

COURSE OUTLINE

Anthropology 111 (C-ID Number: ANTH 115L) Physical Anthropology Lab (C-ID Title: Biological Anthropology Laboratory)

Catalog Statement

ANTHR 111 is the laboratory course for Physical Anthropology. Laboratory exercises include the observation and interpretation of: natural selection and evolution; Mendelian, molecular, and population genetics; non-human primate anatomy, taxonomy, and behavior; fossil evidence of hominid evolution; forensic anthropology; human osteology; and human physical variation.

Total Lecture Units: 0.0

Total Laboratory Units: 1.0

Total Course Units: 1.0

Total Lecture Hours: 0.0

Total Laboratory Hours: 48.0

Total Laboratory Hours To Be Arranged: 0.0

Total Faculty Contact Hours: 48.0

Prerequisite: ANTHR 101 (may be taken concurrently)

Recommended Preparation: Eligibility for ENGL 120 or ESL 151

Course Entry Expectations

Prior to enrolling in the course, the student should be able to:

- describe the scientific process as a methodology for understanding the natural world;
- define the scope of anthropology and discuss the role of biological anthropology within the discipline;
- identify the main contributions to the development of evolutionary theory;
- explain the basic principles of Mendelian, molecular, and population genetics;
- evaluate how the forces of evolution produce genetic and phenotypic change over time;
- demonstrate an understanding of classification, morphology, and behavior of living primates;
- summarize methods used in interpreting the fossil record, including data techniques;
- recognize the major groups of hominin fossils and describe alternate phylogenies for human evolution;
- identify the biological and cultural factors responsible for human variation;
- analyze short essays;
- evaluate compositions for unity and sufficiency of development, and coherence, as well as variety of sentence structure;
- organize and write a thesis-driven, organized essay;

- use in their essays a variety of sentence types with minimal errors in such basics of the sentence as subject-verb agreement, subordination, and complementation.

Course Exit Standards

Upon successful completion of the required coursework, the student will be able to:

- describe and apply each step of the scientific method;
- describe and define natural selection, evolution, and the processes that shape them;
- solve simple and advanced Mendelian and population genetics problems;
- outline the most important steps in protein synthesis, and relate those steps to mutational errors and how natural selection is made meaningful on a genetic level;
- identify the important morphological conditions found in hominid fossils;
- identify biasing agents in the fossil record;
- identify human bones and features of bones to interpret both non-human primate and hominid material;
- describe the ways human variation has been examined and critique both how the scientific and social communities have used data;
- evaluate the behavior of non-human primates.

Course Content

Total Faculty Contact Hours = 48.0

Scientific Method, Natural Selection, & Basic Evolution (3 hours)

What the scientific method is and how it works
The nature and function of natural selection
Evolution and how it can be modeled

Human Genetics (12 hours)

Mendelian genetics
Molecular genetics
Population genetics

Anatomy and Primate Taxonomy (9 hours)

Basic skeletal anatomy
Primate skeletal anatomy & taxonomy
Sexual dimorphism

Primate Behavior (3 hours)

Value of studying non-human primate behaviors to evolutionary anthropologists and paleoanthropologists
Conduct and biases of behavioral studies
Observations of living primates (fieldwork)
Interpretations of living primate data

Fossil Record and Hominid Evolution (12 hours)

Archeological methods and dating techniques
Early hominids
Bipedalism
Genus Homo
Dental morphology & diet

Human Variation (6 hours)

Pulse rate and body temperature lab
Bone anthropometry and dermatoglyphics
Forensic Anthropology (**3 hours**)
Bone trauma
Bone pathology
Determination of age, sex and cause of death

Methods of Instruction

The following methods of instruction may be used in this course: short lectures;

- class discussions;
- small group labs and exercises;
- computer lab exercises;
- video and other multi-media presentations;
- on-line presentation of course material.

Out of Class Assignments

The following out of class assignments may be used in this course:

- frequent field trips to the zoo or Gibbon Conservation Center;

Methods of Evaluation

The following methods of evaluation may be used in this course:

- lab exercises;
- quizzes;
- written in class assignments (e.g. critique journal article)
- mid-term examinations;
- final examination.

Textbooks

France, Diane. *Lab Manual & Workbook for Physical Anthropology 7th ed.*

Belmont: Wadsworth, 2010. Print.

12th Grade Textbook Reading Level. ISBN-13: 978-0495810858.

Walker-Pacheco, Suzanne. *Exploring Physical Anthropology: A Lab Manual & Workbook 2nd ed.* Englewood: Morton, 2010. Print.

10th Grade Textbook Reading Level. ISBN-13: 9870895828118.

Student Learning Outcomes

Upon successful completion of the required coursework, the student will be able to:

- solve basic Mendelian Genetics problems;
- explain what conditions are necessary for a state of genetic equilibrium and test populations to see if they are in a state of equilibrium;
- identify all of the bones of the human body and the major features on those bones;

- distinguish abnormalities in human bone of both traumatic and pathological nature;
- identify important and distinctive features on early hominid skeletons;
- make inferences about behavior from morphological characteristics of skeletons of nonhuman primates and hominids;
- compare the distinguishing features of apes, monkeys and prosimians and be able to make appropriate inferences about behaviors.