

ANTH 439: Methods in Biological Anthropology

Building/Room: PH1-200

Meeting days/times: MW 2-2:50 PM Seminar
3-3:50 PM Activity

Instructor

Name: Dr. Bridget Alex

Email: Bridget.Alex@csulb.edu

Office: FO5-229

Office hours: M 4-5 PM and W 1-2 PM or by appointment

Description: This course provides an overview of methods used in biological anthropology including approaches to research design, data collection and analyses. Students will become familiar with a range of methods for collecting and analyzing biological and biocultural phenomena in various contexts.

Students will also learn to evaluate scientific papers, present research findings, and prepare a research proposal.

Letter grade only (A-F). 3 units.

Prerequisites: ANTH 110 and department approved Statistics course.

Course goals and learning outcomes:

- Survey state-of-the-art research methods in biological anthropology
- Collect, analyze and interpret data. Present results to peer scholars.
- Design hypothesis-driven research to answer biological anthropology questions
- Summarize and critique existing studies

Required texts: No textbook or other materials must be purchased. Reading assignments will be posted on Beachboard, either as pdfs or links to the library's electronic version.

Reading assignments will be posted one week prior to the class in which they will be used. If you need pre-class assignments earlier just ask your instructor directly.

EXPECTATIONS & POLICIES

Assignments summary:

Pre-course survey	1 point
Introductory Meeting	3
Class prep & participation	50
<i>(10 points per full week for weeks 2-13)</i>	
Group research project	
Written Plan	10
Plan Presentation	10
Final Poster	20
Final Presentation	10
Individual “no limits” proposal	
Proposal draft	15
Pitch	10
Proposal final	25
Post-course survey	1
TOTAL	155

GRADING SCALE

89.5% and up	=	A
79.5 – 89.4%	=	B
69.5 – 79.4%	=	C
59.5 – 69.4%	=	D
59.4 and below	=	F

Assignment Details:

1) Pre/post course surveys: During the first and after the last class you will complete a survey about your understanding of course concepts. Neither is graded for accuracy. You will receive full credit for completing them. *(1 point each)*

2) Introductory meeting: During the first two weeks you will schedule a 10-minute meeting with your Instructor to introduce yourself and discuss goals. Your instructor will email a link for scheduling. *(3 points)*

3) Preparation & Participation: Pre-class assignments (mostly reading) will be posted on Beachboard. Completing the assignment **before class** will prepare you to participate that day, but there will be nothing to submit. In class we will have discussions or laboratory activities. During discussions, you are expected to listen to classmates and contribute thoughtful comments, which demonstrate engagement with the assigned reading and flow of the discussion. During laboratory activities you will collaborate equitably with partners. Written work

from class will be submitted before leaving. Your prep & participation grade includes both your verbal contributions and written work produced during class (*50 points total, 10 points per full week for weeks 2-13; 5 points for half weeks due to holidays*)

4) Group Research Project: Throughout the semester, groups of 3-4 students will design and conduct an original research project to answer a question in biological anthropology. Projects will be chosen from the following areas: 3D fossils, cooperation experiment, or mating displays in online dating. Projects will be evaluated and given feedback in several stages: written plan submitted to instructor virtually (*10 points DUE Sept 27 by 5 pm*), oral presentation of plan to class (*10 points presented Oct 7 in class*), final poster presenting results to instructor (*20 points, pdf or powerpoint submitted virtually DUE Dec 9 by midnight*), and final oral presentation to class (*10 points during class Dec 9*).

5) Individual No Limits Proposal: Students will each conceive a research project, which they would conduct if freed of the limitations imposed by a semester-long undergraduate class in terms of time, resources, and expertise. It should be your dream project in biological anthropology, considering all the approaches and topics we have discussed in class. Still, it must be feasible with state-of-the-art methods and samples that are existing or attainable.

The proposal will be 2 pages single-spaced, including background, question, proposed methods and significance. You will be provided feedback on a draft (*15 points, virtual submission DUE Nov 15 by 5 pm*), before completing a final written proposal (*25 points, virtual submission DUE Dec 13 by 5 pm*) as well as a 5-minute oral pitch to the class for fictitious funding (*10 points during class Dec 2 and 4*).

Class Attendance:

Class attendance is expected and will be reflected in your preparation and participation grade, earned Weeks 2-13. Unexcused absences during those weeks can result in a loss of up to 5 points per class. However, **every student can miss one class without losing points, no questions asked.** Just email your instructor and say you will be absent and using your “class pass” for that meeting. Additionally, students may miss class for **excused absences** (emergencies due to health, personal life, employment), provided they have documentation (e.g. doctor’s note) or email the Instructor to request permission prior to class. These requests will be evaluated on a case-by-case basis.

Assignment deadlines and extensions:

In-class activities will be submitted by the end of class. Other written assignments are due at or before the posted deadline. **In most cases extensions will be granted provided they are requested at least 5 days prior to the assignment due date.** Late submissions

without prior permission will be penalized 2% per day. If you have technical difficulties submitting an assignment, directly email it to your instructor along with screenshots showing the file, the final time it was edited, and the technical issue preventing you from submitting the assignment.

Instructor Communication:

I will respond to emails to Bridget.Alex@csulb.edu within 48 hours. Without an appointment, anyone can drop by to meet face-to-face during regular office hours (M 4-5 PM and W 1-2 PM). Alternative meetings can be scheduled by appointment, which may be in person or by video chat.

Phone, Tablet and Laptop Policy:

You may use personal electronics to consult class notes, readings or collect data. Only under those circumstances should personal electronics be out. **Texting, email, social media and web browsing is prohibited, and will result in loss of Participation points.**

UNIVERSITY POLICIES:

Withdrawal Policy:

It is the student's responsibility to withdraw from classes. Instructors have no obligation to withdraw students who do not attend courses, and may choose not to do so. Please ensure that you are enrolled before the end of the drop add period. Being given a permit to enroll does not mean you are enrolled: You must go into MyCSULB and do so. During the last three weeks of instruction, you may not drop a class except for serious and compelling reasons. This will require your instructor's signature as well as the department chair's signature.

Academic Integrity:

Students in this course will be expected to comply with the California State University, Long Beach Policy on Academic Integrity. Any student suspected of violating this obligation for any reason during the semester will be required to participate in the procedural process, initiated at the instructor level, as outlined in the University Guidelines on Academic Integrity. This may include, but is not limited to, failing the assignment/exam, failing the course, expulsion from the university. Some examples of plagiarism include recycling work from other classes, paraphrasing and/or quoting others' work (from books, the internet, journals, other student work, and so on) without proper citation. When in doubt – cite your sources. You are responsible to read this part of the syllabus and to know this policy. For this reason, « not knowing » what plagiarism is will not be taken as a valid excuse if you are caught plagiarizing.

Please consult this extensive resource on plagiarism in our library :

<http://csulb.libguides.com/c.php?g=354886&p=2393909>

And the policy in the catalog :

<http://catalog.csulb.edu/content.php?catoid=3&navoid=147#cheating-and-plagiarism>

Campus Computer/Network Usage:

Careful and ethical use of computing resources is the responsibility of every user. As a user of these resources, you agree to be subject to the guidelines of the "Policy Governing Access to and Use of CSULB Computing Resources." These guidelines apply to all computing resources provided by the University; some guidelines are more directly related to time-sharing systems, some to microcomputers and local area networks, and some to all systems.

https://daf.csulb.edu/offices/vp/information_security/policies/elec_comm_sys.html

Disabilities:

The Bob Murphy Access Center (BMAC), formerly known as Disabled Student Services, is a student support program within the Student Services Division. Its mission is to assist students with disabilities as they secure their university degrees at California State University, Long Beach. It is located in the Student Success Center, #110, and can be contacted by phone at 562-985-5401 or via e-mail at BMAC@csulb.edu. Students are responsible to identify themselves to BMAC in advance of any course requirements for which they request accommodation. Please refer to the BMAC website if you have any questions and to review support/resources available:

<http://web.csulb.edu/divisions/students/dss/>

Attendance policy and rules regarding makeup work following an excused absence

<http://catalog.csulb.edu/content.php?catoid=3&navoid=147#class-attendance>

SUN	MON	TUES	WED	THU	FRI	SAT
Aug 25 Week 1 Intro	26 <i>Overview</i>	27	28 <i>Bio Anthro research</i>	29	30	31
1 Week 2 Ethics	2 LABOR DAY no class	3	4 <i>Ethics</i>	5	6	7
8 Week 3 Anatomy	9 <i>Axial skeleton</i>	10	11 <i>Appendicular skeleton</i>	12	13	14
15 Week 4 Fossils	16 <i>Early hominins</i>	17	18 <i>Homo</i>	19	20	21
22 Week 5 Primates	23 <i>Primateology</i>	24	25 <i>Primateology 2</i>	26	27 DUE group written plan	28
29 Week 6 Energy	30 <i>Energetics</i>	Oct 1	2 <i>Human behavioral ecology</i>	3	4	5
6 Week 7 Brains & culture	7 <i>Bio-cultural evolution</i> DUE Group plan presentations	8	9 <i>Psych and neuroscience</i>	10	11	12
13 Week 8 Genetics	14 <i>Molecular phylogenetics</i>	15	16 <i>Evo-devo</i>	17	18	19
20 Week 9 Comp. anatomy	21 <i>Evolutionary morphology</i>	22	23 <i>Functional morphology</i>	24	25	26
27 Week 10 Hominin tree	28 <i>Phylogenetic thinking</i>	29	30 <i>Unknown ancestors</i>	31	Nov 1	2
3 Week 11 Growth & Diet	4 <i>Growth</i>	5	6 <i>Diet</i>	7	8	9

10 Week 12 Dating	11 VET DAY	12	13 <i>Dating</i>	14	15 DUE Proposal draft	16
17 Week 13 Forensics	18 <i>Identity traits</i>	19	20 <i>Cause of death</i>	21	22	23
24 Week 14 Project prep	25 <i>Project & proposal work</i>	26	27 FALL BREAK	28	29	30
Dec 1 Week 15	2 DUE Proposal pitches	3	4 DUE Proposal pitches	5	6	7
8 WEEK 16	9 DUE Group presentations & poster	10 reading	11 FINALS	12	13 DUE Proposal final	14
15	16	17				

COURSE SCHEDULE

NOTE: Subject to change. Consult Beachboard for up-to-date class plans. **Pre-class assignments will be posted at least one week prior to class.**

UNIT I: The Research Process

Unit I Objectives:

- Describe the stages of hypothesis-driven research
- Understand the components of a scientific research paper
- Consider ethical issues in biological anthropology
- Review common vocabulary, questions, and themes in biological anthropology
- Choose research project

Week 1 – Introduction

Aug 26: Course overview

PRE-ASSIGNMENT: Pre-class survey, sign up for instructor meeting, read syllabus

KEY QUESTIONS: What will we do in this class? How will you be evaluated?

IN CLASS: Semester plan, introductory meetings

Aug 28: Research in Biological anthropology

PRE-CLASS ASSIGNMENT:

“Getting Naked,” B. Alex. *Discover*. September/October 2019.

Dixon, B.J.W. et al., 2018. Contest competition and men's facial hair: beards may not provide advantages in combat. *Evolution and Human Behavior*, 39(2), pp.147–153.

KEY QUESTIONS

- What are questions, topics, and methods in bio anthro research?
- What is the research process from design through presentation?
- How do you read a research paper?

IN CLASS: Dissecting a research paper, introductory meetings

Week 2 – Ethical research

September 2: NO CLASS LABOR DAY

September 4: History and ethics

IN CLASS: Discuss and present ethical issues with peer scholars.

Week 3 – Bone basics

September 9: Axial skeleton

IN CLASS: Introduce vocabulary of human skeletal anatomy. Learn major bones of human axial skeleton, including teeth.

September 11: Appendicular skeleton

IN CLASS: Learn major bones of human appendicular skeleton.

Week 4 – Fossil Ancestors

September 16: Early hominins

IN CLASS: Review hominin evolution from 8-2 million years. Take anatomical measurements of early hominin fossils virtually with Meshlab and physically with casts.

September 18: the Genus *Homo*

IN CLASS: Review hominin evolution 2 million years to present. Take anatomical measurements of *Homo* fossils virtually with Meshlab and physically with casts.

UNIT 2: Survey of Bio Anthro Research

Unit 2 Objectives:

- Introduce methods used in sub-fields of biological anthropology
- Understand and evaluate scientific papers using these methods
- Meet research scientists using diverse methods
- Finalize group research project, begin data collection

Week 5 – Primatology

September 23: Primatology 1

IN CLASS: Introduction to primate observation research. Conduct human primate observations on campus.

September 25: Primates 2

IN CLASS: Discuss human primate observations and scientific paper.

Week 6 – Energy**September 30: Energetics**

IN CLASS: Visit Harris physiology laboratory. Learn how metabolic measurements are taken.

October 2: Human behavioral ecology

IN CLASS: Seminar with Dr. Alicia Breakey, reproductive ecologist.

Week 7 – Brains & culture**October 7: Bio-Cultural Evolution**

IN CLASS: Journal club.

October 9: Evolutionary Psychology and Neuroscience

IN CLASS: Journal club.

Week 8 – Genetics**October 14: Molecular phylogenetics**

IN CLASS: Journal club.

October 16: Evo-devo genetics

IN CLASS: Journal club.

UNIT 3: Science of the Skeleton**Unit III Objectives:**

- Use skeletal remains to infer physical, behavioral, life history and pathological traits of species and individuals
- Become familiar with morphological and biochemical methods of skeletal analysis
- Meet researchers specialized in biomechanics, bone biochemistry, forensics, and bioarchaeology
- Conduct group research projects; Conceptualize individual project

Week 9 – Comparative Anatomy

October 21: Evolutionary morphology

IN CLASS: Seminar with Dr. Kristi Lewton, evolutionary anatomist. Keck School of Medicine, USC. <https://www.kristilewton.com/>

October 23: Functional morphology

IN CLASS: Seminar with Dr. Myra Laird, paleoanthropologist. Keck School of Medicine, USC. <https://www.kristilewton.com/>

Week 10 – Building the hominin family tree

October 28: Phylogenetic thinking

IN CLASS: Infer ancestral states based phylogenetic parsimony.

October 30: Unknown ancestors

IN CLASS: Fit unknown ancestors into the hominin family tree using 3D fossil models.

Week 11 – Growth and Diet

November 4: Growth

IN CLASS: Inferring growth rates from skeletal features.

October 6: Diet

IN CLASS: Macro and microscopic methods of paleodiet reconstruction.

Week 12 – Dating

November 11: NO CLASS VETERANS DAY

November 13: Dating

IN CLASS: Methods of geochemical and genetic dating.

Week 13 – Forensics**November 18: Identity Traits**

IN CLASS: Skeletal markers of sex, age, height, body mass.

November 20: Cause of Death

IN CLASS: Skeletal markers of pathology and trauma. Taphonomic processes.

Week 14 – Project Preparation**November 25: Project and proposal work**

CLASS OPTIONAL: Meet with Instructor or classmates to discuss group projects or individual proposal.

November 27: NO CLASS FALL BREAK**Week 15 – Proposal Pitches****December 2: Proposal pitches**

IN CLASS: Students give 5-minute pitches to panel of peers who allocate fictitious funding.

December 4: Proposal pitches

IN CLASS: Students give 5-minute pitches to panel of peers who allocate fictitious funding.

Week 16 – Research Project Showcase**December 9: Group presentations & wrap up**