Emery, K. F. and E. K. Thornton

2008 Zooarchaeological Habitat Analysis of Ancient Maya Landscape Changes. *Journal of Ethnobiology* 28(2):154-178.

Emery, Kitty F., Lori E. Wright, Henry Schwarcz.

2000. Isotopic Analysis of Ancient Deer Bone: Biotic Stability in Collapse Period Maya Land Use. *Journal of Archaeological Science* 27: 537-550.

Enloe, J. G. and F. David

1997 *Rangifer* herd behavior: seasonality of hunting in the Magdalenian of the Paris Basin. In *Caribou and Reindeer Hunters of the Northern Hemisphere*, edited by L. J. Jackson and P. Thacker, pp. 47-63. Avebury Press.

Grayson, D. K.

1981 A critical view of the use of archaeological vertebrates in paleoenvironmental reconstruction. *Journal of Ethnobiology* 1:28-38.

2001 The Archaeological Record of Human Impacts on Animal Populations. *Journal of World Prehistory* 15(1):1-68.

Greenfield, Haskel J, John Chapman, A.T. Clason, Allas S. Gilbert, Brian Hesse, Sarunas Milisauskas.

1988. The Origins of Milk and Wool Production in the Old World: A Zooarchaeological Perspective from the Central Balkans. *Current Anthropology* 29(4) 573-593.

Hill, M. E., M. G. Hill and C. C. Widga

2008 Late Quaternary Bison diminution on the Great Plains of North America: evaluating the role of human hunting vs. climate change. *Quaternary Science Reviews* 27:1752-1771.

Koch, P. L. and A. D. Barnosky

2006 Late Quaternary extinctions: state of the debate. *Annual Review of Ecology, Evolution, and Systematics* 37:215-250

Kreutzer, L. A.

1988 Megafaunal butchering at Lubbock Lake, Texas: a taphonomic reanalysis. *Quaternary Research* 30:221-231.

Lam, Y. M. and O. M. Pearson

2005 Bone Density Studies and the Interpretation of the Faunal Record. *Evolutionary Anthropology* 14:99-108.

Landon, D. B.

2008 Seasonal Slaughter Cycles and Urban Food Supply in Colonial Chesapeake. In *Case Studies in Environmental Archaeology*, edited by E. Reitz, C. M. Scarry and S. J. Scudder, pp. 375-390. 2nd ed. Springer, Dordrecht, The Netherlands.

Lupo, K. D.

2006 What explain the carcass field processing and transport decisions of contemporary hunter-gatherers? Measures of economic anatomy and zooarchaeological skeletal part frequencies. *Journal of Archaeological Method and Theory* 13(1):19-66.

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