Department of Anthropology

Anthropology 3336F: Topics in Human Evolution

Course Outline

Fall 2016

"My only ambition in life is to become part of the fossil record."

Instructor:	Dr. Andrew Nelson
Email:	anelson@uwo.ca
Office:	Social Science Centre 3215
Office Hours:	Tuesdays 12:30-1:30 and Thursdays 10:00-12:00
Phone:	519-661-2111 x 85101
Time:	Tuesdays 9:30-12:30
Place:	Social Sciences Centre Room 2257

Credit Value: 0.5

Prerequisite: Anthropology 2226A/B and registration in year 3 or 4 in any Anthropology module.
Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may 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.

Course Description

This course provides an overview of the fossil evidence for human evolution as a background for the critical examination of controversies in the field. Areas to be explored include human taxonomy, the evolution of human behaviour and the origin of modern humans.

Learning Outcomes

Upon successful completion of this course, students will be able to:

- understand and explain how evolution has shaped the human species
- critically evaluate the information presented and conclusions reached in scientific and popular literature concerning human evolution
- analyze and synthesize the evidence and arguments presented in current and controversial areas in human evolution, and…
- effectively communicate that evidence and those arguments in both written and oral forms, following the norms of professional biological anthropologists

Text Book

Klein, R.G. 2009. The Human Career. Human Biological and Cultural Origins. 3rd edition
University of Chicago Press: Chicago.

Grading

- exam at the end of the first portion - 20% (short answer format) – October 11th
- 3 short (3 page) annotated readings assignments – 15% (5% each) – due October 25th, November 8th and November 22nd
- a 3500 word paper research paper - 40% - due December 8th (by 4pm to OWL)
- 10 to 15 minute oral conference presentation - 15%
- class participation - 10%
- there is no final exam

The class participation grade will be assigned on the basis of attendance and thoughtful participation in classroom discussions.

Course Synopsis

This course will be divided into two portions. The first will provide a general overview of the hominid fossil record and will cover concepts such as species identification in the fossil record, taphonomy and fossil context (including principles of dating and environmental reconstruction). An exam will follow the completion of the first half of the course. The second portion of the course will be organized as lecture/discussion sections that will examine in detail three areas in hominid evolution that are current and controversial. *Students will be expected to have done the readings from the text and to have prepared their reading assignments in order to be prepared to critically discuss the material in class*.

Controversy 1) The Origin of the Hominins - the Miocene and Pliocene

The Hominins probably first appeared during the late Miocene. Genetic and morphological analysis of old and newly discovered fossils has radically changed our thinking about the Miocene and Pliocene Epochs and how natural selection acted on our ancestors and close relatives during that time. In particular, what was once understood to be a fairly orderly linear sequence of *[hypothesized Miocene hominid] > [primitive australopithecines] > [gracile australopithecines] > [early Homo]* has transformed into a decidedly branchy mess of many genera and myriad species. All of these new taxa drive people who like things simple, crazy! – but from an evolutionary perspective the increasingly complex pattern reflects a tremendously exciting time in our evolution where natural selection was "experimenting" with the very elements that separate us from our closest primate ancestors. Those elements include brain size, tool use, bipedalism and other traits long thought to be the hallmarks of "humanity". All in all a pretty exciting time period!

Controversy 2) Early *Homo* and the expansion (both geographic and number of species) of the genus *Homo*

We are the only surviving members of the genus *Homo*. For a very long time, it was firmly believed that there was ever only a single species of *Homo* living at any given time period, with a gradual line of increasing brain size and behavioural complexity marking the transition from *Homo habilis,* through a couple of intermediates, to *Homo sapiens* (us). But, like the Pliocene, the new discoveries and new analyses of material from the Pleistocene Epoch have recently tossed that simplistic idea onto the trash heap of science. Now our genus includes "hobbits", Denisovans and other fascinating characters. One of the most recent members of our genus, *Homo naledi*, has also been part of a revolution of how we communicate about paleoanthropological research. Members of this particular expedition were recruited via social media and results were announced in open access journals and web sites, rather than in the hallowed halls of academic conferences and high impact journals (see http://blog.castac.org/2015/10/cave-to-rave/). Fast moving, big picture stuff!

Controversy 3) The origin of modern *Homo sapiens*.

There have long been two fundamentally opposed points of view with reference to the origin of anatomically modern *Homo sapiens*: 1) multiple origins, smoothly evolving in parallel from *H. erectus* in each major area of the Old World (Africa, Europe and Asia) and 2) single origin from a *H. erectus* form that took place in Africa only, with subsequent movement into Europe and Asia replacing the more archaic forms in those areas. Some of the finds referred to in section two (particularly the "hobbits" and Denisovans) have complicated that picture, as have increasingly detailed genetic analyses of the genomes of Neandertals and early *Homo sapiens*. It is in this time period that the interactions and agreements/disagreements between genetic and morphological data sets lead to some fascinating debates. Ultimately, this time period is where the action is in terms of the evolution of *us*, and how and why we came to be the last hominin standing. Who can't get excited about that?!

Lecture Outline and Reading Assignments

September 13	- course introduction - general discussion of research in hominin paleontology - critical concepts in evolutionary theory	Klein – preface, chapters 1 & 8
September 20	- the Pliocene - australopithecines - *Homo habilis*	Klein - chapter 4
September 27	- the Pleistocene - *Homo erectus* - Neandertals - anatomically modern *Homo sapiens*	Klein - chapters 5, 6, 7
October 4	- methods of analysis in paleobiology - wrap up of the outlines of hominid evolution	Klein - chapter 8
October 11	- midterm exam	
October 18/25	- Origin of the Hominids - Miocene and Pliocene	Klein - chapters 3 & 4 additional links to be provided on Owl
November 1/8	- Origins of the genus *Homo* - spread of *Homo* from Africa	Klein - chapters 4 & 5 additional links to be provided on Owl
November 15/22	- Origin of modern *Homo sapiens*	Klein - chapters 6, 7 & 8 additional links to be provided on Owl
November 29	- Annual UWO Conference on Hominid Paleontology: Part I - early hominids & genus *Homo* I	
December 6	- Annual UWO Conference on Hominid Paleontology: Part II - genus *Homo* II & Origins of moderns	

- Papers are due on December 8th by 4:00pm (to the OWL site)
- late submissions for all assignments will be assessed a penalty of 5%/day
- Note: there is no final exam

Assignments

The three short annotated readings assignments will require students to find three references that are relevant to the controversies discussed in the second half of the course (that are different from the ones that will be provided on OWL). The references must come from valid academic sources (e.g. not any old web site) and be related to each other in some way. The assignment is to do a short synopsis of the three references and how they relate to the controversy in 3 double spaced pages. These are due on October 25th, November 8th and November 22nd. Suggestions for relevant articles will be made in class.

Topics for the research presentations/papers must be related to the themes of the controversies and will be selected *in consultation with the instructor*. Students will initially prepare a 10 or 15 minute oral summary of the topic that will be presented during the last two weeks of class. The oral summaries will be presented conference-style (to the Annual UWO Conference on Hominid Paleontology). In addition, they will present their research in a 3500 word paper following the *American Journal of Physical Anthropology* style guide: (http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1096-8644/homepage/ForAuthors.html).

Electronic Devices

Computers may be used in class for the purpose of taking notes. They cannot be used during exams.

Western's Academic Policies

All students should familiarize themselves with Western's current academic policies regarding accessibility, plagiarism and scholastic offences, and medical accommodation. These policies are outlined with links to the full policies at http://anthropology.uwo.ca/undergraduate/course_information/academic_policies.html