

**From Ape to Madonna:  
The Evolution of Humankind  
IDIS 294**

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**Classroom:** 101 Pricilla Payne Hurd Academic Complex, TR Period 6b

**Course Description:** One of the most profound questions that humans beings can ask of themselves has to be, "Where do we come from?" This course will deal with the historical and comparative bio-anthropology of our species, looking at humans as members of the animal kingdom, focusing on the attributes shared with our primate relatives, and exploring the origins of uniquely human attributes. Using the approaches of evolutionary biology, physical anthropology, and archaeology, this course traces human physical evolution and cultural development from its earliest beginning, more than five million years ago, to about 15,000 years ago, just before the beginnings of plant and animal domestication and the rise of complex societies. In addition, this course will pay special attention to the impact that evolutionary ideas have had on social, political, and educational issues in American life. *This course satisfies the Social Impact of Science (U1) requirement within the LinC curriculum.*

**Course Objectives:** Upon completion of this course students will be able to demonstrate:

- 1) knowledge of basic concepts of evolutionary biology, including the processes of genetic change, natural selection, and speciation
- 2) awareness of the historical development of evolutionary ideas, including Darwinism, the Modern Evolutionary Synthesis, and contemporary evolutionary theory
- 3) understanding of the major scenarios of human evolution from origins to the present
- 4) awareness of the impact that evolutionary ideas have had on the social, political, and legal history of the United States
- 5) ability to make a distinction between scientific and nonscientific theories, generate scientific arguments, and support them with appropriate examples or scientific justifications
- 6) knowledge of and ability to apply the scientific process
- 7) competence in writing and oral communication of scientific issues

- 8) ability to integrate concepts within and among science and non-science disciplines
- 9) understanding of the relevance of evolutionary biology to modern society

**Required Texts:** Mayr, E. 2001. *What Evolution Is*. Basic Books (Perseus Group)

Stringer, C. and P. Andrews. 2005. *The Complete World of Human Evolution*. Thames & Hudson Ltd., London.

Larson, E.J. 2003. *Trial & Error: The American Controversy Over Creation and Evolution (3<sup>rd</sup> edition)*. Oxford University Press.

Other readings as assigned.

**Grading:** The grading system is as follows:

A	=	93-100	C	=	73-76
A-	=	90-92	C-	=	70-72
B+	=	87-89	D+	=	67-69
B	=	83-86	D	=	63-66
B-	=	80-82	D-	=	60-62
C+	=	77-79	F	=	59 and below

**Course Requirements:**

**Exams (45%)** There will be three equally weighted exams (15% each x 3 = 45%), two scheduled during the regular term and a final exam. Each exam will consist of essay questions that are based on class lectures, readings, videos, and discussions.

**Class Discussion (20%)** It is essential that you come to class and engage in active discussions. Many of the things that we will discuss in this class are designed to make you think and to challenge ideas that you might already have. I trust that the reason you have elected to take this course is to explore these new ideas and to question your own beliefs in a reflective manner.

**Lab Exercises (20%)** During this course you will participate in small groups to complete two laboratory exercises (10% each x 2 = 20%) that demonstrate important concepts in human evolution. Each exercise will require you to complete a written analysis of what you discover.

**Paper (15%)** You will be asked to write one paper (7-8 pages) as noted in the course schedule.

**Honesty:** Cheating will not be tolerated. Students will be held to the highest standards as specified by the Moravian College Honor Code. Violations of this code will be handled in the most severe manner as allowed by this policy.

**Class Attendance:** It is my experience that students who do poorly in this course are those who miss an excessive number of class meetings. Therefore, I will keep a record of class attendance and speak personally with anyone who, in my judgment, shows excessive absences. It is in your best interest, therefore, to attend and participate in class. An absence on an examination day will require either prior permission or a suitable excuse from the health center or Dean of Students Office before a make-up is given.

**Course Schedule  
Spring 2006**

**Week 1: (1/17/06 & 1/19/06) The Process of Evolution: The Rise of Darwinism**

- A. Pre-Darwinian Views of Nature
- B. Charles Darwin (1809-1882)
- C. Darwinian Evolution

Read: Chapters 1, 2, 4, 5 & 6 in Ernst Mayr's *What Evolution Is*

**Week 2: (1/24/06 & 1/26/06) The Process of Evolution: Neo-Darwinism and Modern Evolutionary Thought**

- A. Mechanisms of Inheritance and the Eclipse of Darwinism
- B. The Modern Synthesis (Neo-Darwinism)
- C. Punctuated Equilibrium and the Structure of Modern Evolutionary Biology

Read: Chapters 7, 8, 9 & 10 in Ernst Mayr's *What Evolution Is*

**Week 3: (1/31/06 & 2/2/06) The Scientific Background to Human Evolution: Fossils, Species & Molecules**

- A. Fossils, Fossilization and Radiometric Dating Methods
- B. Systematics and Phylogeny
- C. Fundamentals of Molecular Biology

Read: Introduction, pages 6-11 and Section I (In Search of Our Ancestors), pages 14-79 in Stringer & Andrews, *The Complete World of Human Evolution*

**Week 4: (2/7/06 & 2/9/06) The Scientific Background to Human Evolution: Primates**

- A. Our Primate Heritage

Read: Section II (The Fossil Evidence), pages 82-89 in Stringer & Andrews, *The Complete World of Human Evolution*

Lab Exercise (2/7/06): Evolution, Adaptation & Species Diversity

**FEBRUARY 12---CHARLES DARWIN'S 197<sup>th</sup> BIRTHDAY**

**Week 5: (2/14/06 & 2/16/06) Hominid Beginnings: Walking Upright**

- A. Hominid Precursors
- B. The First Hominids and the Origin of Bipedalism

Read: Section II (The Fossil Evidence), pages 90-123 and Section III (Interpreting the Evidence), pages 184-189; 200-207 in Stringer & Andrews, *The Complete World of Human Evolution*

**Lab Exercise Due: 2/14/06**

**EXAM 1 (2/16/06): Material from Weeks 1-4**

**Week 6: (2/21/06 & 2/23/06) Hominid Beginnings: Using Tools**

- A. The Australopithecines
- B. The Emergence of *Homo* and Early Tool Technologies

Read: Section II (The Fossil Evidence), pages 124-135 and Section III (Interpreting the Evidence), pages 190-191; 208-209 in Stringer & Andrews, *The Complete World of Human Evolution*

**Week 7: (2/28/06 & 3/1/06) The Origin of Modern Humans-Out of Africa**

- A. *Homo erectus*: Out of Africa I
- B. New Technologies and New Worlds

Read: Section II (The Fossil Evidence), pages 136-139 and Section III (Interpreting the Evidence), pages 192-195 in Stringer & Andrews, *The Complete World of Human Evolution*

**Week 8: (3/7/06 & 3/9/06): No class-Spring Break**

**Week 9: (3/14/06 & 3/16/06): The Origin of Modern Humans-The Rise of *Homo sapiens***

- A. Origin of Modern Humans: Multiregionalism vs. Mitochondrial Eve
- B. *Homo sapiens*: Out of Africa II

Read: Section II (The Fossil Evidence), pages 149-151; 176-179 in Stringer & Andrews, *The Complete World of Human Evolution*

**Week 10: (3/21/06 & 3/23/06): The Origin of Modern Humans-Who are the Neandertals?**

- A. Neanderthals: Cousins or Not?
- B. The Archeology of Modern Humans
- C. Language and Modern Human Origins
- D. Symbolism and Images: Art in Prehistory

Read: Section II (The Fossil Evidence), pages 152-165; 180-181 and Section III (Interpreting the Evidence), pages 210-221 in Stringer & Andrews, *The Complete World of Human Evolution*

**EXAM 2 (3/23/06): Material from Weeks 5-9**

**Week 11: (3/28/06 & 3/30/06) The Origin of Modern Humans-Race, Sex, and Other Behaviors**

- A. Are Human Races for Real?
- B. Males, Females and Sex
- C. Hunters, Scavengers...or Cannibals?

Read: Section II (The Fossil Evidence), pages 166-175 and Section III (Interpreting the Evidence), pages 222-229 in Stringer & Andrews, *The Complete World of Human Evolution*

Lab Exercise (3/30/06): Human Fossil Lab

**Week 12: (4/4/06 & 4/6/06) The Social Impact of Evolutionary Ideas: The Rise of Fundamentalism**

- A. Religion, Evolution, and American Life in the Early 20th Century
- B. Scientific Creationism, The Scopes Trial, and Public Education

No Class: 4/4/06 Moravian College Service Day

Read: Chapters 1-3 in Larson's *Trial and Error: The American Controversy Over Creation and Evolution*

**Lab Exercise Due: 4/6/06**

**Week 13: (4/11/06 & 4/13/06) The Social Impact of Evolutionary Ideas: The Scopes Trial**

- A. The Legacy of the Scopes Trial

View and Discuss: *Inherit the Wind* (1960)

**Week 14: (4/18/06 & 4/20/06) The Social Impact of Evolutionary Ideas: After Scopes**

- A. New Science Standards
- B. The Rise of Scientific Creationism
- C. The Challenge of Intelligent Design

Read: Chapters 4-7 in Larson's *Trial and Error: The American Controversy Over Creation and Evolution*

**Week 15: (4/25/06 & 4/27/06) Science, Evolution, and Religious Faith: The Two Magisteria**

- A. What Religion Says About Science
- B. What Science Says About Religion
- C. Can Science and Religion Be Reconciled?
- D. Personal Reflections on Science, Faith, and Human Origins

Read: Stephen Jay Gould's Nonoverlapping Magisteria. *Natural History*, March 1997.

***Paper Due: 4/25/06 Personal Reflections on the Nature of Science & Faith***

***FINAL EXAM: Material from Weeks 10-15***