



Department of Anthropology
Advanced Analytical Techniques in Archaeology and Bioarchaeology
Anthropology 9104A
Fall 2018-19
Instructor: Andrew Nelson

Class time: Wednesdays 10:30-1:30
Classroom: SSC-2257

Instructor: Dr. Andrew Nelson
Email: anelson@uwo.ca
Office: Social Science Centre 3410
Office Hours: Mondays 11:00-noon
Wednesdays 2:00-3:00
or by appointment
Phone: 519-661-2111 x85101

Overview

The objective of this course is to explore how advanced analytical techniques are applied in archaeology, bioarchaeology and primatology. As such, the focus is not on any specific analytical technique per se. Rather, the course focuses on:

- the theoretical context and paradigm within which techniques are applied and results interpreted
- how such analysis must be done within the interdisciplinary context – including defining interdisciplinarity and exploring the factors that encourage and/or discourage interdisciplinary research
- and exploring the nature of collaboration, including issues of intellectual property
- topics of research that cross-cut the three areas of interest and appropriate analytical techniques for those topics

Course assignments will include ethnographic interviews of successful interdisciplinary scholars across campus, an analysis of how granting agencies shape research and a detailed paper exploring a particular analytical technique and its application that is relevant to the students' research.

Learning outcomes:

By the end of the course you should be able to:

- place your research into the broad realms of archaeology and biological anthropology
- interact with scholars in other fields as part of an interdisciplinary research program
- work with your peers in a collaborative framework
- understand the principles of a range of advanced analytical techniques and to identify how those techniques can be useful to your research

Evaluation:

Weekly reflection papers – 20%

Assignment #1 – interdisciplinary research teams – Oct 17th – 20%

Assignment #2 – due in December (date TBD) – 40%

Participation – 20%

Details of the Assignments:

Weekly assignments - write a 2 page reflection on the week's readings and two additional papers that you find. What is the key point of the readings? How are they relevant to you? Bring the paper to class.

Assignment #1 - Go and talk to a couple of researchers who works in the interdisciplinary context. Discuss what works and what doesn't. What are the benefits of working in the interdisciplinary context vs the disadvantages? Are they multi- inter- or transdisciplinary? Distill out the dos and don'ts of interdisciplinary research.

I will have some names to suggest as we approach this assignment.

Assignment #2 - Pick an analytical technique that could be useful to your research program. Write a paper on the basic science underlying the technique, how it has previously been used in the archaeological science or primatological context and how you could use it. Include a discussion of the costs involved in implementing the technique and likely sources for funding.

Both of the assignments will be presented and discussed as well as handed in for grading.

Western's Academic Policies:

All students should familiarize themselves with Western's current academic policies regarding accessibility, mental wellbeing, accommodation for medical illness, and plagiarism and scholastic offences. These policies are outlined with links to the full policies – [click here](#).

Weekly Discussion Topics and Example Readings

<u>Date</u>	<u>General Topic</u>	<u>Specific Topics</u>	<u>Example Readings</u> (see below for details)
Sept 12	Archaeological Science/ Conservation- Technical Art History	Archaeological Science or Scientific Archaeology? Is Primatology a Science?	Hermens 2012; Martín-Torres & Killick 2015; Radhakrishna & Jamieson 2019.
Sept 19	interdisciplinarity		Choi & Pak 2006 ; Malone et al. 2014 Stahl et al. 2004
Sept 26	collaboration / intellectual property		MacKinnon & Riley 2013; Nicholas & Bannister 2004
Oct 3	ethics how do granting agencies shape research programs?	ethics of conservation ethics of authentication	Clavir 2002 Sease 1997 NSERC – SSHRC strategic plans
Oct 10	reading break		
Oct 17	Assignment #1 discussion		
Oct 24	Imaging	CT/x-ray/ endoscopy/photography	Cox 2015; Pebsworth & LaFleur 2014.
Oct 31	Reconstruction of the environment	- paleoenvironment - modern environment	Nicholl 2004; Vogel et al. 2012
Nov 7	Reconstruction of life history variables		Castanet et al. 2004; Cheverko & Hubbe 2017
Nov 14	Reconstruction of health		MacIntosh et al. 2011; Webb et al. 2010
Nov 21	Reconstruction of diet		MacIntosh et al. 2011; Turner & Livengood, 2016;
Nov 28	Andrew at RSNA		
Dec 5	Assignment #2 discussion		

Example Readings:

- Carter, ML & Bradbury, MW. 2016. Oxygen isotope ratios in primate bone carbonate reflect amount of leaves and vertical stratification in the diet. American Journal of Primatology 78:1086–1097.
- Castanet, J, Croci1, S, Aujard, F, Perret, M, Cubo, J & de Margerie, E. 2004. Lines of arrested growth in bone and age estimation in a small primate: *Microcebus murinus*. Journal of the Zoological Society of London 263: 31-39.
- Cheverko, CM & Hubbe, M 2017. Comparisons of statistical techniques to assess age-related skeletal markers in bioarchaeology. American Journal of Physical Anthropology 163: 407-416.
- Choi, BCK & Pak, AWP. 2006. Multidisciplinarity, interdisciplinarity and transdisciplinarity in health research, services, education and policy: 1. Definitions, objectives, and evidence of effectiveness. Clinical Investigative Medicine 29: 351-364.
- Clavir, M. 2002. Preserving What is Valued; Museums, Conservation and First Nations (chapter 2 - Conservation values and ethics, pp: 26-66). UBC Press: Vancouver.
- Cox, SL. 2015. A critical look at mummy CT scanning. Anatomical Record 298: 1099-1110.
- Hemens, E. 2012. Technical art history: The synergy of art, conservation and science. In: M. Ramplay et al. eds., Art History and Visual Studies in Europe: Transnational Discourses and National Frameworks, Brill: London, pp: 151-165.
- MacIntosh, AJJ et al. 2011. Fractal analysis of behaviour in a wild primate: behavioural complexity in health and disease. Journal of the Royal Society Interface 8: 1497-1509.
- MacKinnon, KC & Riley, EP. 2013. Contemporary ethical issues in field primatology. In: J.MacClancy & A. Fuentes, eds., Ethics in the Field: Contemporary Challenges, Berghahn Books: New York, pp: 98-107.
- Malone, N et al. 2014. Ethnoprimateology: Critical interdisciplinarity and multispecies approaches in anthropology. Critique of Anthropology 34: 8-29.
- Martinón Torres, M & Killick, D. 2015. Archaeological theories and archaeological sciences. In: A Gardner et al. eds., The Oxford Handbook of Archaeological Theory, Oxford Handbooks Online, Oxford University Press: Oxford, DOI: 10.1093/oxfordhb/9780199567942.013.004 f
- Nicholas, GP & Bannister, KP. 2004. Copywriting the past? Current Anthropology 45: 327-350.
- Nicholl, K. 2004. Recent environmental change and prehistoric human activity in Egypt and Northern Sudan. Quaternary Science Reviews: 561-580.

Pebsworth, PA & LaFleur, M. 2014. Advancing primate research and conservation through the use of camera traps: Introduction to the special issue. International Journal of Primatology 35: 825-840.

Radhakrinsha, S. & Jamieson, D. 2018. Liberating primatology. Journal of Bioscience 43: 3-8.

Sease, C. 1997. Conservation and the antiquities trade. Journal of the American Institute for Conservation 36: 49-58.

Stahl, A et al. 2004. Writing for Many: interdisciplinary communication, constructionism, and the practices of writing. Historical Archaeology 38: 83–102.

Turner, BL & Livengood, SV 2016. Methods for reconstructing diet. In J. Chrzan & JA.Brett, eds., Food Research : Nutritional Anthropology and Archaeological Methods, Berghahn Books Inc: New York, pp: 159-181.

Vogel, ER et al. 2012. A noninvasive method for estimating nitrogen balance in free-ranging primates. International Journal of Primatology 33: 567-587.

Webb, E, et al. 2010. Cortisol in archaeological hair as a biomarker for stress. Journal of Archaeological Science 37 (4): 807-812.