

Lassen Community College Course Outline

ANTH-1 Biological Anthropology

3.0 Units

I. Catalog Description

This course introduces the concepts, methods of inquiry, and scientific explanations for biological evolution and its application to the human species. Issues and topics will include, but are not limited to genetics, evolutionary theory, human variation and biocultural adaptations, comparative primate anatomy and behavior and the fossil evidence for human evolution. This course has been approved for correspondence, hybrid and online deliveries. This course uses an Open Educational Resource textbook. This course may include an optional lab component to complete the lab general education requirement. ANTH1 (lecture portion) must be taken as a co-requisite or a pre-requisite in order to take the lab course.

Recommended Preparation: Successful completion of ENGL105 or equivalent multiple measures placement.

Transfers to both UC/CSU

General Education Area: A

CSU GE Area: B2

IGETC GE Area: 5B

C-ID ANTH 110

51 Hours Lecture, 102 Outside Class Hours, 153 Total Student Learning Hours

Scheduled: Fall, Spring

II. Coding Information

Repeatability: Not Repeatable, Take 1 Time

Grading Option: Graded or Pass/No Pass

Credit Type: Credit - Degree Applicable

TOP Code: 220200

III. Course Objectives

A. Course Student Learning Outcomes

Upon completion of this course the student will be able to:

1. Given a set of problems or questions regarding the nature of scientific inquiry, distinguish science from non-science, identify specific parts of the scientific method; apply basic scientific methods to reach a conclusion; and place specific persons, events and broad ideas within their historical context.
2. Given a set of problems, questions, or being presented with a specific fossil or artifact: apply basic methods of genetics, paleontology and taxonomy to solve a problem; evaluate and discuss potential interpretations of the data presented; identify important anatomical features or whole fossils and place them in proper taxonomic, geographic and chronological contexts.

B. Course Objectives

Upon completion of this course the student will be able to:

1. Describe the scientific process as a methodology for understanding the natural world.

2. Define the scope of anthropology and discuss the role of biological anthropology within the discipline.
3. Identify the main contributors to the development of evolutionary theory.
4. Explain the basic principles of Mendelian, molecular and population genetics.
5. Evaluate how the forces of evolution produce genetic and phenotypic change over time.
6. Demonstrate an understanding of classification, morphology and behavior of living primates.
7. Summarize methods used in interpreting the fossil record, including dating techniques.
8. Recognize the major groups of hominin fossils and describe alternate phylogenies of human evolution.
9. Identify the biological and cultural factors responsible for human variation.

IV. Course Content

The following topics may be included, however, the order of presentation, relative emphasis, and the depth of treatment will depend on the preferences of the instructor.

- A. Introduction: Science and Explanation
 1. Science as a way of knowing; questions and explanations
 2. Deduction and induction
 3. Theory and hypothesis
 4. Proof versus probability
 5. The nature of biological anthropology
- B. History of Biological, Evolutionary Thought
 1. Early explanations for the diversity of life
 2. Grand Design (1700s): Linnaeus, Buffon, Erasmus Darwin
 3. Natural Theology (1700-1800s): Lamarck, Cuvier, Lyell, Malthus
 4. Darwin and Natural Selection; natural selection as a hypothesis
- C. Principles of Heredity: Microevolution
 1. First experiments: Mendel
 2. Cell structure and division
 3. DNA replication, inheritance and distribution (gene flow, genetic drift, recombination)
 4. Alleles and mutation; the relationship between codons, proteins and physical characteristics (genotype and phenotype)
- D. Models of Species Change: Macroevolution
 1. Importance of comparative anatomy
 2. Convergent and parallel evolution
 3. Units of evolutionary change: individuals, populations and species
 4. Tempo and mode of evolutionary change
 5. Dawkins: cumulative change
 6. Selection and speciation
- E. Overview of Living Primates
 1. Primate taxonomy and major groups
 2. Comparative anatomy of monkeys, apes and humans
 3. The distinction between hominoid and hominid
 4. Primate behavior
- F. Fossils, Dating and Methods of Paleoanthropology
 1. The nature of fossilization
 2. Dating methods

3. Taphonomy (how do we get fossils?)
- G. Primate evolution
 1. Genetic distance and paleontology
 2. Brief overview: origins of major primate groups
 3. Evolution of the apes
 4. Climate change and adaptation
 5. *Dryopithecus*, *Ramapithecus* and *Sivapithecus*
- H. Early Hominid Evolution
 1. The anatomy of bipedalism
 2. Origins of bipedalism (relationship to ecology)
 3. Early australopithecines (*Ardipithecus*, *anamensis*, *afarensis*)
 4. Gracile and robust australopithecines: anatomy and ecological adaptations
- I. Evolution and Behavior of early *Homo*
 1. Australopithecines and early *Homo*
 2. Models of early hominid behavior (primates and modern hunter-gatherers)
 3. The first stone technology; implications for behavior
 4. Hunters or scavengers; implications for views of human culture
- J. Out of africa: *Homo erectus*
 1. Anatomical and technological adaptations
 2. Geographical distribution
 3. Relationship to archaic *Homo sapiens*
- K. Archaic and anatomically modern *Homo sapiens*
 1. Anatomy and technological adaptations
 2. Geographical distribution
 3. Cultural adaptations
 4. Relationship of archaic and anatomically modern *Homo sapiens*
 5. Relationship between cultural and biological adaptation
 6. Modern human variation

V. Assignments

A. Appropriate Readings

Standard college level texts will be the primary sources of course readings. Additional readings from other sources (journal and magazine articles, internet websites, newspaper articles, etc.) will be assigned to augment or clarify issues in the primary text.

B. Writing Assignments

Writing assignments may include, but are not limited to: essay and short answer questions on mixed format examinations. Outside assignments (such as a book review; see below) will include a written segment.

C. Expected Outside Assignments

Students are expected to do all assigned readings outside of class. In addition, all students will be expected to write a book review. Students may choose any popular book on any class topic (e.g. physical anthropology, paleolithic archaeology, evolutionary biology, history of science, etc.). A list of potential titles (examples: *Lucy* by Don Johanson, *The Blind Watchmaker* by Richard Dawkins, *The Sixth Extinction* by Richard Leakey) will be presented to the students, but any book not on the list may be reviewed with instructor approval.

D. Specific Assignments that Demonstrate Critical Thinking

The very nature of Physical Anthropology, as a discipline, requires that students constantly apply analytically critical thinking when dealing with the problems of

interpretation of raw data as they apply to the evolutionary model. Examples of assignments that demonstrate critical thinking may include, but are not limited to:

1. Review of periodicals and newspapers
2. Analyze and synthesize information presented in the text and during lectures.

VI. Methods of Evaluation

Traditional Classroom Instruction

The instructor will provide each student with a written course syllabus, indicating the evaluation procedures to be used. The final student grade will be based upon a combination of the following:

A. Performance on mixed-format exams (multiple choice, true/false, short answer and essay)

Examples of essay questions:

1. Explain the value of studying modern primate behavior to better understand the behavior of early hominids.
2. Describe the various clues that would lead an anthropologist to identify the sex and age of fossil remains, including the complete cranium with mandible, complete pelvis, clavicle, upper leg bone, bones of one arm and hand including wrist.
3. Compare and contrast '*Australopithecus afarensis*' and '*Homo erectus*'.
4. Discuss the significance of the East African fossils in the current understanding of hominid evolution.

B. Performance on submitted book review

C. Class participation

Online Delivery

Same as face to face with all work being submitted online and the use of discussion forums for classroom participation.

Hybrid Delivery:

A combination of traditional classroom and online evaluations will be used, such as (1) Traditional Classroom: exercises/assignments, objective examinations and essay examinations and (2) Online delivery: exercise/assignments, online quizzes and exams, essay forum postings, and chat rooms.

Correspondence Delivery

Same as face to face with the exception of the desired use of proctored exams and exclusion of participation in classroom activities. Students will be expected to complete written and reading assignments and activities equivalent to in-class assignments and activities. Written correspondence and a minimum of six opportunities for feedback will be utilized to maintain effective communication between instructor and student, however students are encouraged to communicate as often as desired.

VII. Methods of Delivery

Check those delivery methods for which, this course has been separately approved by the Curriculum/Academic Standards Committee.

Traditional Classroom Delivery Correspondence Delivery

Hybrid Delivery

Online Delivery

Methods of instruction may include, but are not limited to the following:

- A. Lecture and computer assisted presentations
- B. Discussion and problem solving performed in class
- C. Textbook and other assigned readings
- D. Slide presentations
- E. Video presentations

Online Delivery

Online written lectures. Participation in forum-based discussions. Online exercises/assignments contained on website. Discussion papers, email communications, postings to forums, and web-links will comprise the method of instruction.

Correspondence Delivery

Assigned readings, instructor-generated typed handouts, typed lecture materials, exercises and assignments equal to face-to-face instructional delivery. Written correspondence and a minimum of six opportunities for feedback will be utilized to maintain effective communication between instructor and student.

Hybrid Delivery:

A combination of traditional classroom and online instruction will be utilized. Each semester a minimum of 17 hours will be taught face-to-face by the instructor and the remaining hours will be instructed online through the technology platform adopted by the District. Traditional class instruction will consist of exercises/assignments, lectures, visual aids, and practice exercises. Online delivery will consist of exercises/assignments, lecture posts, discussions, adding extra resources and other media sources as appropriate.

VIII. Representative Texts and Supplies

Open Educational Resource Textbook; *Explorations* Available in class canvas section (free), online (free) @ <http://explorations.americananthro.org/index.php/chapters/> or LCC Bookstore (minimal cost for printing)

IX. Discipline/s Assignment

Anthropology, Biological Sciences

X. Course Status

Current Status: Active

Original Approval Date: 12/19/1989

Revised By: Colleen Baker

Curriculum/Academic Standards Committee Revision Date: 05/17/2022