

## **Anthropological Sciences 8: Introduction to Anthropological Genetics**

What does genetics tell us about the evolution and behavior of humans and other primates?

### **Description**

This course is designed for students curious about the relationships between genetics and the human condition. We will consider how genetic approaches shed light on a variety of anthropological questions, such as the evolutionary relationships between humans and apes, the origin of modern humans, the place of the Neanderthal in human evolution, and the peopling of the New World. We will also review the use of genetic approaches (including ancient DNA) in forensic anthropology, primatology, and sociobiology. Throughout the course, we will compare the insights gained from genetics with the results of traditional paleontological, archaeological, and ethnographic investigations.

### **Course Information**

Mondays and Wednesdays, 1:15pm – 3:05pm  
Education (Cubberley) Building, Room e230  
5 units. No prerequisites. Fulfills GER 2a and DR 5 requirements.

### **Instructor**

David DeGusta  
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Office: Main Quad Building 80, Room 201  
Office Hours: Mondays and Wednesdays 3:15pm – 5:00pm

### **Course Website**

<http://www.stanford.edu/class/anthsci8>

### **Required Texts**

1. Graur, D and Li, W-H. 2000. Fundamentals of Molecular Evolution, SECOND Edition. Sinauer Associates Inc: Sunderland, MA. Paperback. ISBN: 0-87893-266-6. Approximately \$55. Abbreviated FME in reading list.
2. Relethford, J. 1999. The Human Species - An Introduction to Biological Anthropology, FOURTH Edition. Mayfield Publishing Co: Mountain View, CA. Paperback. ISBN: 0-76741-171-4. Approximately \$60. Abbreviated THS in reading list.

### **Grading**

10% Basic Concepts Quiz  
20% Weekly Question & Answer Assignment (six at 4% each, drop worst score)  
30% Midterm  
40% Final

Class participation considered for students near the border between two grades.

## **Schedule & Readings**

- 1/10 Wed Course Introduction. Questions to Be Covered. Nature of Fossil, Archaeological, and Ethnographic Records.
- 1/15 Mon holiday, no class
- 1/17 Wed Genetics Primer  
THS Chapter 1 if no anthropology background  
THS Chapter 2  
FME Chapter 1
- 1/22 Mon Evolution Primer  
THS Chapter 3  
THS pp 267—271 (“Misconceptions About Evolution”)  
FME Chapter 2
- 1/24 Wed The Human Genome Project. ***Basic Concepts Quiz***  
FME Chapter 3
- 1/29 Mon Hominid Origins: When Did Humans Originate? ***Q&A 1***  
THS pp 302—305  
THS pp 311—319  
FME Chapter 4  
distributed article
- 1/31 Wed Hominoid Relationships: Who Is Our Closest Primate Ancestor?  
THS pp 210—218  
FME Chapter 5
- 2/4 Sun: Last Day to Add Classes
- 2/5 Mon Modern Human Origins: When & Where Did We Originate? ***Q&A 2***  
THS Chapter 14  
distributed article
- 2/7 Wed Modern Human Variation and “Race”. ***Take-Home Midterm Distributed***  
THS Chapter 4  
THS Chapter 5  
distributed article
- 2/11 Sun: Last Day to Drop Classes
- 2/12 Mon Recent Human Genetic History. ***Take-Home Midterm Due***  
THS Chapter 6
- 2/14 Wed Peopling of the New World: Kennewick Man, NAGPRA, and More ***Q&A 3***  
distributed articles
- 2/19 Mon holiday, no class

- 2/21 Wed Ancient DNA: Neanderthals, Paleoindians, and Dinosaurs(?) **Q&A 4**  
distributed articles
- 2/26 Mon Forensic Anthropological Genetics: Who Done It?  
distributed articles
- 2/28 Wed Sociobiology: Smart Genes? Selfish Genes? **Q&A 5**  
distributed articles
- 3/5 Mon Genetic Primatology: Who's Your Daddy?  
THS pp 177—197  
distributed article
- 3/7 Wed Language, Genes, and Culture **Q&A 6**  
distributed articles
- 3/12 Mon (dead week) Informal discussion of Genetic Diseases  
optional distributed articles
- 3/14 Wed (dead week) Informal discussion of Evolutionary Developmental Genetics  
optional distributed articles

**Final Exam** Monday March 19, 8:30 – 11:30 am

**Note:** The Question and Answer Assignments (“Q&A”) will be distributed the class session before they are due. They are to be submitted via e-mail to the instructor *before the start of class* on the days listed. For example, the first Q&A assignment will be handed out in class on Wed 1/24 and needs to be submitted before the start of class on Mon 1/29.