SCIE 638: Modern Human Origins, Summer 2011

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Description

What does it mean to be human? This is a question critical to the study of modern human origins - the answer influences our interpretations of the fossil and archaeological records. How we define our species, how we ask that important question, differs from one scientific field to the next. Paleontologists, archeologists, and molecular biologists are all currently working on the problem of how, when, and where the human species arose. We will explore this issue by examining of recent debates over the role of culture in non-humans, the fossil record of extinct humans, such as the "Hobbit" people of Flores, Indonesia *Homo floresiensis*) and the Neanderthals, and the changing perspectives offered by research in molecular genetics.

Course readings consist of selected journal articles and book chapters. Course work includes participation in discussions of weekly readings, and a term paper on a relevant subject matter, chosen in consultation with the instructor, and divided into several scaffolded assignments.

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How to Get a Good Grade in this Course

The primary goal of this course is to learn about and critically evaluate theories of the origins of modern humans. To get a good grade in this course, you should work on honing three important skills:

1. Reading critically
2. Analyzing ideas and arguments
3. Writing and reasoning effectively

…and then you should demonstrate your efforts in class discussions and assignments.

Since you may be new to reading this type of material, I'm going to work to help you read them in such a way as to be able to analyze the author's ideas and critically evaluate their arguments. This isn't rocket-science and you don't already need a degree in anthropology, biology, or whatever, to do this.

When you're reading, you should be considering the following:

- What's the major theme of the article?
- What is the problem or issue that is being addressed? Try to state it explicitly (sometimes authors don't do this themselves!).

- What is the history of the issue? Does the author explain that? Sometimes, because of the brevity required by a journal, authors briefly skim over this part, referring only to past work by citations to published work, but without much explanation. Don't worry, I'll explain that stuff in class, if need be. Feel free to consult Wikipedia when learning new concepts.
- What new data or new analysis does the author bring to bear on the issue?
- Do the methods make sense? Even if you don't understand the methodology, skim through it, then cut to the end and read the conclusions. Sometimes, the conclusions are so fascinating (or irritating, or incredible) that you actually are then more interested in reading the methods section in greater detail.
- Don't freak out if it gets mathematical or complicated, such as going into detail about anatomy or lab protocols. Just skim that and keep going. When you've read it once, go back over those difficult parts.
- Common sense does matter! If you cannot make sense of the argument, maybe that says something about the work. Trust your instincts.

I consider this course to be, in part, a learning experience for research writing. As such, I want to give you a chance to learn about doing research (library research, not primary research. Therefore, I require you to turn in an early draft of your research paper by July 21st. This is so that I can give you some support on improving your work and writing.

Papers are graded as an average of a score (out of 100 points) for quality of research and argument, and the score (out of 100 points) for effectiveness of writing. You should refer to standard reference works like Turabian, KL (2007) A Manual for Writers of Term Papers, Theses, and Dissertations. 7th edition. Chicago: University of Chicago Press (Wesleyan library catalog # LB2369.T8 2007). For style of citations and the like, please use the "Guide for Authors" of the *American Journal of Physical Anthropology*.

The scaffolded assignments leading to and including the final draft of the research paper is 50% of your final grade, participation (divided between reading responses and in-class participation) is 45%, and the presentation of your research is 5%.

Readings

The readings are available in Portable Document Format (PDF) in Moodle. You can view and print the PDFs using the free Adobe Reader . I expect that you will print them out and mark/highlight/comment on them while you read OR do something digitally equivalent, and bring your notes to class to help you during the discussions. They will not be available on Reserve in the Library, unless there's some tragedy that prevents us from accessing the online environment.

Date	Topic	Readings
July 5	Introduction to the subject and background	Gibbons, A (2011) A new view of the birth of Homo sapiens. Science 331 (6016): 391-394. Popper, K. 1963. Science as falsification. Conjectures and refutations. London: Routledge and Keagan Paul, pp. 33-39. Ward, C (2003) The evolution of human origins. American Anthropologist, ns 105(1):77-88. Wolpoff, MH and Hawkes, J (2003) Sixty years of modern human origins in the American Anthropological Association. American Anthropologist, ns 105(1):89-100. Wood, B (2010) Reconstructing human evolution: Achievements, challenges, and opportunities. Proceedings of the National Academic of Sciences 107, suppl. 2: 8902-8909.
July 7	Systematics, the Species Problem & Race	Hey, J, Fitch, WM, and Ayala, FJ (2005) Systematics and the origin of species: an introduction. Proceedings of the National Academic of Sciences 107, suppl. 1: 6515-6519. Nature News Feature (2008) Disputed definitions. Nature 455:1023-1028. Parsons, J and Wand, Y (2008) A question of class. Nature 455:1040-1041. Patten, MA (2009) "Subspecies" and "race" should not be used as synonyms. Nature 457:147 Eback, MC and Williams, DM (2009) How objective is a definition of the subspecies debate? Nature 457:785..
July 12	Culture & Archaeology	Goldstein, LJ. 1957. On defining culture. American Anthropologist 57:1075-1081. Palmer, CT, Coe, K, Reed, L, McNabb, J (2005) On tools and traditions. Current Anthropology 46(3):459-463. Watson, PJ. 1995. Archaeology, anthropology, and the culture concept. American Anthropologist (n.s.) 97:683-694.
July 14	The Evolution of the genus *Homo;* The models: Out of Africa vs. Regional	Norton, CJ and Jin, J (2009) The evolution of modern human behavior in East Asia: Current perspectives. Evolutionary Anthropology 18(6):

	Continuity	247-260. Stringer, C (2002) Modern human origins: progress and prospects. Philosophical Transactions of the Royal Society of London, B 357:563-579. Tattersall, I and Schwartz, J (2009) Evolution of the genus Homo. Annual Review of Earth and Planetary Sciences 37: 67-92. Wolpoff, MH, Hawkes, J, Caspari, R (2000) Multiregional, not multiple origins. American Journal of Physical Anthropology 112:129-136.
July 19	*Homo floresiensis*	Argue, D, Donlon, D, Groves, C, & Wright, R (2006) *Homo floresiensis*: Microcephalic, pygmoid, *Australopithecus*, or *Homo*? Journal of Human Evolution: 51: 360-374. Lyras, GA, Dermitzakis, MD, Van der Geer, AAE, Van der Geer, SB, De Vos, J (2009) The origin of *Homo floresiensis* and its relation to evolutionary processes under isolation. Anthropological Science: 117(1): 33-43. Moore, MW and Brumm, A (2009) Homo floresiensis and the African Oldowan. Vertebrate Paleobiology and Paleoanthropology 2009:61-69.
July 21	Archaics, Neanderthals, and Moderns	Brauer, G (2008) The origin of modern anatomy: by speciation of intraspecific evolution? Evolutionary Anthropology 17:22-37. Soffer, O (2009) Defining modernity, establishing rubicons, imagining the Other—and the Neanderthal enigma. Sourcebook of Paleolithic Transitions 1:43-64. Walker, MJ *et al.* (in press) The excavation of buried articulated Neanderthal skeletons at Sima de las Palmos (Murcia, SE Spain). Quaternary International. Weaver, T (2009) The meaning of Neandertal skeletal morphology. Proceedings of the National Academy of Sciences 106(38): 16028-16033.
July 26	Modern Behavior: Tools, Art, Symbolism, Subsistence, etc.	Hoffecker, JF (2011) The early upper Paleolithic of eastern Europe reconsidered. Evolutionary Anthropology 20(1):24-39. Kuhn, SL and Stiner, MC (2006) What's a mother to do? The division of labor among Neanderthals and modern humans in Eurasia. Current Anthropology 47(6): 953-981. Mellars, P (2005) The impossible coincidence. A

		single-species model for the origins of modern human behavior in Europe. Evolutionary Anthropology 14:12-27. Shea, JJ. (2001) The Middle Paleolithic: early modern humans and Neanderthals in the Levant. Near Eastern Archaeology 64: 38-64. Wynn, T and Coolidge, R (2008) Why not cognition? Current Anthropology 49(5): 895-897.
July 28	Genomes, Gene Flow, and Geography: Modern & Ancient DNA	Green, RE *et al.* (2010) A draft sequence of the Neanderthal genome. Science 328(5979): 710-722. Hewitt, G (2000) The genetic legacy of the Quaternary ice ages. Nature 405:907-913. Reich, D *et a.* (2010) Genetic history of an archaic hominin group from Denisova Cave in Siberia. Nature 468:1053-1060. Templeton, AR (2007) Genetics and recent human evolution. Evolution 61(7):1507-1519.
Aug 2	Hybridization and Extinction	Banks, WE *et al.* (2008) Neanderthal extinction by competitive exclusion. PLoS ONE 3(12): 1-8. Currat M, Excoffier L (2004) Modern Humans Did Not Admix with Neanderthals during Their Range Expansion into Europe. PLoS Biol 2(12): 2264-2274. Delson, E and Harvati, K (2006) Return of the last Neanderthal. Nature 443:762-763. Garrigan, D and Kingan, SB (2007) Archaic human admixture: a view from the genome. Current Anthropology 48(6): 895-902. Trinkhaus, E (2007) European early modern humans and the fate of the Neanderthals. Proceedings of the National Academic of Sciences 104(18): 7367-72372.
Aug 4	Student Presentations	

A Partial Listing of Relevant Journals

American Journal of Human Genetics
American Journal of Physical Anthropology
Annual Review of Anthropology
Annual Review of Earth and Planetary Sciences
Anthropological Research
American Scientist
Current Anthropology
Current Opinion in Genetics and Development
Evolution
Evolutionary Anthropology
Human Biology
Human Genetics

Journal of Anthropological Research
Journal of Archaeological Science
Journal of Human Evolution
Journal of Molecular Evolution
Molecular Biology and Evolution
Nature
Near East Archaeology
Proceedings of the National Academy of Sciences
Public Library of Science
Quaternary International
Science
Sourcebook of Paleolithic Transitions

Ideas for Paper Topics (just suggestions....)

The Advent of Art
The Advent of Personal Adornment
The Advent of Symbolic Behavior
The Fate of the Neanderthals
The Fate of the Flores Hominines
Palaeolithic Evidence for the Evolution of Childhood
Climatic Limitations and/or Stimuli in Human Evolution
Is *Homo floresiensis* an example of island dwarfism?
Archaic Human Migrations
mtDNA versus nuclear DNA evidence for Modern Human Origins
[Genetic Marker] Evolution in Archaic and/or Modern Humans
The Role of Population Bottlenecks in Modern Human Evolution
The Origins of Modern Human Diversity
The Origins of Language
The Origins of Symbolic Behavior
The Evolutionary Adaptiveness of Symbolic Behavior
The Race Concept in Paleoanthropological Research
The Species Concept in Palaeoanthropological Research
Gene Flow: Evidence in the Fossil and Archaeological Records
The Effects of Population Size on Archaic and Modern Human Evolution
Paradigm Shifts in Studies of the Origins of Modern Humans
Mortality Patterns in Neanderthals and/or Upper Palaeolithic Populations
Cultural Transmission in the Middle and/or Upper Palaeolithic
Evidence of Cognition in the Archaic Humans
How do we assess cognitive abilities from the archaeological record?
Did Neanderthals Practice Cannibalism?
Cold Adaptations in Neanderthals
Middle to Upper Palaeolithic Cultural Variability
Archaeological Evidence for Neanderthal and Anatomically Modern Human Interactions
Archaeological Evidence for *H. florensis* and Anatomically Modern Human Interactions
The Evidence for Modern Human Evolution in Australia
The Evidence for Modern Human Evolution in Asia
The Evidence for Modern Human Evolution in Northern China
The Evidence for Modern Human Evolution in Siberia
The Evidence for Modern Human Evolution in Southeast Asia

The Evidence for Modern Human Evolution in the Levant
The Evidence for Modern Human Evolution in the Near East
The Evidence for Modern Human Evolution in Africa
The Evidence for Modern Human Evolution in Eastern Europe
The Evidence for Modern Human Evolution in Western Europe
Did Neanderthal and Anatomically Modern Human Interbreed (and produce viable offspring)?