

## ANTH 003: Introduction to Human Evolution

MWF 5:00 - 7:30 PM

*Summer Session II*

July 5, 2019 – August 9, 2019

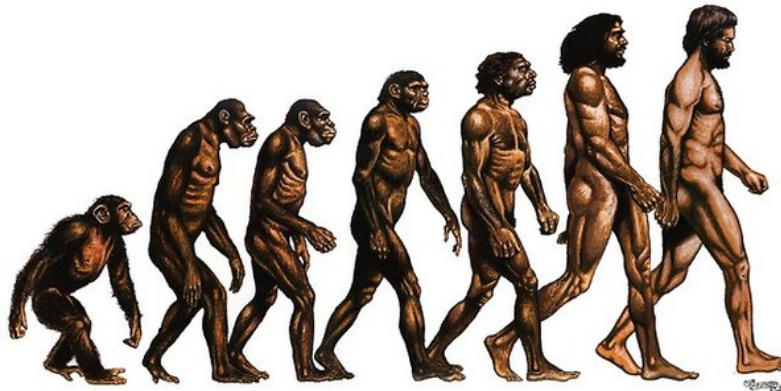
MUSE Room 345

### Instructor:

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### Office Hours:

By Appointment  
University Museum Room 421B



### COURSE SUMMARY

How did humans evolve? When did humans start to walk on two legs? How are humans related to non-human primates? This course focuses on the scientific study of human evolution describing the emergence, development, and diversification of our species, *Homo sapiens*. First, we cover the fundamental principles of evolutionary theory and some of the basics of genetics and heredity as they relate to human morphological, physiological, and genetic variation. We then examine what studies of nonhuman primates (monkeys and apes) can reveal about our own evolutionary past, reviewing the behavioral and ecological diversity seen among living primates. We conclude the course examining the "hard" evidence of human evolution - the fossil and material culture record of human history from our earliest primate ancestors to the emergence of modern *Homo sapiens*. You will also have the opportunity, during recitations, to conduct hands-on exercises collecting and analyzing behavioral, morphological, and genetic data on both humans and nonhuman primates and working with the Department of Anthropology's extensive collection of fossil casts.

### Course Content:

1. Principles of Evolution: Theory and Mechanism. In the first section of the course, you will learn the basics of human evolutionary theory. This will be accomplished by first being able to **distinguish between evolutionism and creationism** and understand the **historical developments** behind contemporary evolutionary theory. Next, we will break down biological **evidence for evolution**. After understanding evolutionary theory and its

evidence, we will learn *how* evolution actually occurs through **genetic inheritance** and the **forces of evolution**.

2. Early Human Evolution. In the second section of the course, you will understand how modern *Homo sapiens* **evolved from our primate cousins and into anatomically modern humans**. We will begin by learning about **non-human primates**, and how they have been used as a model for **hominin behavior**. We will then discuss human evolution in three stages: the **evolution of primates** as a species, the **development of early modern humans**, and the **emergence of the species *Homo***. In each stage, we will discuss debates about **species classification, behavior, and the emergence of modernity**.
3. Modern Human Variation. In the final section of the course, you will be able to understand how contemporary diversity modern human populations arose through **human migration** and the **spread of agriculture**. We will discuss how the environment (both natural and cultural) has shaped, and continues to shape, human **genetic and physical variation** through genetic **adaptation**.

#### **Student Learning Outcomes:**

1. Demonstrate general knowledge of evolutionary theory, genetic mechanisms of evolution, non-human primates & behavior, human evolution, variation, and adaptation.
2. Demonstrate ability to research and present on a topic in the scientific literature pertaining to human evolution.

#### **Student Learning Outcomes will be achieved via:**

1. In-class lab exercises which will illustrate and develop an understanding (1) genetic mechanism for evolution, and (2) species and fossil classification in human evolution.
2. Weekly quizzes and tests which assess student's understanding of course topics.
3. Research through a class presentation which will demonstrate a student's ability to understand and present academic literature sources related to concepts human evolution.

#### **REQUIRED TEXTS:**

You will be required to purchase the following book – available on Amazon or Barnes and Noble. Any other additional reading materials will be posted on Blackboard.

1. Clark Spencer Larsen, Our Origins: Discovering Physical Anthropology, 3rd edition. WW Norton & Company.

#### **REQUIRED WORK**

1. **Tests:** There will be three NON-CUMULATIVE exams for this course. The questions will consist of multiple choice, fill in the blank, matching, true/false, and short answer questions. **Each exam will count for 20% of your grade.** There will be no regrades for exams. Study guides will be given for each of the tests.
2. **PowerPoint Presentation:** Each student will select a topic or paper relating to human evolution (contemporary debates, methods, or new findings) on which they will make a short

Powerpoint presentation to the class at the end of the term. Topics will be chosen early in the term to give you ample time to prepare. Guidelines for the presentation will also be provided. **Your presentation is worth 15% of your final grade**

3. **Lab Activities:** You will complete lab activity worksheets. These worksheets will be handed out in class and will due at the end of the class period, are **count towards your participation grade**. Other in class assignments or activities will also count towards your participation grade.
4. **Weekly Quizzes:** You will be required to take weekly quizzes ONLINE through Canvas. **These EASY quizzes are designed to help you review the course material, and also boost your grade!** They will consist of 10 relatively easy questions based on material from the week's lectures. They will be open note and you can take as long as you like to answer them. They will be due each week by 11:59 PM on Sunday, so you have time to complete them over the weekend. You will have two attempts at each weekly quiz, and the best score will be kept. **Each quiz will count for 3% of your grade, totaling to 12%**
5. **Attendance and Participation:** *Attendance will be taken at the beginning of each class session.* Attendance at all class sessions is required for the course. Any absences over that number will require a written and dated excuse **OR** you will lose a portion of your class participation grade. Missing any class is not advisable. This is a heavily lecture-dependent class and missing will deprive you of information and experience you will need to pass the course. No make-ups or postponed assignments without an **official, dated excuse** from a doctor, a dentist, a judge, an arresting officer, a funeral home director (only for funerals for a member of the family)

Class participation is also an important part of your grade. I often ask questions about the topics I am lecturing about – and I expect to hear from you! If you have done your readings before class, you should be prepared to answer. It doesn't matter if you get it wrong, I just want to know you are making an effort to prepare and participate in class. If you have not done the readings and are not prepared your class participation grade will suffer. Attendance and Participation is worth 10% of your final grade.

| <b>GRADING BREAKDOWN</b>     |             |
|------------------------------|-------------|
| Exam 1 (non-cumulative)      | 20%         |
| Exam 2 (non-cumulative)      | 20%         |
| Exam 3 (non-cumulative)      | 20%         |
| Group Presentation           | 15%         |
| Weekly Quizzes (4 total)     | 12%         |
| Attendance and Participation | 13%         |
| <b>TOTAL</b>                 | <b>100%</b> |

**Grade scale:** 95 and >=A, 90-94=A-, 87-89=B+, 84-86=B, 80-83=B-, 77-79=C+, 74-76=C, 70-73=C-, 67-69=D+' 64-66=D, 60-63=D-, 59 and <=F

### **HOW TO DO WELL IN THIS CLASS:**

1. *Do the readings!* Take notes on them before each class. These readings have been specifically picked for the topic, and are not designed to fill space or give you erroneous work. This will be your first exposure to the course information and prime you for lecture.
2. *Come to class!* Takes notes, ask questions, be involved. This will be your second exposure to the course information. Also, this is mandatory.
3. *Take the weekly quizzes!* They will help you study and will boost your grade at the end of the semester. This will be your third exposure to the course information during the week. Learning is best accomplished through multiple reviews of course material. Readings, lectures, and quizzes will help you digest the information 3x more than if you just passively sit through lecture.
4. *Review your lectures a small amount every day,* if you can. You are more likely to remember information and think more clearly for the test if you have studied over a longer period of time, than crammed it in with a 5 hour energy.
5. Come to office hours if you are struggling with the course content. I am more than willing to walk you through concepts that are tough.

### **OTHER IMPORTANT INFORMATION:**

#### **Accommodation for various disabilities:**

Your academic success is important! If you have a documented disability that may have an impact upon your work in this class, please contact me. Students must provide documentation of their disability in coordination with the Weingarten Learning Resources Center and the Office of Student Disabilities Services. I encourage you to come forward and discuss this matter as early as possible in the semester, to demonstrate to you that I and the University are more than willing to work with you and to provide the necessary accommodations, to help you to focus on your academic success and to provide you with further resources, including web links, offices and people who can help.

#### **Academic Integrity:**

If you are dishonest, cheat or plagiarize anyone else's work you will receive a 0 for the assignment and may face disciplinary action by the university. Cutting and pasting text and images from the internet without giving proper credit counts as plagiarism. For a more detailed rundown of the consequences of violating the university's academic integrity policy, see the Student Handbook or the appropriate website:

<http://www.college.upenn.edu/policies/integrity.php>.

#### **Class Cancellation due to Weather/Emergency:**

Updated 7/30/19

If class is canceled for any reason, you will still be responsible for completing any readings and assignments listed in the Lecture Schedule. This material will also still be covered on any upcoming midterm or exam.

**Behavior:**

You are a student in a university and you know how behave like an adult. Being rude to your instructor or fellow classmates is not acceptable and you will be asked to leave the class (or in extreme cases, drop the class) if you indulge in immature behavior. Under no circumstances will I tolerate disrespectful language or behavior on the basis of any personal, cultural, ethnic, political or any other perceived difference between students. Good (and adaptable!) hominids show group cohesiveness.

If you must get up to use the restroom during class or leave the room for whatever reason, exit around the back of the room so as not to disrupt lecture or discussion.

**LECTURE SECHEDULE**

When assigned, all online quizzes will be uploaded by the end of the day on Wednesday, and due at the end of each week, by **11:59 PM on Sunday**.

**READINGS ARE MANDATORY AND MUST BE DONE BEFORE CLASS**

| Section                      | Date                    | Topic  | Assignments                   | Reading  |  |
|------------------------------|-------------------------|--|-------------------------------|--|--|
| <b>Evolutionary Theory</b>   | 1<br>W1 Fri:<br>July 5  | Class Introduction: Review Syllabus, Assignments<br>-<br>What is Physical Anthropology?<br>-<br>Evidence for Evolution<br><i>In class: Extra Credit Survey</i> |                               | Larson Ch. 1<br><br>Human Biological Diversity p.13-25 (Scanned) |  |
|                              | 2<br>W2 Mon:<br>July 8  | Development of Evolutionary Theory   |                               | Larson p. 22-37  |  |
|                              | 3<br>W2 Wed:<br>July 10 | Mendelism, Structure of DNA & The Modern Synthesis<br><br><i>Research Presentation Topics Released</i>   | <b>Weekly Quiz 1 Released</b> | Larson p. 37-48; 78-81   |  |
|                              | 4<br>W2 Fri:<br>July 12 | Forces of Evolution<br><i>Research Presentation Topics DUE</i>   |                               | Larson Ch. 4   |  |
|                              | 5<br>W3 Mon:<br>July 15 | <b><u>FIRST EXAM</u></b> (Class Sessions 1-4, 5 lectures)  |                               |  |  |
|                              | 6<br>W3 Wed:<br>July 17 | Inheritance & Population Genetics<br><br><i>LAB: Hardy Weinberg Equilibrium</i>  | <b>Weekly Quiz 2 Released</b> | Larson Ch. 3   |  |
| <b>Early Human Evolution</b> | 7<br>W3 Fri:<br>July 19 | Non-Human Primates   |                               | Larson Ch. 6   |  |
|                              | 8<br>W4 Mon:<br>July 22 | Primate Behavior   |                               | Larson Ch. 7   |  |
|                              | 9<br>W4 Wed:<br>July 24 | The Evolution of Primates<br>-<br>Early Modern Humans: <i>Australopithecus</i> and earlier forms pt. 1<br>-  | <b>Weekly Quiz 3 Released</b> | Larson Ch. 9, 10   |  |

|                               |    |   |  |   |
|-------------------------------|----|---|--|---|
|                               |    | <i>In class: How to read a scientific paper</i> |  |   |
|                               | 10 | W4 Fri:<br>July 26                              | Early Modern Humans:<br><i>Australopithecus</i> and earlier forms pt. 2  | Larson Ch. 11                               |
|                               | 11 | W5<br>Mon:<br>July 29                           | <b><u>SECOND EXAM</u></b> (Class Sessions 6-10, 6 lectures)  |   |
| <b>Modern Human Variation</b> | 12 | W5<br>Wed:<br>July 31                           | Early Modern Humans: The emergence of Homo & the Evolution of Behavior<br><br>-<br><br><i>In class: How to give an effective research presentation</i> | Weekly Quiz 4 Released<br><br>Larson Ch. 11 |
|                               | 13 | W5 Fri:<br>Aug 2                                | Archaic Human Dispersals   | Larson Ch. 12                               |
|                               | 14 | W6<br>Mon:<br>Aug 5                             | Modern Human Dispersals<br><br>-<br><br>Agricultural Transition  | Larson Ch. 13                               |
|                               | 15 | W6<br>Wed:<br>Aug 7                             | <b><u>RESEARCH PRESENTATIONS</u></b>   |   |
|                               | 16 | W6 Fri:<br>Aug 9th                              | <b><u>THIRD EXAM</u></b> (Class Sessions 12-14, 4 lectures)  |   |