

ANTH 001L: INTRODUCTION TO PHYSICAL ANTHROPOLOGY LABORATORY

New Course Proposal

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Originator

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Co-Contributor(s)

Name(s)

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Justification / Rationale

An introductory physical/biological anthropology laboratory course is part of a comprehensive community college anthropology curriculum. Currently, this laboratory course is offered at other 45 California community colleges and four-year institutions. This course is a lower division general education and major preparation requirement at most four-year state universities and is part of the transfer model curriculum (TMC) for the AA-T in Anthropology. This course has a C-ID assigned (ANTH 115L) and readily transfers to the CSU, especially CSUSB, and the UC. Upon approval, it provides an additional option to allow students to earn general education credit for a laboratory science course in either the life science or physical sciences areas.

Effective Term

Fall 2019

Credit Status

Credit - Degree Applicable

Subject

ANTH - Anthropology

Course Number

001L

Full Course Title

Introduction to Physical Anthropology Laboratory

Short Title

INTRO/PHYSICAL ANTHRO LAB

Discipline

Disciplines List

Anthropology

Modality

Face-to-Face

Catalog Description

This laboratory course is offered as a complement to ANTH 001: Introduction to Physical Anthropology, either taken concurrently or in a subsequent term. Laboratory exercises are designed to introduce students to the scientific method and techniques used in physical/biological anthropology research. Application of the scientific method to explore molecular biology, Mendelian and population genetics, modern human variation, comparative human and non-human primate anatomy and behavior, the primate and hominin fossil record, forensic anthropology, forensic analysis, and other resources to investigate processes that affect human evolution. May require participation in field trips at alternative class meeting times.

Schedule Description

Laboratory exercises are designed to introduce students to the scientific method and techniques used in physical/biological anthropology research. May require participation in field trips at alternative class meeting times.

Corequisite: ANTH 001 or prior completion

Advisory: ENG 061

Lecture Units

0

Lecture Semester Hours

0

Lab Units

1.0

Lab Semester Hours

54

In-class Hours

54

Out-of-class Hours

0

Total Course Units

1.0

Total Semester Hours

54

Prerequisite Course(s)

Corequisite: ANTH 001 or prior completion

Advisory: ENG 061

Required Text and Other Instructional Materials**Resource Type**

Web/Other

Open Educational Resource

No

Description

Plastic Skull Kit

Resource Type

Manual

Open Educational Resource

No

Author

Soluri, K. Elizabeth and Agarwal, Sabrina C.

Title

Laboratory Manual and Workbook for Biological Anthropology

Publisher

W.W. Norton, ISBN 978-0393290394

Year

2015

Resource Type

Manual

Open Educational Resource

No

Author

Hens, Samantha M.

Title

Method and Practice in Biological Anthropology

Publisher

Pearson, ISBN 9780133825862

Year

2015

Resource Type

Manual

Open Educational Resource

No

Author

France, Diane L.

Title

Lab Manual and Workbook for Physical Anthropology

Publisher

Wadsworth Publishing, ISBN 978-1305259041

Year

2016

Class Size Maximum

24

Entrance Skills

Ability to read and write English using college-level critical thinking skills.

Prerequisite Course Objectives

ENG 061-Use theses to organize paragraphs into coherent analyses.

ENG 061-Demonstrate the ability to think critically and express ideas using various patterns of development.

ENG 061-Recognize features of style such as purpose, audience and tone integrate these elements into academic and professional writing.

ENG 061-Demonstrate the ability to use research skills including library resources such as books, periodicals, electronic databases and online resources such as the internet.

ENG 061-Demonstrate the ability to read and respond in writing beyond the literal interpretation of the text.

ENG 061-Utilize a handbook to properly cite and document source material in MLA format.

Course Content

1. The theory and genetic basis of evolution
2. Historical origins
3. Natural selection, mutation, genetic drift, gene flow, recombination
4. Evolution and behavior of non-human primates
5. Man's kinship with the animal kingdom
6. Process of fossilization
7. Human paleontology
8. Techniques for the determination of chronology
9. Nature of the dental and osteological evidence
10. Biological dimensions of culture development (biocultural evolution)

11. Modern human variability/races
12. Population structure
13. Adaptation of genetically simple traits
14. Evolutionary future of humankind - the last 10,000 year of human evolution

Lab Content

1. The Scientific Process
 - a. The Nature of Science and Scientific Inquiry
 - b. The Scientific Method
 - c. Research Design
 - d. Drawing Conclusions
2. Cell Biology and DNA
 - a. Cell Structure
 - b. Chromosomes and Cell Division
 - c. DNA Structure and Function
 - d. Mechanism of PCR
 - e. The Genome and Epigenome
 - f. Forensic Anthropology and Analysis
3. Molecular, Mendelian, and Population Genetics
 - a. Mendelian Genetics
 - b. Punnett Squares
 - c. Pedigree Analysis
 - d. Population Genetics
 - e. Hardy-Weinberg Calculations
 - f. Interpretation of Visual Data (Karyotype, DNA fingerprint)
4. Mechanisms of Evolution
 - a. Mutation
 - b. Gene Flow
 - c. Genetic Drift
 - d. Natural Selection
5. Nonhuman Primates and Comparative Primate Taxonomy, Anatomy, and Behavior
 - a. Primate Classification
 - b. Comparative Primate Anatomy
 - c. Primate Evolution
 - d. Primate Behavior
 - e. Social Systems
6. Hominin Evolution
 - a. Bipedalism and the Evolution of Bipedal Locomotion
 - b. Early Hominins
 - c. The Australopithecines
 - d. The Genus Homo
 - e. Stone Tools
7. Human Variation
 - a. Human Skeleton
 - b. Osteology, Osteometry, and Anthropometry
 - c. Race, Ethnicity, and Geographic Ancestry
 - d. Age Estimation/Growth and Development
 - e. Biocultural Adaptations
 - f. Lactase Persistence

Course Objectives

Objectives	
Objective 1	Apply and describe the steps of the scientific method and design an appropriate experiment to test a hypothesis
Objective 2	Identify and discuss the outcomes of evolutionary processes
Objective 3	Describe the structure and function of DNA and RNA including the stages of DNA replication and protein synthesis

Objective 4	Demonstrate how human traits are inherited and determine monohybrid and dihybrid offspring genotype and phenotype probabilities with the use of a Punnett square
Objective 5	Trace the transmission of a genetic trait using a pedigree diagram and identify the mode of inheritance
Objective 6	Calculate the frequency of the homozygote dominant, heterozygote, and homozygote recessive condition in a population using the Hardy-Weinberg formula
Objective 7	Identify the skeletal adaptations associated with bipedal locomotion
Objective 8	Compare and analyze the anatomy, morphology, and behavioral features of primates, non-human primates, early hominins, the genus Homo and modern humans.

Student Learning Outcomes

Upon satisfactory completion of this course, students will be able to:

Outcome 1	Students will use the methods and techniques of biological anthropology research and scientific methods to understand human and non-human primate evolutionary history.
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Methods of Instruction

Method	Please provide a description or examples of how each instructional method will be used in this course.
Laboratory	Provide hands-on learning approach to the theories provided in lecture and readings.
Collaborative/Team	Students will be expected to work with other students in a lab setting and to study together for homework and exams.
Demonstration, Repetition/Practice	Students will be expected to discuss the material referenced in lecture and build upon it.
Activity	Students will complete in-class activity assignments
Discussion	Students will be expected to discuss the material and answer questions
Lecture	Provided to introduce and explain the material to the students
Observation	Physical activities with observation of human movement patterns
Supplemental/External Activity	Field Trips to Zoo and/or Guest Speakers

Methods of Evaluation

Method	Please provide a description or examples of how each evaluation method will be used in this course.	Type of Assignment
Laboratory projects	Assigned to teach students how to analyze human genetic information and formulate hypotheses of evolution and critically identify fossils and skeletal remains	In Class Only
True/false/multiple choice examinations	Multiple choice, true/false questions	In Class Only
Presentations/student demonstration observations	Students will be expected to culminate their knowledge in a final presentation of misconceptions of evolution and primate relatives	In Class Only
Student participation/contribution	Students will be evaluated by their participation in labs	In Class Only
Group activity participation/observation	Students work in teams to perform and solve lab activities	In Class Only
Field/physical activity observations	Students will conduct infield observations of human activity patterns. Observations may be done in class or out of class.	In and Out of Class
Mid-term and final evaluations	Students will be tested through exams and on the learning management system to determine their understanding of the material	In Class Only
Written homework	Homework will be assigned via Canvas and some questions will require written answer for post-lab follow up.	Out of Class Only

Assignments

Other In-class Assignments

Laboratory exercises, quizzes, and lab practical exams. Writing assignments including standard scientific reports, primate observations, etc. Observation of human movement and activity patterns. Comparative analysis of fossil remains and modern human materials.

Other Out-of-class Assignments

In preparation for lab, out of class reading includes the lab manual and/or journal articles. Observation of nonhuman primates in the zoo, comparing and contrasting their behaviors with each other and with what the student has learned about wild nonhuman primate behavior in reading.

Grade Methods

Letter Grade Only

Comparable Transfer Course Information**University System**

CSU

Campus

CSU San Bernardino

Course Number

ANTH 200

Course Title

BIOLOGICAL ANTHRO LAB

Catalog Year

2018

Rationale

B2: Biological Science

University System

UC

Rationale

5B: Biological Science

COD GE

C1 - Natural Sciences

MIS Course Data**CIP Code**

45.0201 - Anthropology.

TOP Code

220200 - Anthropology

SAM Code

E - Non-Occupational

Basic Skills Status

Not Basic Skills

Prior College Level

Not applicable

Cooperative Work Experience

Not a Coop Course

Course Classification Status

Credit Course

Approved Special Class

Not special class

Noncredit Category

Not Applicable, Credit Course

Funding Agency Category

Not Applicable

Program Status

Program Applicable

Transfer Status

Transferable to UC & CSU

Allow Audit

No

Repeatability

No

Materials Fee

No

Additional Fees?

No

Files Uploaded**Attach relevant documents (example: Advisory Committee or Department Minutes)**

COD Gen Ed Worksheet2 ANTH 001L AS COMPLETED.pdf

Approvals**Curriculum Committee Approval Date**

11/15/2018

Academic Senate Approval Date

11/29/2018

Board of Trustees Approval Date

12/14/2018

Chancellor's Office Approval Date

1/07/2019

Course Control Number

CCC000599869