ANTH 3600 ARCHAEOLOGICAL SCIENCE
Spring 2012

Tuesday and Thursday 11:00 — 12:15 AM
Anthropology 150

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Office Hrs: Wed, 8:00-9:30; Thurs 9:00-10:30
(or by appointment)

Subject Matter:
This course is intended to be an introduction to the science of archaeology, in particular the methods used in the field of archaeology to test hypotheses concerning prehistoric human behavior and evolution. The primary focus of the class is the application of biological, chemical, and physical methods to archaeological problems. Topics covered include radiometric and other dating methods, analysis of DNA and other organic molecules, stable isotope analysis of bone and sediments to reconstruct diet, environment, and migrations, trace elements for sourcing materials, and remote sensing. The course is designed for advanced undergraduates with an interest in archaeology and the sciences.

Course Structure:
For most weeks, Tuesdays are devoted to lecture, and Thursdays will consist of discussion. Lectures will focus primarily on method and theory, while discussions will focus on case studies from the archaeological literature. Students will be responsible for leading discussion. For this course format to work, it is imperative that students come to class prepared, having done the reading each Thursday.

Readings:
There is no textbook for the course. Instead, readings will come from a variety of sources which will be available as PDF files on WyoWeb. To download readings, from the Student tab on WyoWeb, under “My Courses,” click on “Course Sites.” Select “Archaeol Sciences”, then “Files,” and the readings will be listed there. You are expected to have completed the readings by the date listed. Failure to complete the readings on time will limit your ability to participate in in-class discussions (which affect your participation grade), complete assignments, and perform well on exams. So read closely, ask questions in our office hours if needed, and participate in discussions. Remember, this is an upper division course and your effort should reflect that.

Assignments:
In addition to readings and exams, you will have two assignments in this course which correspond with our two units of investigation. These assignments are designed to engage you in the kind of research that answers the questions that we’ll be investigating in class.
Prerequisites:
Students must have successfully completed their USP science requirements.

Grading:
Course grades will be comprised of student performance in the following areas:

- Participation in class and discussions: 10%
- Assignments (2): 20%
- Midterm Exams (2): 40%
- Final Exam: 30%

Notice that active, vocal participation in class is worth as much as either assignment, half as much as an exam, and a third as much as the final. This means that it is impossible to get an ‘A’ in this class without participating.

The final exam will...

Students with Disabilities
If you have a physical, learning, or psychological disability and require accommodations, please let me know as soon as possible. You will need to register with, and provide documentation of your disability to, University Disability Support Services (UDSS) in SEO, room 330 Knight Hall, 766-6189, TTY: 766-3073.

Presentations
You are expected to make at least one presentation of a discussion reading during the semester. Readings will be given out on a first come first served basis so the sooner you decide upon and inform us of the readings that you wish to present, the more likely it is that they will be available. Presentations should be approximately 20-30 minutes in duration and should include a brief (between five and ten minutes) description of the archaeological context followed by an explanation of the article and ending with discussion questions for the class. Presentations of the material should be accompanied by and integrated with visual/written presentations in Microsoft PowerPoint.

Archaeological context
Archaeological/Anthropological background material should be provided in the initial portion of your presentations. I recognize that the majority of you do not have an extensive background in anthropology so it is important that I all understand the anthropological context of the articles. I discourage you from relying solely upon online resources such as Wikipedia. I expect more background than a resource such as Wikipedia can provide although I understand that it can be a straightforward introduction to some topics of interest. I can either provide you with background research materials directly or with direction in finding such materials. I expect that coming to our office hours will become an important part of your archaeological background research processes. To give an example of what is meant by “context,” if your article is concerned with the ancient Maya, it would be appropriate to give a general overview of the Maya in terms of geography (where did the Maya live), time (when did the Mayan civilization exist?), and culture (describe basic aspects of Mayan civilization such as subsistence, social organization, settlements, etc.)

Article Presentations:
In your presentation, you should cover the following issues: 1) What is the purpose of the study? 2) What are the major research questions? 3) What methods were used? 4) What were the findings? 5) Major conclusions. 6) Do you have any problems with the study? It is always a good idea to include a map showing the location of
Google Earth is an excellent tool for this purpose (It can be downloaded for free: http://earth.google.com/). Also, it is a good idea to show actual figures from the study.

**Discussion Questions:**
After presenting the archaeological background and describing the relevant parts of the article, you are expected to lead a brief discussion of the article. In order to more effectively facilitate the discussion, you should prepare a list of questions about the article ahead of time. Please avoid questions regarding the details of the investigation as you should have covered the important one in your presentation of the article. Instead, focus on questions that insure that everyone understands how the methods employed in the article work, why those methods (as opposed to others) were employed, whether there are problems with the study, and what is broader significance of the study.

*A few more tips:* In my experience, many students struggle to lead class discussions largely due to inexperience with the material they are presenting. In formulating questions, there are a few types of questions that can always be posed:

1) Do the conclusions follow from the results? Could there be some other explanation for the identified patterning (or lack thereof)?
2) Could the methods used be applied to other types of questions or other archaeological contexts?
3) What is the broader significance of the study both for the field of archaeology and for contemporary issues?
4) Are there other types of information that could have been brought to bear on the questions asked?
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<tr>
<th>Date</th>
<th>Topic</th>
<th>Readings</th>
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<td>Week 1</td>
<td>Archaeology as science</td>
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<td>1/10 &amp; 1/12</td>
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<td>1/16</td>
<td>Martin Luther King, Jr. Equality Day</td>
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<td>Week 2</td>
<td>Dating Part I</td>
<td>Damon et al. 1989</td>
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<td>1/17 &amp; 1/19</td>
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<td>Mellars 2006</td>
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<td>Week 3</td>
<td>Dating Part II</td>
<td>Miller et al. 1999</td>
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<td>1/24 &amp; 1/26</td>
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<td>Waters et al. 2012</td>
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<td>Week 4</td>
<td>Zooarchaeology &amp; Diet:</td>
<td>Waguespack 2002</td>
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<td>1/31 &amp; 2/2</td>
<td>Guest Lecture: Nicole Waguespack</td>
<td>Zeder 2000</td>
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<td>Week 5</td>
<td>Stable Isotopes: Diet and related issues</td>
<td>Ambrose et al. 2003</td>
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<td>2/7 &amp; 2/9</td>
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<td>Lee-Thorp et al. 2010</td>
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<td>Week 6</td>
<td>February 14: Exam I</td>
<td>Toth 1985</td>
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<td>2/14 &amp; 2/16</td>
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<td>Smith 2010</td>
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<td>Week 7</td>
<td>Lithic Technology</td>
<td>Collerson and Weisler 2007</td>
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<td>2/21 &amp; 2/23</td>
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<td>English et al. 2001</td>
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<td>Week 8</td>
<td>Provenance: Trace elements, Sr isotopes, and other tools</td>
<td>Jones and Munson 2005</td>
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<td>2/28 &amp; 3/1</td>
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<td>Sandweiss et al. 2010</td>
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<td>Week 9</td>
<td>Remote sensing:</td>
<td>Green et al. 2010</td>
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<td>Week 10</td>
<td>Biomolecular archaeology</td>
<td>Bocquet-Appel and Naji 2006</td>
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<td>3/20 &amp; 3/22</td>
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<td>Gaither and Murphy 2012</td>
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<td>Week 11</td>
<td>Human skeletal analysis</td>
<td>Mayer 2002</td>
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<td>Week 12</td>
<td>April 3: Exam II</td>
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<td>4/3 &amp; 4/5</td>
<td>Movie: Neandertals on trial</td>
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<td>Week 13</td>
<td>Geoarchaeology</td>
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Week 14  Paleoeconomy  Hodell et al. 1995
4/17 & 4/19  Sandweiss et al. 2001

Week 15  Explaining the past: Models of human behavior  Hildebrandt and McGuire 2002
4/24 & 4/26  Broughton and Bayham 2003

Discussion Readings

Week 2, 1/19

Week 3, 1/26

Week 4, 2/2

Week 5, 2/9

Week 7, 2/23
Week 8, 3/1
Collerson, K. D. and M. I. Weisler
English, N. B., J. L. Betancourt, J. S. Dean and J. Quade

Week 9, 3/8
Jones, G. and G. Munson

Week 10, 3/22
Green, R. E. et al.

Week 11, 3/29
Bocquet-Appel, J.-P. and S. Naji
Gaither C. M., Murphy, M.S.

Week 13, 4/12
Mayer, J. H.
Surovell, T. A., J. B. Finely, G. H. Smith, P. J. Brantingham and R. L. Kelly

Week 14, 4/19
2001 Variation in Holocene El Niño frequencies: Climate records and cultural consequences in ancient Peru. Geology 29:603-606
Hodell, D. A., J. H. Curtis and M. Brenner

Week 15, 4/26
Hildebrandt, W. R. and K. R. McGuire
2002 The ascendance of hunting during the California Middle Archaic: An evolutionary perspective. American Antiquity 67:231-256.
Broughton, J. M. and F. E. Bayham