

ANTH 13: INTRODUCTION TO FORENSIC ANTHROPOLOGY

Foothill College Course Outline of Record

Heading	Value
Units:	4
Hours:	4 lecture per week (48 total per quarter)
Degree & Credit Status:	Degree-Applicable Credit Course
Foothill GE:	Area III: Natural Sciences
Transferable:	CSU/UC
Grade Type:	Letter Grade (Request for Pass/No Pass)
Repeatability:	Not Repeatable

Student Learning Outcomes

- Students will practice and apply understandings of forensic anthropology.
- Students will learn how to critically analyze and interpret forensic anthropological data.
- Students will apply anthropological principles for solving human problems on the local, regional and world scales.

Description

Introduction to the application of anthropology as a science to the medical-legal process and its emphasis on the identification of human skeletal remains. Uses the scientific methodology to cover cell biology, population genetics, natural selection, human variation, evolution, basic human osteology and odontology, assessment of age at time of death, sex, ancestry, trauma analysis, pathology, crime scene analysis, animal scavenging, and identification procedures. Focuses on the varying applications of science in the modern world in which forensic anthropology is utilized ranging from crime scene investigation, missing person identification, human rights, and humanitarian investigations.

Course Objectives

The student will be able to:

- Understand the rise of anthropology as a science.
- Apply the scientific methodology to aspects of the forensic sciences.
- Make judgments regarding the validity of scientific evidence.
- Develop an understanding of the relationship between hypothesis, experiment, fact, theory and law.
- Evaluate, use and communicate scientific data as it relates to forensic science.
- Apply the practice of thinking critically, including evaluating ideas and contrasting opinions.
- Apply concepts of natural selection and human evolution to the study of human osteology.
- Identify key features within cellular biology to explain bone formation.
- Relate the application of DNA to criminal investigations, identification, and population genetics.
- Distinguish human skeletal remains through evolutionary comparative analysis.
- Identify the bones of the human body.
- Identify aspects of crime scene investigation imperative to analysis by forensic anthropologists and pathologists.

- Identify appropriate methods for preparation and reconstruction of remains in the laboratory.
- Determine the cause of death due to trauma by assessing different types of ante-, peri-, and postmortem changes to bone, including pathology, trauma, and natural anomalies.
- Determine the age, sex, stature, and handedness of human skeletal remains.
- Understand taphonomic processes and archaeological protocols.
- Develop and understanding a theoretical basis for practice in a medicolegal and anthropological perspective.

Course Content

- Introduction to forensic anthropology
 - Historical background, theory, and methodology of anthropology and forensic sciences
 - Data gathering and analysis
 - Laboratory equipment
 - Scientific method
 - History of science and anthropology
- Cell and bone biology
 - Haversian system
 - Bone tissue
 - Compact, cancellous, subchondral bone
- Physiological functions of bone
 - Bone morphology
- DNA and population genetics
 - DNA and protein synthesis
 - Functions of DNA
 - Skeletal variation within our species
- Race and geographic ancestry
 - Applications of osteology: paleopathology and paleo-demography
 - History of racial concepts in biological anthropology
 - Geographic population distributions
 - Genetic diversity
 - Clines and phenotypic variation
 - Human evolution and migration
 - Usage of race in bureaucratic and judicial settings
- Death, decomposition, and taphonomy
 - Biological death
 - Time of death
 - The mortises
 - Decomposition and skeletalization
 - Fresh, bloat, active decay, diagenesis
 - Taphonomy/biotic and cultural processes
 - Dismemberments
 - Animal scavenging, fire damage, weathering, burial damage, water damage, and miscellaneous damage
- Basics of human osteology and odontology
 - Overview of the human skeleton
 - Cranial and postcranial skeleton
 - Bone anatomy and growth
 - Human dentition
 - Human and non-human skeletal distinctions
 - Morphological differences
 - State of preservation
- Recovery scene
 - Locating remains
 - Site preparation and mapping
 - Preliminary excavation
 - Marking remains
 - Evidentiary chain of custody

6. Preparation of remains
7. Reconstruction
8. Inventorying of remains
- H. Determining sex
 1. Pelvis
 2. Skull
 3. Various bones
 4. Subadults
- I. Determining age at death
 1. Adult
 2. Subadult
 3. Calculation of stature
- J. Death and trauma
 1. Cause of death
 2. Bone trauma basics
 3. Characteristics of force
 - a. Direction of force
 - b. Speed of force
 - c. Focus of force
 4. Types of trauma
 - a. Blunt force
 - b. Sharp force
 - c. Projectile
 - d. Miscellaneous
 5. Timing of injury
 - a. Antemortem
 - b. Perimortem
 - c. Postmortem
- K. Blunt trauma
 1. Types of instruments
 2. Effects of blunt instruments on skeleton
 3. Wound analysis
- L. Antemortem skeletal conditions
 1. Pathologies
 2. Anomalies
 3. Occupational stress markers
- M. Postmortem changes to bone
 1. Dismemberments
 - a. Basics of saws and saw damage
 - b. Analysis of saw marks
 2. Animal scavenging
 - a. Carnivores
 - b. Rodents
 3. Fire damage
 4. Weathering
 5. Burial damage
 6. Water damage
 7. Miscellaneous damage
- N. Aspects of individualization
 1. Facial reproduction
 2. Assessing handedness
 3. Estimating body weight
 4. Co-mingling
 5. Identification using antemortem records
 6. Radiography
 7. Photographic superimposition
 8. Forensic odontology
- O. Forensic anthropology in practice
 1. Ethnical responsibilities
 2. Final report writing
 3. Expert witness testimony
 4. Humanitarian/human rights investigations

5. Standardization/UN protocols/professional associations
6. Trends in forensic anthropology

Lab Content

Not applicable.

Special Facilities and/or Equipment

A. When taught via Foothill Global Access, on-going access to computer with email software and hardware; email address.

Method(s) of Evaluation

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

- A. Class discussion and participation
- B. Written examinations
- C. Research paper
- D. Practicum examinations
- E. Oral reports

Method(s) of Instruction

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

- A. Lectures
- B. Reading of texts and peer reviewed articles
- C. Class discussion
- D. Short hands-on exercises
- E. Guest speakers

Representative Text(s) and Other Materials

Byers, Steven N. Introduction to Forensic Anthropology. 4th ed. Allyn & Bacon, 2010.

Christenson, Anji, Nicholas Passalacqua, and Eric Bertelink. Forensic Anthropology: Current Methods and Practice. Academic Press, 2014.

Koff, Clea. The Bone Woman: A Forensic Anthropologist's Search for Truth in the Mass Graves of Rwanda, Bosnia, Croatia, and Kosovo. Random House Trade Paperbacks, 2005.

Langley, Natalie R., and Maria Teresa A. Tersigni-Tarrant. Forensic Anthropology: A Comprehensive Introduction. 2nd ed. Boca Raton, FL: CRC Press, 2017.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

- A. Two map quizzes covering geography important to class
- B. Final paper with focus on scientific investigation of human remains
- C. Six homework assignments for critical thinking

D. Reading assignments averaging 40-50 pages per week

E. Exams

Discipline(s)

Anthropology