Las Positas College
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Course Outline for ANTH 1

BIOLOGICAL/PHYSICAL ANTHRO

Effective: Fall 2009

I. CATALOG DESCRIPTION:
ANTH 1 — BIOLOGICAL/PHYSICAL ANTHRO — 3.00 units

Humans as a biological species through an examination of the fossil evidence for human evolution, behavior of nonhuman primates, and human evolutionary biology and genetics. Emphasis on uniquely human biological and behavioral characteristics, as well as those shared with other animals. Current anthropological issues such as the biological meaning of race, genetic diseases, and the influence of evolution on human behavior. 3 hours lecture.

3.00 Units Lecture

Grading Methods:
Optional

Discipline:

	MIN
Lecture Hours:	54.00
Total Hours:	54.00

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT:

III. PREREQUISITE AND/OR ADVISORY SKILLS:

IV. MEASURABLE OBJECTIVES:

Upon completion of this course, the student should be able to:

1. explain the scientific method as it applies to the study of the evolution of humans
2. describe the evolution of primates and humans over the last 160 million years
3. describe the physical, social, and intellectual characteristics of primates
4. describe the development of humans from the Miocene through the Holocene
5. explain the differences between the Australopithecines, Early Homo, and modern humans
6. describe the stone tool (lithic) technologies of ancient humans
7. explain the structure and functions of DNA
8. explain Mendelian genetics and the science of inheritance, including dominant, recessive, co-dominant, and incompletely dominant alleles
9. describe and discuss the mechanisms and processes of evolution including gene flow and genetic drift, natural selection, adaptive radiation, and punctuated equilibrium
10. describe and discuss the evolutionary models for the emergence of the physical characteristics of humans
11. discuss theories concerning the dispersal of anatomically modern humans across the globe
12. discuss evolution in the current context, including the impact of technology and agriculture on the human body
13. discuss the history of racism and provide critical analysis of "scientific" racism and sexism in studies both past and present
14. discuss the historical, social, and political consequences of racism

V. CONTENT:
- A. Discussion of the scientific method.
- B. Survey of the evolution of primates and humans during the last 160 million years.
  1. Primates, anthropoids, hominoids and hominids
  2. New World vs. Old World species
  3. Mammalian adaptive radiation
- C. Detailed discussion of hominid evolution over the last 6 to 8 million years.
  1. Morphology of bipedalism
  2. Pre-Australopithecines (Basal hominids)
  3. Gracile and Robust Australopithecines
  4. Early Homo
  5. Archaic Homo sapiens (including Neandertals)
  6. Anatomically modern Homo sapiens sapiens
  7. Lithic technologies
- D. Attention to the adaptive and genetic processes involved in human evolution.
  1. Molecular genetics (DNA)
  2. Mendelian genetics
  3. Natural selection
  4. Adaptive radiation
  5. Population genetics

6. Punctuated equilibrium
7. Genetic drift
8. Gene flow
9. Macroevolution

E. The physical and behavioral characteristics of primates.
1. Distribution and endangered status
2. Genera
3. Generalized primate physical characteristics
4. Affiliative and aggressive behaviors (e.g., grooming)
5. Group structure, dominance hierarchies
6. Parenting
7. Language
8. Tool Use

F. The relationship between anatomical changes in hominids and the development of culture.
1. The impact of agriculture and technology on evolution
2. Increases in brain size correlated with increasing technological complexity

G. The role of genetics, microevolution, gene flow and migration in the genetic similarities of modern humans.
1. The concept of “race”
2. Climatic adaptations

VI. METHODS OF INSTRUCTION:
A. **Lecture** -
B. Textbook reading assignments; additional Internet and/or print assignments
C. **Lecture** -
D. **Audio-visual Activity** - Presentation of audio-visual materials
E. **Research** - Research project
F. **Discussion** -

VII. TYPICAL ASSIGNMENTS:
A. Lectures 1. Mendelian genetics 2. Primate social behavior 3. Anatomical adaptations for bipedalism B. Reading assignments 1. Read the textbook chapter on Homo erectus 2. Read an excerpt from Herbert Spencer's Progress: Its Law and its Cause C. Homework 1. Read the textbook chapter on Mendelian genetics; using a Punnett Square diagram, map out the results of a union between two carriers for a recessive trait. What percentage of offspring would we expect not to show the recessive trait? D. Class and group discussions. 1. Class discussion topic: Are human beings still evolving? 2. Group discussion topic: What is "fixity of species?" How did the concept stand in the way of the development of evolutionary theory? E. Audio-visual materials. 1. Nova's "Return of the Iceman," for example, to demonstrate the relevance of physical anthropology to real world science. F. Group research project. 1. Choose any topic in physical anthropology and produce both a poster and class presentation to explain it in detail. Examples include the Human Genome Project, lithic technology, and cloning.

VIII. EVALUATION:
A. **Methods**

1. Exams/Tests
2. Quizzes
3. Research Projects
4. Home Work

B. **Frequency**

1. Midterm and Final Exams
2. Periodic quizzes
3. Weekly homework evaluation
4. End-of-term evaluation of research project

IX. TYPICAL TEXTS:
1. Jurmain, Kilgore, Trevathan and Nelson *Essentials of Physical Anthropology.* 5th ed., Wadsworth, 2003.
2. Angeloni, Elvio *Annual Editions in Physical Anthropology 04/05.* 13th ed., McGraw-Hill/Dushkin, 2003.

X. OTHER MATERIALS REQUIRED OF STUDENTS: