

Biological Anthropology
Clemson Thinks²
ANTH/BIO 3510
12:30-1:45 TTH

Dr. Katherine Weisensee
Office: 123A Brackett Hall
Phone: 656-4210
Email: kweisen@clemson.edu
Office Hours: TTH 11-12:30, Wed 10-12

COURSE OVERVIEW:

This course provides an introduction to biological anthropology, including: genetics and evolutionary theory, biology and behavior of non-human primates, human evolution, and modern human variation. We will be focusing on using strategies to focus and improve critical thinking skills using topics related to biological anthropology.

CLEMSON THINKS²:

This course is part of the Clemson Thinks² (CT2) critical thinking experiment, a program aimed at improving student critical thinking skills. Memorizing facts and being able to repeat definitions is not a sufficient skill set to address the complex problems facing our world today. You need to develop the ability to critically evaluate how knowledge is constructed and the assumptions underlying that knowledge. We will engage in specific learning strategies that are outlined in the detailed course schedule that will help you to deliberately think about your own thinking process and the assumptions underlying the field of biological anthropology.

What is Critical Thinking?

“Critical thinking is reasoned and reflective judgment applied to solving problems or making decisions about what to believe or what to do. Critical thinking gives reasoned consideration to defining and analyzing problems, identifying and evaluating options, inferring likely outcomes and probable consequences, and explaining the reasons, evidence, methods and standards used in making those analyses, inferences and evaluations. Critical thinking is skeptical without being cynical, evaluative without being judgmental, and purposefully focused on following reasons and evidence wherever they may lead.” –Peter Facione

STUDENT LEARNING OUTCOMES:

- Explore evolutionary theory to evaluate changes in human populations from cellular through species levels.
- Analyze primate taxonomies and infer relationships among extinct and extant non-human primates.
- Interpret hominin fossil record in order to assess the evolution of our species over the past 6 million years.
- Extrapolate biological anthropology methodologies to understand modern human variation.
- Synthesize alternate findings into clear and well-reasoned arguments.
- Effectively communicate complex ideas.

REQUIRED TEXTS:

Standford, C, Allen, JS and SC Anton (2013). Exploring Biological Anthropology: The Essentials, Third Edition. Pearson Publishing, New Jersey.

Required Supplemental Readings: PDF's of additional articles posted on Canvas.

COURSE REQUIREMENTS AND GRADING:

10 Online quizzes (10 points each)	= 100 pts.
California tests (10 points each)	= 20 pts.
5 Essays (25 points each)	= 125 pts.
6 In class exercises (15 points each)	= 90 pts.
Exam 1	= 100 pts.
Exam 2	= 100 pts.
<u>Exam 3</u>	= 100 pts.
Total:	= 635 pts.

100-90% = A; 89-80% = B; 79-70% = C; 69-60% = D; <60% = F

Reading quizzes are due before class on the dates assigned. Quizzes will not be available after the due date. The reading quizzes consist of 10 questions from a test bank of questions from the textbook. Each student will randomly receive 10 questions to complete. You may take the quiz up to three times, but each quiz will consist of different questions. Your highest score will be recorded. The two lowest quizzes from the semester will be dropped. The goal of the quizzes is for you to come to class demonstrating basic comprehension of the topics discussed in the textbook.

You must complete the California Critical Thinking pretest and posttest as part of the Clemson Thinks2 requirements. Your scores on the tests will not be used in calculating your grade; however you must demonstrate evidence that you took the test seriously by spending an appropriate amount of time and completing an appropriate number of questions. Failure to do so will result in points not being awarded for completion.

We will engage in frequent in-class activities and discussions and it will be necessary for you to arrive having read and thought about the readings. **No makeup in-class assignments will be given**—if you are late or absent for class you will receive 0 points.

In accordance with university policy, your grades are available to you at any time. Any grade challenges must be presented **in writing with detailed justifications** within three days of receiving the grade.

All exams will cover material from lectures, readings, videos, and class discussions. The instructor will provide a Scantron form for use during the exams. Makeup exams will be given only in the case of a documented medical emergency or with prior notice if you must attend a university-sponsored event (proper documentation still required). Email me as soon as possible if you must miss an exam. You will take the exam as soon as possible at a time convenient for both of us.

CLASSROOM GUIDELINES:

This is a college-level course and an attentive, responsive class will create a positive class atmosphere. Please be respectful of me and students around you. This includes: not using your laptop for anything other than taking notes, reading anything not assigned for the course,

sleeping, disrupting class verbally or physically, text messaging, and rude conduct towards other class members or the professor. Please arrive on time and stay for the entire class period. Please turn all cell phones off.

If you find yourself falling behind in school for personal or academic reasons, please see me rather than simply stop attending class. If I know there is a problem, I can direct you to the proper resources. Students who wish to drop this class must follow appropriate university procedures to do so. Please do not simply stop attending.

This course presents the commonly-held anthropological perspectives on topics within Anthropology, not the professor's personal opinions. Feel free to consult the textbook at any time for verification. However, please note that anthropological ideas may differ considerably from your pre-existing opinions about the world and our place in it.

ATTENDANCE POLICY:

Regular attendance is necessary for academic success in this course; therefore students are expected to attend all classes and take detailed notes. Your grade requires that you not only attend class but also actively participate in discussions and activities. A student who misses too many classes may be administratively withdrawn. If you miss a lecture, you must get notes from a classmate. **Please do not ask me for notes.**

Please wait at least fifteen minutes should I to be late for class.

Any exam that was scheduled at the time of a class cancellation due to inclement weather will be given at the next class meeting unless contacted by the instructor. Any assignments due at the time of a class cancellation due to inclement weather will be due at the next class meeting unless contacted by the instructor. Any extension or postponement of assignments or exams must be granted by the instructor via email or Blackboard within 24 hours of the weather related cancellation.

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

Students with disabilities requesting accommodations should make an appointment with Dr. Margaret Camp (656-6848), Director of Disability Services, to discuss specific needs within the first month of classes. Students should present a Faculty Accommodation Letter from Student Disability Services when they meet with instructors. Accommodations are not retroactive and new Faculty Accommodation Letters must be presented each semester.

ACADEMIC INTEGRITY AND PLAGIARISM:

The Undergraduate Announcements state:

“As members of the Clemson University community, we have inherited Thomas Green Clemson’s vision of this institution as a ‘high seminary of learning.’ Fundamental to this vision is a mutual commitment to trustfulness, honor, and responsibility, without which we cannot earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form.”

All work turned in on tests and papers must be your own. Academic dishonesty in any form is not tolerated, and violators will be punished with the maximum penalties. Any material taken

word-for-word from any source must be put in quotes and the source information must be provided completely. Work from other students, the internet, or any paper-writing service may not be used under any circumstances. Plagiarism is stealing. When in doubt, provide citation information.

CLEMSON UNIVERSITY TITLE IX:

Clemson University is committed to a policy of equal opportunity for all persons and does not discriminate on the basis of race, color, religion, sex, sexual orientation, gender, pregnancy, national origin, age, disability, veteran's status, genetic information or protected activity (e.g., opposition to prohibited discrimination or participation in any complaint process, etc.) in employment, educational programs and activities, admissions and financial aid. This includes a prohibition against sexual harassment and sexual violence as mandated by Title IX of the Education Amendments of 1972. This policy is located at <http://www.clemson.edu/campus-life/campus-services/access/title-ix/>. Mr. Jerry Knighton is the Clemson University Title IX Coordinator. He also is the Director of Access and Equity. His office is located at 111 Holtzendorff Hall, 864.656.3181 (voice) or 864.565.0899 (TDD).

Date		Topic	Due
Jan. 12	Part 1: Genetics and Populations	What is Biological Anthropology?	Ch. 1
Jan. 17		Origins of Evolutionary Thought	Ch. 2
Jan. 19		Origins of Evolutionary Thought	Quiz 1 – Ch. 2 & California Pretest due
Jan. 24		Genetics: Cell and Molecules	Quiz 2-Ch. 3
Jan. 26		From Genotype to Phenotype	Quiz 3-Ch. 4 & In class 1
Jan. 31		The Forces of Evolution and the Formation of Species	Quiz 4-Ch.5
Feb. 2		The Forces of Evolution and the Formation of Species	In class 2
Feb. 7		Human Variation: Evolution, Adaptation, and Adaptability	Quiz 5 – Ch. 6
Feb 9		Human Variation: Evolution, Adaptation, and Adaptability	Essay 1
Feb. 14		Race Debate	Essay 2
Feb. 16		Exam 1	Ch. 1-6
Feb. 21	Part 2: Nonhuman Primates	The Primates	Quiz 6-Ch. 7
Feb. 23		The Primates	Ch. 7 cont.
Feb. 28		The Primates	In class 3
March 2		Primate Behavior	Quiz 7-Ch. 8
March 7		Primate Behavior	Essay 3
March 9		Geology and Primate Origins	Quiz 8-Ch. 9
March 14		Geology and Primate Origins	In class 4
March 16		Exam 2	Ch. 6-9
March 21		Spring Break	
March 23		Spring Break	
March 28	Part 3: Human Origins	Early Hominins and Australopithecus	Quiz 9-Ch. 10
March 30		Bipedalism	Essay 4
April 4		Rise of the Genus <i>Homo</i>	Quiz 10-Ch. 11
April 6		Rise of the Genus <i>Homo</i>	In class 5
April 11		Archaic <i>Homo sapiens</i> and Neandertals	Quiz 11-Ch. 12
April 13		Archaic <i>Homo sapiens</i> and Neandertals	In class 6
April 18		The Emergence, Dispersal, and Bioarchaeology of <i>Homo sapiens</i>	Quiz 12-Ch. 13
April 20		The Emergence, Dispersal, and Bioarchaeology of <i>Homo sapiens</i>	Essay 5
April 25		Biomedical and Forensic Anthropology	Quiz 13 – Ch. 15
April 27		California Post Test	
		Final Exam	

DETAILED COURSE SCHEDULE:

Part 1:

Evolutionary Theory: Students will review basic genetics, explore modern evolutionary theory, analyze modern human variation, and synthesize a solution to race in medicine.

Week 1: Course Introduction and Introduction to Critical Thinking

Questions:

- What is anthropology and how does biological anthropology fit within the discipline?
- What is critical thinking and why is it important?

Students will:

- Complete California pretest

Week 2: Origins of Evolutionary Thought

Questions:

- How did the theory of evolution come to be?
- What was Darwin's contribution to the theory of evolution?
- What has happened since Darwin in the development of our understanding of evolution?

Students will:

- Read chapters 1 & 2 and complete online quiz

Week 3: Basic Genetics

Questions:

- What is the basic structure and function of DNA?
- What is the relationship between genotype and phenotype?
- What are the ways variation can be introduced into a population through sexual reproduction?

Students will:

- Read chapter 3 & 4 and complete online quiz
- In class exercise #1
 - Extrapolate knowledge of heritance to explore the basis of a genetic disease in humans using *scenario analysis*.
 - Explain the molecular clock and the way genetic data can be used to reconstruct human history.
 - These strategies are provided to allow you to practice exploring a complex challenge and to extrapolate from one conceptual context to others.

Week 4: Population Genetics

Questions:

- What are the forces of evolution (from the Modern Synthesis) and how does each one function within and between populations?

Students will:

- Read chapter 5 and complete online quiz
- In class exercise #2

- Complete a Hardy-Weinberg problem and extrapolate the relationship to population genetics.
- Complete a creative activity illustrating the forces of evolution.
- These strategies are designed to allow you to practice exploring the complex challenge of population genetics and to extrapolate from Hardy-Weinberg problems to evolutionary dynamics.

Week 5: Human Variation: Evolution, Adaptation, and Adaptability

Questions:

- What is the unique pattern of growth and development observed in humans?
- How can adaptation be used to explain modern human variation?

Students will:

- Read chapter 6 and complete online quiz
- Essay #1
 - Read contrasting cases for explaining human's unique life history traits and the origins of menopause. Include a reflection of learning process.
 - This assignment is designed to allow you to practice analyzing multi-dimensional problems and synthesizing alternative solutions to multi-dimensional challenges.

Week 6: Race

Questions:

- How has race historically been used to understand human variation?
- Is race a biologically meaningful category?

Students will:

- Essay #2
 - Find an example from a recent medical study that uses racial grouping to examine a disease. Identify the assumptions that the researchers use regarding the biological meaningfulness of race. Read two additional articles examining race in medical studies. Compare and contrast the approaches in order to determine if race should be used as a variable in medical studies and diagnoses.

Part 2: Primates

Students will examine taxonomic classification schemes and definitions of a species. Students will classify primate taxonomic categories, apply primate socioecological theory, and describe primate evolution.

Week 7: Primate Taxonomy

Questions:

- What characteristics do all primates share?
- What are the major divisions within the primate taxonomy?

Students will:

- Read Chapter 6 and complete online quiz
- In class exercise #3
 - Explore differences and similarities between different primate groups using skeletal material provided.

Week 8: Primate Behavior

Questions:

- What are the general behavioral patterns in the living primates?
- What kinds of societies do primates have?
- How do the specific environmental conditions influence primate behavior?

Students will:

- Read Chapter 7 and complete online quiz
- In class exercise #4
 - Examine results of primate studies, interpret graphs, identify assumptions
- Essay #3
 - Read Stanford article and examine the role that scientists' assumptions about male/female behavior may influence primate behavioral studies.

Week 9: Fossils and Their Place in Time and Nature

Questions:

- What is a fossil and how can we tell how old it is?
- How do we reconstruct the environments that the primates lived in?

Students will:

- Read Chapter 8 and complete online quiz
- In class exercise #4
 - Identify the conditions under which fossilization is likely to occur.
 - Examine different dating techniques and determine when they should be used.
 - Analyze results from the study of *Ardipithecus ramidus* to determine how environments were reconstructed.

Week 10: Primate Origins and Evolution

Questions:

- Why Did Primates Emerge?
- When, where, and why did different types of primates emerge?

Students will:

- Read Chapter 9 and complete online quiz

Part 3: Human Origins

Students will analyze different theories with regard to the origins of bipedalism.

Students will also describe the evolution of hominins.

Week 11: Early Hominins and Bipedalism

Questions:

- What are the major fossil species from 6-3 million years ago?
- What do these fossils tell us about the behavior and lifeways of these hominins?
- What are the hominins and why do we call them our ancestors?
- How do we recognize a biped in the fossil record?
- Why did the hominins become bipedal?

Students will:

- Read Chapter 10 and complete online quiz
- Essay #4

- Read one of five articles on the origins of bipedalism and present the theory in small group discussions using critical conversation protocols.

Week 12: Early Homo

Questions:

- What are the characteristics that define the genus *Homo*?
- Who were the earliest members of the genus *Homo*?
- When did modern human biological and behavioral characteristics develop?

Students will:

- Read Chapter 11 and complete online quiz
- In class exercise #5
 - Examine the fossil evidence and synthesize understanding of the evolutionary trends from 6-0.5 million years ago.

Week 13: The Rise of Modern Humans

Questions:

- Who were the hominins that lived between about 500,000-30,000 years ago?
- When and where do anatomically modern humans appear?
- When and how does modern human behavior appear?

Students will:

- Read Chapter 12 and complete online quiz
- In class exercise #6
 - Examine the fossil evidence and synthesize an understanding of the evolutionary trends from 500,000-30,000 years ago.

Week 14: Models of Modern Human Origins and the Role of Recent Discoveries

Questions:

- What different models are proposed for the evolution of *Homo sapiens sapiens* from earlier forms of *Homo*?
- How do we interpret recent findings regarding modern human origins?

Students will:

- Essay #5
 - Read three brief articles discussing new and revolutionary discoveries for modern human origins and extrapolate the findings to critique models for modern human origins.

Week 15: Our Last 10,000 years: Agriculture, Population, and the Bioarchaeology of a Fundamental Transition

Questions:

- What were the effects of agriculture on human populations?
- What evidence can we use to support it?

Students will:

- Complete California post-test