Anthropology 391:B1

Winter 2013 **HOMINID EVOLUTION** **Dr. Pamela Willoughby**

Office hours: Wednesdays 12:00 to 12:50 pm and Fridays 9:00 to 10:00 am or by prior appointment.

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Class meets M W F from 11:00-11:50 in Tory 3-65

E-class site: An E-class page has been set up for this course. It will contain the course outline, PDF versions of the lecture notes / power point presentations, sample exam questions and a link to the course web site. Access this through the University of Alberta home page, http://www.ualberta.ca.

The **original course web site** is available at:
http://www.artsrn.ualberta.ca/pwilloug/anthro391.htm or through the E-class site.

Introduction

This course is a survey of the fossil evidence for human evolution through the examination of the operating world of the palaeoanthropologist in the 21st century. It focuses on the Tribe Hominini (=hominins) and the Family Hominidae (apes and humans= hominids). After a brief general review, the first part of the course will deal with Ahuman origins@ taken literally. What evidence is there for the initial appearance of members of the Family Hominidae, in what contexts, and what conclusions have and can be drawn from it? This will include a detailed examination of Miocene apes, the australopithecines, and early members of the genus *Homo*. Then the problem of rates of evolution within the hominid group will be examined, using *Homo erectus* as a focus. The last part of the course will deal with the recent controversy over the origins of anatomically modern humans (*Homo sapiens*). Fossil evidence, molecular data and other relevant sources of information will be examined for each problem, along with models for causation and their behavioural implications.

Course prerequisite: Anthropology 209 is the prerequisite for this course, but consent of the instructor is possible for those who lack this course but have sufficient background in palaeontology or zoology.

This course can count as a COMPLEMENTARY course for the MEAS (Middle East and African Studies) programme. Students wishing to have this course count for a MEAS degree or Certificate MUST complete a minimum of 50% of their assigned/evaluated work on topics dealing with the Middle East and/or Africa.

Course requirements

The grades for the course are based on the following assignments and examinations.

Assignment	**Weight**	**Date Due**
Short written problem	20%	Friday February 1 in class period
Midterm examination	20%	Friday February 15
Term paper	30%	Monday April 8 in class period
Final examination	30%	Friday April 19 from 9:00 to 11:00 a.m. as scheduled in the final exam period

Exams will be based on all required readings, lectures and films. They will have a mixture of questions: multiple choice, identifications and short essays.

For the short problem, read two of the ten reserve articles discussing models of hominid origins. Describe the model presented, and critique it. See below for more information.

Term paper topics can deal with any aspect of hominid evolution, but must be problem-oriented. The paper should be 10-15 pages long and the topic must be approved in advance by the instructor. See below for more details.

Grading

At the end of the term, each student's cumulative mark (out of 100%) will be converted to a final grade on the letter grade scale. Here is a distribution on how final grades will be determined.

Percentage range	**Letter Grade**	**Descriptor**
95 to 100%	A+	Excellent
90 to 94%	A	
85 to 89%	A-	
80 to 84%	B+	Good
75 to 79%	B	
70 to 74%	B-	
67 to 69%	C+	Satisfactory
64 to 66%	C	
60 to 63%	C-	
55 to 59%	D+	Poor
50 to 55%	D	Minimum Pass
0 to 49%	F	Fail

Required Text

Klein, Richard G.
2009 *The Human Career*, 3rd edition. Chicago: University of Chicago Press.

General University Course Regulations

(A) "Policy about course outlines can be found in Section 23.4(2) of the University Calendar".

(B) Academic integrity: "The University of Alberta is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic dishonesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Code of Student Behaviour (online at http://www.governance.ualberta.ca/en/CodesofConductandResidenceCommunityStandards/CodeofStudentBehaviour.aspx) and avoid any behaviour which could potentially results in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offense. Academic dishonesty if a serious offence and can result in suspension or expulsion from the University".

(C) Learning and Work Environment. The Faculty of Arts is committed to ensuring that all students, faculty and staff are able to work and study in an environment that is safe and free from discrimination and harassment. It does not tolerate behaviour that undermines that environment. The department urges anyone who feels that this policy is being violated to:

- Discuss this matter with the person whose behaviour is causing concern; or
- If that discussion is unsatisfactory, or there is concern that direct discussion is inappropriate or threatening, discuss it with the Chair of the Department.

For additional advice or assistance regarding this policy you may contact the Student Ombudservice (http://www.ombudservice.ualberta.ca). Information about the University of Alberta Discrimination and Harassment Policy and Procedures can be found in the GFC Policy Manual, section 44 available at http://gfcpolicymanual.ualberta.ca.

(D) Plagiarism and Cheating: All students should consult the "Truth-In-Education handbook or Website (http://www.uofaweb.ualberta.ca/TIE) regarding the definitions of plagiarism and its consequences when detected. Students involved in language courses and translation courses should be aware that on-line "translation engines" produce very dubious and unreliable "translations". Students in language course should be aware that, while seeking the advice of native or expert speakers is often helpful, excessive editorial and creative help in assignments is considered a form of "cheating" that violates the code of student conduct with direct consequences. An instructor or coordinator who convinced that a student has handed in work that he or she could not possibly reproduce without outside assistance is obliged, out of consideration of fairness to other students, to report the case to the Associate Dean of the Faculty. Before unpleasantness occurs consult

http://www.uofaweb.ualberta.ca/TIE; also discuss this matter with any tutor(s) and with your instructor.

(E) Recording of lectures: Audio or video recording of lectures, labs, seminars or any other teaching environment by students is allowed only with the prior written consent of the instructor or as part of an approved accommodation plan. Recorded material is to be used solely for personal study, and is not to be used or distributed for any other purpose without prior written consent from the instructor.

(F) Specialized Support and Disability Services. Students who require accommodations due to a disability affecting mobility, vision, hearing, learning of mental or physical health are advised to discuss their needs with Specialized Support and Disability Services, 2-800 SUB, 492-3381 (telephone) or 492-7269 (TTY). More details are available at http://www.ssds.ualberta.ca.

Readings for the short problem (Links to these are available on the E-class site).

Coppens, Y.
1994 East side story: the origin of humankind. *Scientific American* 270(5): 88-95.

Foley, R. A. and P. C. Lee
1989 Finite social space, evolutionary pathways, and reconstructing hominid behavior. *Science* 243(4893): 901-906.

Jolly, C.
1970 The seed eaters: a new model of hominid differentiation based on a baboon analogy. *Man* 5: 5-26.

Lovejoy, O.
1981 The origin of man. *Science* 211(4480): 341-350.

2009 Reexamining human origins in light of *Ardipithecus ramidus*. *Science* 326(5949): 74e1-74e8.

Stanley, S.
1992 An ecological theory for the origin of *Homo*. *Paleobiology* 18(3): 237-257.

Thorpe, S. K. S., R. L. Holder, and R. H. Crompton
2007 Origin of human bipedalism as an adaptation for locomotion on flexible branches. *Science* 316(5829): 1328-1331.

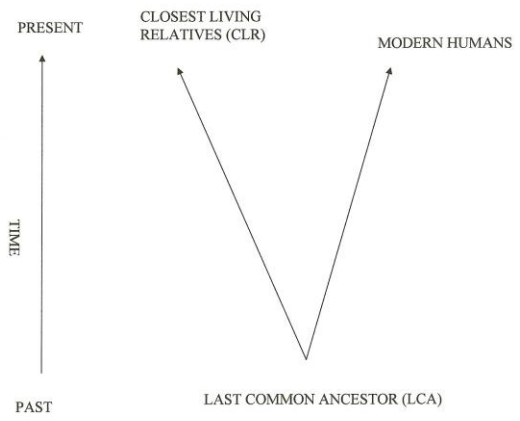
Vrba, E.
1993 The pulse that produced us. *Natural History* 102(5): 47-51.

Short written problem

To familiarize yourself with changing views on hominin origins, read any **two** of the eight readings on models listed above: Coppens (1994), Foley and Lee (1989), Jolly (1970), Lovejoy (1981 and/or 2009), Stanley (1992), Thorpe et al. (2007) or Vrba (1993). In this assignment, you are required to describe each model and critique it using the following example as a guideline.

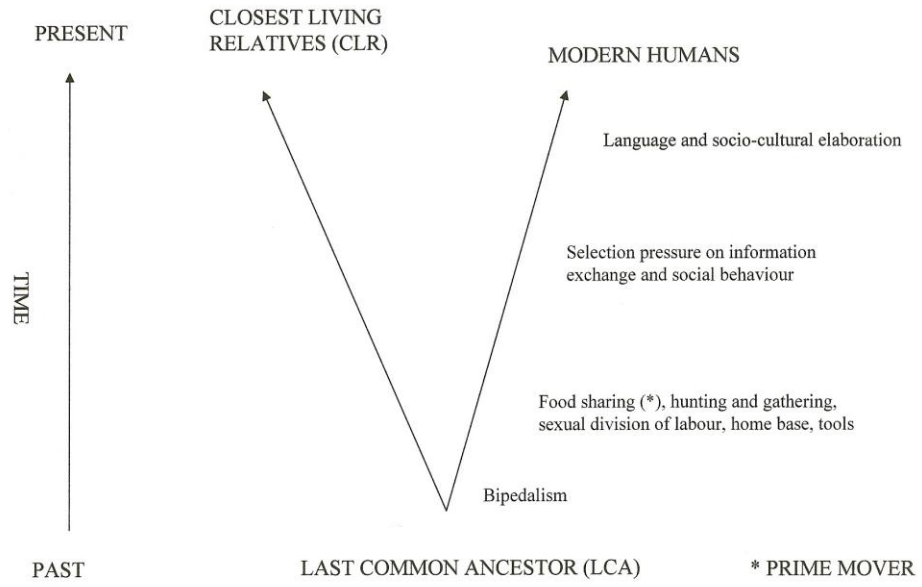
For each of the two articles you choose: (1) Determine if the model offers a theory about the origin of the first hominins (about 5 to 6 million years ago) or about the origin of the genus *Homo* (around 2.5 million years ago).

(2) Construct a separate chart for each model showing two lines connecting modern humans and their closest living relatives (usually viewed as African apes) with their hypothetical last common ancestor. For example:



(3) Then add some details. On the line from the last common ancestor to modern humans, list the features described in your article, including the prime mover or movers (*) which is/are proposed to cause the transition to hominins or to *Homo* to occur. List them in order of when they appear, i.e. note which is a cause and which is an outcome of the initial change. Put the first change or innovation on the bottom and work up to the modern situation. There should be one chart per article in your assignment.

An example: Glynn Isaac's food sharing model. The food sharing behaviour of protohuman hominids. *Scientific American* 238(4): 90-108 (1978). It deals with the origins of archaeological sites and the genus *Homo* around 2.5 million years ago, rather than with the beginnings of hominins.



(4) When you have constructed your chart, describe in your own words the ideas of the author you read, in about 2 paragraphs, double spaced. Also compare and contrast the ideas of the two authors.

(5) Then, in one or two more paragraphs, critique the model. What evidence if there for and against the model; do you feel the model adequately explains what happened in hominid evolution, and why?

****This assignment is due in class on Friday February 1**.**

Term paper guidelines

The term paper should be from 10 to 15 pages long, double spaced, and deal with some aspect of hominid or hominin evolution (i.e. from the Miocene to present). Any topic covered in the lectures or readings will be appropriate, but you should try to take a critical stance: stress the changing views or reasons for the arguments you report. Please see the instructor when you have a topic in mind, as I may be able to give you some direction, as well as other references.

Possible Topics:

(1) space/time problems:

- Analysis of hominin remains from a particular site, describing the site, its age, and contents
- Discussion of how sites are located and prospected; why are some areas more important than others

- Environmental reconstruction using faunal and floral remains-this can be done for a specific site or region
- The entry of hominids into temperate and cold climates: *Homo erectus* or archaic *Homo sapiens*?

(2) Taphonomic questions

- The creation of hominin sites; who or what is responsible for bone and stone accumulations (=sites)? e.g. early hominins as hunters or hunted (see Brain 1981)
- Cannibalism. When and where? What kind of evidence is needed to prove that people ate people?
- The beginnings of intentional burials

(3) Using _____ to develop models of hominin origins; what evidence it provides, and how this is interpreted.

- Molecular/biochemical evidence
- Primate behaviour field studies
- Anatomical/morphological studies of apes and humans
- Cultural information/archaeological research
- Modern hunter-gatherer ethnography

(4) Changing views on:

- Miocene apes and hominins: *Ramapithecus* and human origins, *Sivapithecus* or *Dryopithecus* as the best model for a last common ancestor with African apes, status of Miocene fossil remains
- Does the late Miocene see the origin of humans?
- *Sahelanthropus* - human or ape?
- Bipedalism-is it a uniquely human adaptation?
- Relation of australopithecines to *Homo*
- Piltdown as a model of early hominid form
- Neanderthals and modern humans
- Mitochondrial "Eve" and the origins of anatomically modern humans
- Application of genetic data to the hominid trichotomy (phylogenetic relationships of gorillas, chimpanzees and humans)
- The differences between the biological and cultural appearance of modern *Homo sapiens*

(5) Taxonomic problems

- Cladistic analysis
- Species and speciation among hominins
- The need for new basal hominin species, *Ardipithecus ramidus*, *Australopithecus anamensis* or *Orrorin tugenensis*
- The relationship of *Australopithecus afarensis* to *Australopithecus africanus*
- What is *Kenyanthropus platyops* and how does it relate to early hominins?

- *Homo habilis* versus *Homo rudolfensis*
- *Homo erectus* versus *Homo ergaster*
- The duration and distribution of *Homo erectus*
- *Homo antecessor* as the European founding species?
- Neanderthals versus modern humans: subspecies or separate species?
- Should the great apes be part of Family Hominidae?
- What is a hominin?

(6) Theories

- Concerning the origin of hominins, bipedalism
- Relating to the epistemology of human evolution studies
- Concerning adaptations of late Miocene and early Pliocene bipedal hominins
- Concerning the pace of hominin evolution (punctuated equilibria versus phyletic gradualism)
- Concerning modern human origins: multiregionalism, replacement, replacement with hybridization, etc.

****The term paper is due by Wednesday April 8 in the class period**.**

Note: Remember to underline or italicize genus, species and subspecies names. For example, *Homo*, *Homo erectus*, *Homo sapiens sapiens*, but Hominini, Hominidae, Hominoidea, etc.

References. All anthropology papers must be in the style of the *American Anthropologist* or the *American Journal of Physical Anthropology*. References are presented whenever you discuss someone else's work or quote them directly. Use primary journal articles first (articles where the author reports original research results), or chapters in edited books. Try to avoid text books, and only use web sites when essential to your discussion. Use databases like Anthropology Plus and Google Scholar to discover articles by the people whose research you want to discuss.

(Brain 1981:100)

(Johanson, White and Coppens 1978:12) OR (Johanson et al. 1978:12)

↑ author(s) ↑ year of publication ↑ page number

This is the method of footnoting in anthropology. All cited references must appear at the end of your paper as a bibliography in alphabetical order.

(a) for a book:

Brain, C. K.
1981 *The Hunters or the Hunted?* Chicago: University of Chicago Press.

(b) for a journal article:

Johanson, D. C., T. D. White and Y. Coppens
1978 A new species of the genus *Australopithecus* (Primates: Hominidae) from the Pliocene of Eastern Africa. *Kirtlandia* 28: 1-14.

Pilbeam, D. R.
1986 Hominoid evolution and hominoid origins. *American Anthropologist* 88(2): 295-312.

(c) for an article in an edited book:

Rightmire, P. G.
1985 The tempo of change in the evolution of mid-Pleistocene *Homo*. In E. Delson, editor, *Ancestors: the Hard Evidence*. New York: Liss, pp. 255-264.

Anthropology 391:B1 schedule

Week	**Dates**	**Topic**	**Required readings**
1	M January 7 W 9 F 11	Introduction “	Klein chapters 1 and 2
2	M 14 W 16 F 18	“ “ “	
3	M 21 W 23 F 25	Miocene apes “ “	Klein chapter 3
4	M 28 W 30 F February 1	Hominin origins: theories and palaeontological evidence ****short written problem due****	2 theory papers: Coppens, Foley + Lee, Jolly, Lovejoy (either or both), Stanley, Thorpe et al. and Vrba
5	M. 4 W 6 F 8	Miocene and early Pliocene hominins “	Klein chapter 4
6	M 11 W 13 F 15	“ “ ****midterm examination****	“

	M 18 W 20 F 22	Reading week: no classes	
7	M 25 W 27 F March 1	Plio-Pleistocene hominins “ “	Klein chapter 5
8	M 4 W 6 F 8	“ *Homo erectus* “	 “
9	M 11 W 13 F 15	“ Archaic *Homo sapiens/Homo heidelbergensis*	 “
10	M 18 W 20 F 23	Neanderthals “ “	Klein chapter 6
11	M 25 W 27 F 29	Modern human origins “ **Good Friday – no class**	Klein chapter 7
12	M April 1 W 3 F 5	**Easter Monday – no class** Modern human origins continued “	
13	M 8 W 10 F 12	***Term paper due*** Summary and conclusions Last class	Klein chapter 8

****The final examination will be on Friday April 19 from 9:00 to 11:00 a.m. as scheduled in the examination timetable**.**