

# ~~Hominid~~ Hominin Evolution

Anthropology 4215/5215  
Fall 2008 Syllabus  
University of Wyoming

**Instructor:** Dr. Jim Ahern  
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*All of the following information is available on the course's WyoWeb Course Studio page.*

## **COURSE DESCRIPTION:**

The fossil record of human evolution begins some 6-7 million years ago with the appearance of the first hominins. The course begins with an overview of essential paleontological and evolutionary theory. After briefly exploring the origin and evolution of our primate ancestors, the course then traces the evolution of hominins and humans from these simple beginnings through the appearance of modern humans. New hominin fossil, genetic and archaeological discoveries and the controversy over the appearance of modern humans and the fate of the Neandertals will be covered. The course will comprise lectures, seminar discussions, and labs.

## **READINGS:**

### **TEXTBOOKS**

#### **Required**

*Human Evolution: Trails From The Past.* By Camilo J. Cela-Conde and Francisco J. Ayala. Oxford University Press. (available in the bookstore)

*A Photographic Atlas for Physical Anthropology, Brief Addition.* P.F. Whitehead, W.K. Sacco, S.B. Hochgraf. 2005. Morton.  
(available in the bookstore)

*Hominid Evolution: A Basic Reference.* By J. Ahern. Coursepack.  
(available in the bookstore during the first week of class)

*Fossil Hominids: An Interactive Atlas.* By J. Ahern. Wadsworth.  
*Copies will be distributed in class.*

Additional Readings available on the course's WyoWeb page

## **4215/5215 WyoWeb Course Studio Page**

In addition to the information provided here, the Anthropology 4215 WyoWeb course studio site provides a variety of paleoanthropology-related links, lecture slides and handouts, readings, and other important resources.

## **COURSE POLICIES:**

- Students are expected to attend every session and actively participate in class.
- All assignments are due *at the beginning of class* time on specified dates. Assignments turned in after the due date will be docked 15%. All assignments must be received by 12/01/08 or they will become zeros.
- Make-up exams will only be given in truly extenuating circumstances. Supporting documentation for such absences is strongly encouraged.
- All students are expected to use their uwyo.edu email accounts and to be able to *effectively* use the web for research (Coe reference librarians can provide you assistance).
- It is the student's responsibility to know about academic dishonesty. Cases of academic dishonesty will be dealt with following university regulations (<http://www.uwyo.edu/generalcounsel/info.asp?p=3077>).

### **4215 ASSIGNMENTS AND EXAMS:**

Undergraduate grades will be based upon the following:

	Date	% of Class Grade
Annotated Bibliography	Due: 9/8/08	5%
Mini-Exam	9/15/08	5%
Midterm Exam	10/24/08	25%
Final Exam (cumulative)	12/8/08 (3:30 p.m.)	25%
Group Project/Paper	Due: 12/5/08	25%
Lab Notebooks	Reviewed: 10/20/08	15%
	Final due: 12/1/08	

### **5215 ASSIGNMENTS AND EXAMS:**

Graduate grades will be based upon the following:

	Date	% of Class Grade
Annotated Bibliography	Due: 9/8/08	5%
Mini-Exam	9/15/08	5%
Midterm Exam	10/24/08	20%
Final Exam (cumulative)	12/8/08 (3:30 p.m.)	20%
Group Project/Paper	Due: 12/5/08	25%
Lab Notebooks	Reviewed: 10/20/08	10%
	Final due: 12/1/08	
Research Paper	Draft: 11/17/08	15%
	Final: 12/8/08	

#### **Annotated Bibliography**

Each student will be required to put together an annotated bibliography on a topic assigned to them. The bibliography will comprise a deeply comprehensive list of references. The reference format must follow that given in the *Journal of Human Evolution* Guide for Authors. Additionally, the student must provide 1 paragraph written summaries of ten of the references (20 for 5215 students). Due 9/8/08.

#### **Mini-Exam**

A 30 minute quiz will be given in class on 9/15/08. The quiz will consist of fill in the blank and short answer questions. Questions will cover Section I: Paleontological Theory and Method. The quiz will draw upon assigned readings, lectures, lab and discussion.

*Graduate student answers should be exemplary and should reflect the extra readings.*

#### **Midterm Exam**

The one hour midterm will be given in class on 10/24/08. This exam will cover Sections I – III, with an emphasis on the latter two sections. The exam will draw upon assigned readings, lectures, and labs (and discussions, if applicable). The midterm will include fill-in-the-blank, short answer, and one essay question.

*Graduate student answers should be exemplary and should reflect the extra readings.*

#### **Final Exam**

The 2 hour final exam will be given 12/8/08 at 3:30 p.m. in the regular classroom (Anthropology room 140 unless otherwise announced). The final will be cumulative, but it will emphasize Sections IV & V. Like the mini-exam and the midterm, the final will draw upon assigned readings, lectures, and labs (discussions, if applicable).

*Graduate student answers should be exemplary and should reflect the extra readings.*

#### **Group Project: Presentation & Paper**

The final version of group project paper will be due 12/5/08. This paper will be a jointly authored description, analysis, and interpretation of the group's "new" fossil "discovery." I will distribute the "new" fossils to each group for analysis once we begin Section II (9/17/08). The groups will need to set up 2 meeting times with me and will need to schedule a date for the preliminary oral & visual presentation of their findings. The first meeting with me should happen before 10/6/08, and the 10-15 minute presentation will need to be scheduled for 11/12 or 11/14. The presentation will simulate a conference presentation, and the class will be required to question and constructively criticize each presentation. The second meeting with me should take place during the week of 11/17 – 11/21. Groups should have begun their analysis of the fossils by the time of the first meeting, and they should have

completed a rough draft of their paper by the time of the second meeting. The paper should follow the formatting and citation style of one of the *Journal of Human Evolution*. Use the *Journal of Human Evolution* Guide for Authors.

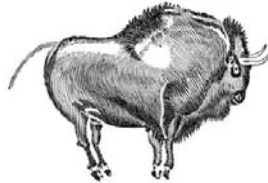
As part of the evaluation of the group projects, students will be asked to provide self-evaluations and evaluations of each of their group members on multiple occasions during the process. These evaluations will be kept confidential and will be used to address any collaboration concerns over the course of the semester. Two of these evaluation sets, one following the group presentation and another following submission of the final paper, will be used to inform the grading of the final project.

### **Labs & Lab Notebook**

Your lab notebook will consist of all of your notes, drawings/photos, and exercises/answers from the labs. There will be a total of 4-6 labs. Some of the labs will be 'virtual' and will use the *Fossil Hominids* CD and/or content on the course website. Most labs will incorporate both 'real' in-lab and 'virtual' content. *There will be insufficient time in class to complete the labs. Thus, the Paleoanthropology Lab (rm. 345) will be open MWF 1-3 and T 1 - 4 unless announced otherwise (these hours will not start until after the assignment of the first lab). If your absolutely cannot fit at least two hours of these times into your schedule, please see me ASAP.* I will review the lab notebooks on 10/20/08 and return them to you. The final lab notebooks are due on 12/1/08.

### **Research Paper (Anth 5215 students only)**

Each graduate student will need to write a short (approx. 10 – 20 pages) *original research* paper. This paper will need to address an issue in human evolution through the testing of one or more hypotheses via data collection & analysis. A rough draft is due no later than 11/17, and the final draft is due on 12/8. You will need to start this project as early in the semester as possible. Please see me for more details.



## Tentative Class Schedule for Anth. 4215/5215, Fall 2008

### READINGS

SECTION		REQUIRED <sup>1</sup>	EXTRA (5215) <sup>1</sup>
<b>I</b>	<b>Introduction, Paleontological Theory and Method</b>	Ayala Ch. 1  Packet Sections 1-3  <i>CD (optional):</i> Introduction Learning Tools (all) Challenges of Human Paleontology Comparing Anatomy Exploring by Group Exploring by Time	<i>Articles:</i> Foley 2001 Gibbons 2002 Posada 2001 Stephen et al. 2007
8/25 – 8/29	Paleoanthropology and Paleontology		
9/1	NO CLASS		
9/3 – 9/12	Theory: Macroevolution, Species, & Systematics <b>Due 9/8:</b> Annotated Bibliography		
9/15	<b>QUIZ</b>		
<b>II</b>	<b>Hominin Origins</b>	Ayala Ch. 2 - 4  Packet pp 39 – 60  <i>CD (optional):</i> Exploring by Region Interactive Summary: - Late Miocene & Early Pliocene species & fossils	Begun 2007 Harcourt-Smith 07 Senut 2007 Wolpoff et al 2006
9/17 – 9/22	Primate Evolution, Phylogenetics		
9/24 – 10/6	Miocene and Early Pliocene Hominins		
<b>III</b>	<b>Plio-Pleistocene Hominins</b>	Ayala Ch. 5-6  Packet pp 61 – 73  <i>CD (optional):</i> Interactive Summary: - Pliocene & Early Pliocene species & fossils	<i>Articles:</i> Collard 2007 Kimbel 2007 Schrenk et al 2007 Strait et al 2007
10/8 – 10/20	Late Pliocene & Plio-Pleistocene australopithecines <b>Due 10/20:</b> Lab Notebooks (for review)		
10/22	Early Hominin Relationships		
10/24	<b>MIDTERM EXAM</b>		
<b>IV</b>	<b>Erectines (aka, <i>Homo erectus</i> &amp; <i>Homo ergaster</i>)</b>	Ayala Ch. 7-8  Packet pp 74 – 76  <i>CD (optional):</i> Interactive Summary: - " <i>Homo erectus</i> " & Erectine Fossils	<i>Articles:</i> Antón 2007 Tattersall 2007
10/27 – 11/7	Early erectines and colonization		
11/10 – 11/14	Erectine adaptations and regional evolution <b>Cowpoke Society of Paleoanthropology Conference Presentations (11/12 &amp; 11/14)</b>		

(Schedule, continued)

<b>V</b>	<b>Emergence of Modern Humans</b>	Ayala Ch. 9-10  Packet pp 77 – 85  <i>CD (optional):</i> Interactive Summary: - Early Archaics - Late Archaics - Moderns - Mid – Late Pleistocene Fossils	<i>Articles:</i> Ahern et al. 2005 Bräuer 2007 Harvati et al. 2004 Harvati 2007 Relethford 2007 Rightmire 2007 Smith et al. 2005
11/17 – 12/5	The transition to modernity <b>Group Presentations:</b> 11/21 – 11/24 <b>Due 12/1:</b> Lab Notebooks <b>Due 12/5:</b> Group Projects		
12/8	<b>FINAL EXAM (3:30 – 5:30 p.m.)</b>		

<sup>1</sup>Reading Assignments are subject to change and additions.

### **5215 EXTRA REQUIRED READINGS**

- Details regarding access to the readings will be given in the first week of classes.
- More readings may be added to the following list over the course of the semester.

#### **Section 1: Paleontological Theory and Method**

- Foley R. 2001. In the shadow of the modern synthesis? Alternative perspectives on the last fifty years of paleoanthropology. *Evol. Anthropol.* 10:5-14.
- Gibbons A. 2002. Glasnost for hominids: seeking access to fossils. *Science* 297:1464-1468.
- Posada D, and Crandall KA. 2001. Intraspecific gene geneologies: trees grafting into networks. *Trends Ecol. Evol.* 16(1):37-45.
- Stephens PA, Buskirk SW, and del Rio CM. 2007. Inference in ecology and evolution. *Trends in Ecology & Evolution* 22(4):192-197.

#### **Section 2: Primate Evolution and Hominin Origins**

- Begun D. 2007. 4 Fossil Record of Miocene Hominoids. *Handbook of Paleoanthropology.* p 921-977.
- Harcourt-Smith W. 2007. 5 The Origins of Bipedal Locomotion. *Handbook of Paleoanthropology.* p 1483-1518.
- Senut B. 2007. 6 The Earliest Putative Hominids. *Handbook of Paleoanthropology.* p 1519-1538.
- Wolpoff MH, Hawks J, Senut B, Pickford M, and Ahern J. 2006. An ape or the ape: Is the Toumaï cranium TM 266 a hominid? *PaleoAnthropology* 2006:36-50.

#### **Section 3: Plio-Pleistocene Hominins**

- Collard M, and Wood B. 2007. 8 Defining the Genus *Homo*. *Handbook of Paleoanthropology.* p 1575-1610.
- Kimbel W. 2007. 7 The Species and Diversity of Australopiths. *Handbook of Paleoanthropology.* p 1539-1573.
- Schrenk F, Kullmer O, and Bromage T. 2007. 9 The Earliest Putative *Homo* Fossils. *Handbook of Paleoanthropology.* p 1611-1631.
- Strait D, Grine F, and Fleagle J. 2007. 15 Analyzing Hominid Phylogeny. *Handbook of Paleoanthropology.* p 1781.

#### **Section 4: Erectines (aka *Homo erectus*)**

- Antón S, Spoor F, Fellmann C, and Swisher Iii C. 2007. 11 Defining *Homo erectus* : Size Considered. *Handbook of Paleoanthropology.* p 1655.
- Tattersall I. 2007. 10 *Homo ergaster* and Its Contemporaries. *Handbook of Paleoanthropology.* p 1633.

#### **Section 5: Emergence of Modern Humans**

- Ahern et al. 2005: “Neanderthal taxonomy reconsidered . . . again: a response to Harvati et al. (2004).”
- Bräuer G. 2007. 14 Origin of Modern Humans. *Handbook of Paleoanthropology.* p 1749.
- Harvati K, Frost SR, and McNulty KP. 2004. Neanderthal taxonomy reconsidered: Implications of 3D primate models of intra- and interspecific differences. *PNAS* 101(5):1147-1152.
- Harvati K. 2007. 13 Neanderthals and Their Contemporaries. *Handbook of Paleoanthropology.* p 1717.
- Relethford J. 2007. 20 Population Genetics and Paleoanthropology. *Handbook of Paleoanthropology.* p 621-641.
- Rightmire G. 2007. 12 Later Middle Pleistocene Homo. *Handbook of Paleoanthropology.* p 1695.
- Smith et al. 2005. “The assimilation model, modern human origins in Europe, and the extinction of Neanderthals.”