

Spring 2010 **Anthropology 1: Introduction to Physical Anthropology**

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Course Description: This course is a survey of the state of knowledge and current issues in the field of biological anthropology. The course will cover genetics and physiology, primate cladistics, anatomy, primate behavior, and the fossil record for the evolution of the primate order.

Texts: Required: *How Humans Evolved*, 5th ed., Robert Boyd and Joan Silk
: *A Photographic Atlas for Physical Anthropology*, Paul F. Whitehead et al.
Strongly recommended: *The Human Evolution Coloring Book*, 2nd ed., Adrienne Zihlman

Course resources: Syllabi, handouts, and Powerpoint lectures can be viewed and downloaded on the class web page, accessed through my faculty index page. Copies of the textbooks are on reserve in the library in the reserve reading area.

Course Objectives / Student Outcomes

1. Demonstrate an understanding of the concept of the scientific method and its significance to science.
2. Describe and evaluate the major ideas that preceded and led to the development of evolutionary theory and analyze modern theories of Darwinian evolution through natural selection.
3. Identify and describe the processes by which genetic information is transmitted from one generation to the next.
4. Identify and discuss the various components of the DNA molecule and the process of protein synthesis.
5. Explain and assess the mechanisms of evolutionary change and explain how each one contributes to the evolutionary process.
6. Contrast point and chromosomal mutations and discuss the significance of point mutations to evolution.
7. List the major anatomical characteristics of primates associated with movement and the senses, and explain how they evolved as adaptations to an arboreal environment.
8. Contrast the major forms of primate social structure and describe their relationship to the primate species' ecology.
9. Explain the differences between relative and chronometric dating and

provide an example of chronometric dating using a radiometric technique.

10. Evaluate the benefits of bipedalism in reference to the particular environment in which most hominid evolution occurred.
11. Compare and contrast the skull characteristics of *Australopithecus africanus*, *Australopithecus* (or *Paranthropus*) *boisei*, and *Homo habilis* in relation to the particular diet of each.
12. Contrast the anatomical characteristics of *Homo habilis* and *Homo erectus*, and analyze those contrasts in reference to their respective environments and subsistence strategies.
13. Analyze the characteristics of *Homo neanderthalensis* in reference to the environment in which this hominid lived.
14. Evaluate the models that account for the origin of *Homo sapiens*, outlining the major criteria and evidence supporting each.
15. Outline the cultural stages in the evolution of the genus *Homo*, making reference to the particular *Homo* species, tool industry, and environmental context associated with each stage.
16. Explain the difference between physiological adjustments and adaptations and explain skin color and body build as adaptations to particular environments.

Anthropology 1 Student Learning Outcome

In a written assignment, students will demonstrate how natural selection is related to environmental factors by using an example that identifies key processes of natural selection and illustrates how selective pressures can change aspects of a species' anatomy.

COURSE REQUIREMENTS

A quiz on the syllabus, 5 tests, a worksheet, a genetics problem set, an anatomy quiz, and a report derived from observations made at a zoo (the Non-human Primate Report).

All exams will be multiple choice and are non-cumulative, and will include questions on any films that are shown. Bring Scantron form 882 ES to all exams and the syllabus quiz. Grammar and spelling will be graded on all written assignments.

Grading	Quizzes	8% (36 pts.)
	Worksheet and problem set	11% (50 pts.)
	Exams	57% (250 pts.)
	Non-human primate report	23% (100 pts.)

Point breakdown: Syllabus quiz 10 pts., natural selection worksheet 25 pts., Hardy-Weinberg worksheet 25 pts., primate anatomy quiz 26 pts., exams 50 pts. ea., non-human primate report 100 pts.

The grading scale for the exams hinges on the highest grade achieved on the exam. It then descends in 10% increments from that score.

Extra Credit: students are encouraged to go to relevant public lectures and do oral presentations of newsworthy items before the class for extra credit. No extra credit will be accepted after the 14th week. The privilege of doing extra credit is contingent upon maintaining an acceptable attendance record. See the extra credit guidelines for details.

***** If you have any special problems or pressures, please discuss them with me as soon as you can, not at the end of the term!*****

STANDARDS OF STUDENT BEHAVIOR

Student responsibilities: *Full participation* is expected from the participants in this course. This responsibility entails attending class meetings, turning in work punctually, and reading the assigned materials. There are, sadly, *consequences* for not living up to these responsibilities:

Late assignments – I accept late work, but the grade on an assignment is dropped by the point equivalent of one grade level (10%) for every class meeting it is late. Unexcused absences or mechanical difficulties with a computer or printer are not valid excuses. I will not accept late assignments during the last week of class. Assignments handed in late are graded at my convenience.

“Lost” assignments - My operative assumption: **I don't lose assignments.** If it is claimed that I have lost a student's work the following procedure is followed: **1)** I will request that the student immediately produce a back-up photocopy of the assignment in question. The backup must be furnished to me within 24 hours of the request. **2)** A search is made of my office, car, and home for the student's original work. If the original is not found, **3)** I retain the backup until the very end of the semester. At the end of the semester I look over the student's record of attendance and assignment completion. If the student has missed 3 classes or fewer, and has turned in all other work punctually then I grade the backup and enter the points without deduction. If the student's class attendance and work submission record is irregular, or the so-called back-up looks fishy then I conclude that I have been lied to and not only throw the backup into the trash can, but also erase all of the student's extra credit points from my records. I will not assume responsibility for any work or other submissions purportedly shoved under my door or placed in my box.

Attendance - I take attendance at the beginning of the period. I don't adjust attendance retroactively, so if a student misses roll it is the student's responsibility to seek a correction on the day of the tardy. A student who is absent on a given day is still responsible for what transpired in class on that day. An absence total exceeding two weeks will result in a student

being barred from accumulating further extra credit. The student is to come to the instructor's office during the office hour to obtain any handout or unclaimed work a student has missed due to an absence. Attendance will figure into my grading at the end of term if the grade is borderline. In line with college guidelines, I consider total absences exceeding a week to be excessive.

Make-ups: No make-ups are allowed on the syllabus quiz, museum quiz or the final exam. Exams may only be made up under the following conditions: 1) the reason for missing the exam is a serious documentable crisis – **a family vacation is not an allowable excuse** 2) the instructor has been contacted on the day of the crisis or before. 3) Documentation of the problem is furnished to me prior to taking the make-up. Make-ups may only be taken in my office during my office hours. I will only delay handing back an exam one class meeting to accommodate make-ups.

Unrighteous behavior: I don't fool around with those who cheat. Cheating includes copying off another's test, copying another student's assignment, or lifting material from a source, including the texts and websites without proper acknowledgement (plagiarism). Learn the consequences at your peril!

If you wish for me to waiting for you at grade time with vengeance in my heart, then do any of the following 1) leave the classroom while lecture is in progress, and for added effect, cross directly in front of me to make sure I lose my train of thought. Doing this will result in **20 points being deducted** from the students point total at the end of class for every infraction, and the student will earn an unexcused absence for the day. **It is never OK to leave a lecture early!** 2) read a newspaper, talk to your neighbor, show off your laptop computer, or sleep while lecture is in progress. 3) bring an active pager or cell phone to class, and if you really want to see an enraged instructor, take a cell phone call while class is in progress. These behaviors are all disruptive to the learning experience, and are usually exhibited by people who end up dropping or failing the class.

Drops - Generally speaking, I will automatically drop anyone with two consecutive weeks of absences, and I may if the student's point total drops more than 30 points below the boundary to pass the course (after discussing the situation with the affected student). However, oversights occur, and ultimately it is the responsibility of the student to withdraw from the class if the student wishes to do so.

Incompletes - an incomplete will only be given to a student caught in the throes of a crisis not related to class performance.

Grade Reporting - I don't post final grades (school policy). If you wish to know your grade ahead of official reporting, bring me a grade card at the final exam, or send me an email requesting the grade.

Lectures

<u>Week</u>	<u>Lecture topic and readings</u>	<u>Boyd and Silk</u>	<u>[Zihlman]</u>
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(1)	The field of biological anthropology	Prologue	
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Receive natural selection worksheet

- (2) Science, evolution, and natural selection Chpt. 1 [Section 1 Intro., 1-1, 1-2]
Chpt. 6: 161-163
- (3) Inheritance and population genetics Chpt. 2: 24-33 [1-10, 1-11, 1-12, 6-13]
Receive population genetics worksheet Chpt. 3: 53-68; 75-79

Monday March 1st Syllabus Quiz

- (4) Cell biology, DNA and protein synthesis Chpt. 2: 33-50 [Section 2 Intro., 2-1 – 2-5]
NS worksheet due Mon. March 8th

Test # 1 Friday, March 12th covering the first three weeks of material.

- (5) Behavioral genetics Chpt. 3: 68-71 [3-14]
Genetics worksheet due Mon. March 15th Chpt. 14: 405-6
- (6) Genetic evidence for evolution in humans: Chpt. 14 to pg. 402 [6-11, 6-14, 6-15]
human polymorphisms.

Test #2 Fri. March 26th

- (7) The living primates: ecological concepts, Chpts. 4 & 5 [Section 3 & 4 Intro.,
cladistics, and core characteristics Whitehead Chpt. 1 1-6, 1-7, 3-1 – 3-3,
3-5, 3-6, 4-1, 4-4 – 4-9, 4-13, 4-15, 4-16, 4-18, 4-20, 4-22, 4-33 - 4-35; Appendix, 3-21, 3-24]
- (8) Primate comparative anatomy Appendix; Whitehead Chpt. 1 [3-8 – 3-17, 5-14 – 5-17]
Receive museum quiz
Museum quiz taken Fri. April 9th

- (9) Primate social structure and behavior Chpt. 5 & 6 [3-4, 3-23, 3-29, 4-33]
.... capacity for learning, and communication. Chpt. 8; Chpt. 15: 426-437 [3-32 – 3-35]

Non-human primate report due Friday April 23rd

- (10) **Test #3 Monday April 27th**

Dating techniques. Chpt. 9 [1-21, 1-22, 5-4]

- (11) The origins of the primates Chpt. 9: 227-244 [4-2, 4-3, 4-10, 4-11, 4-27, 4-28, 4-29]

- (12) The origins of the Hominidae Chpts. 10 & 11
[5-5 – 5-13, 5-16 – 5-22]

- (13) Early *Homo* Chpt. 12: 305-319 [5-23 – 5-25]

Test #4 Monday May 17th

- (14) *Homo sapiens*. Chpt. 12: 319-339 [5-26]
- (15) *Homo sapiens sapiens* Chpt. 13 [5-27 – 5-29]
- (16) **Final on Friday of the last week of class: June 11th**