ANTh 102: Introduction to Physical Anthropology

Instructor:
Office No.:
Office hours: xxxxxxxxxxxxxxxxxxxxxxx

Lab instructor/T.A.: xxxxxxxxxxxxxxxxxxxxxxx
Ansari Business Building, Room 515 (see lab syllabus for office hours)

Course description:
Physical anthropology focuses on human evolution and variation. Genetics and evolution provide the key theoretical underpinnings of this course, whether focus is long term primate evolution, hominid origins and evolution, or human adaptability and variation in recent human populations. In addressing fundamental questions, you will be challenged to think critically, apply sound scientific methodologies, and understand and assess quantitative data. To explore concepts within biological anthropology key technological advances will be highlighted. Such technological methods include advances in dating (e.g. potassium-argon, carbon 14, and thermoluminescence), diet and climate reconstruction (as studied through isotopic analysis), population genetics (e.g. DNA analysis), and the reconstruction of the human evolutionary past (e.g. skeletal imaging, histological analysis of skeletal structures, and biomolecular analysis). This course will employ a biocultural approach and emphasize the interaction between biology and culture through time. Such an approach will give students an appreciation for the interaction between biology, culture, and society in prehistory, history, and into the future.

During the semester, you will encounter many dates, names, concepts, theories, etc. but the primary goal is for you to gain an understanding of major principles. Course objectives will be reinforced through several lab experiences throughout the semester that will give students a hands-on approach to the study of science, technology, and society within biological anthropology. By the end of the semester, you should be able to write a page on one of the general topic areas, explain various concepts and principles to someone not taking the class, read and critique an article on one of the subjects, etc. Over the course of time, you will forget many details……but you should always retain a substantial part of the ‘big picture’ as outlined in the Student Learning Outcomes.

Silver Core Objectives

This course satisfies Silver Core Objectives 4 and 9:

Core Objective 4 (Physical and Natural Phenomena):

Students will demonstrate an understanding of genetic and evolutionary principles and how these apply to hominid origins and evolution and biological variation among modern human populations. The associated lab will provide you with a hands-on opportunity to understand the basic principles of Mendelian and population genetics and make observations on primate, fossil hominid, and human skeletal anatomy.
Core Objective 9 (Science, Technology, and Society):

Students will be able to connect science and technology to real-world problems by explaining how science relates to problems of societal concern; be able to distinguish between sound and unsound interpretations of scientific information; employ cogent reasoning methods in their own examinations of problems and issues; and understand the applications of science and technology in societal context.

Student Learning Outcomes:

1. Students will be able to explain the differences between evolutionary biology, based on scientific principles, and intelligent design or creation science, based on faith and belief systems.

2. Students will be able to explain how natural selection, genetic drift, and mutation have produced the biological differences among human populations (e.g., in skin color, eye color and form, blood group gene frequencies, body size, fingerprints, dental morphology, metabolic disorders, etc.)

3. Students will be able to analyze the primary types of environmental stressors that have affected human evolution, including climate (e.g., extreme temperatures), disease (e.g., malaria), nutrition (e.g., over reliance on one staple), and demography (e.g., issues of crowding and sanitation following emergence of food production and beginning of sedentary life style). Moreover, students will evaluate how human populations adapt through behavioral (cultural), physiological, and genetic means, and how these interact (biocultural approach).

4. Students will be able to explain how humans fall within the larger biological world (as primates, mammals, vertebrates, bilaterians), and describe what they owe to the rest of the animal kingdom that contributes to their current evolutionary form and what constitutes uniquely human traits both behaviorally and biologically.

5. Students will be able to explain how, above all other biological changes in hominid evolution, the one that set humans off in a new direction was the development of bipedal locomotion (ca. 5-6 mya). Moreover, that some of the hallmarks of humanity, including speech, art, and music, developed within the past 50,000 years.

Labs: there are laboratories every other week focusing on topics in line with the lectures (e.g., genetics, primates, skeletal biology, hominid fossils, etc.). To receive full credit for the exercises, attendance in labs is required. Each lab is worth 15 points. Quizzes during lab period are 5 points (140 pts.).

Quizzes and final exam: almost every week, a short quiz is given (20 pts. each; 200 pts. total). These quizzes, which focus on course content, are objective in nature. There are no mid-term exams, but there is a final that evaluates your comprehension of the primary course objectives (100 pts.).

Assignments and portfolio: in addition to labs, you are responsible for five homework assignments. These assignments, each worth 20 points, revolve around some aspect of the major course objectives (100 pts).
Academic Dishonesty includes cheating on exams, plagiarism on papers, and signing the role sheet for another student. None of these will be tolerated and any can result in a failing grade for the course and the implementation of other university disciplinary procedures.

Special Needs or Disabilities or Other Problems: The department of anthropology is committed to equal opportunities in education for all students, including those with physical or learning disabilities. If you have a disability for which you will need to request accommodations, please contact me or the Disability Resource Center (Thompson Building, Suite 100, tel. 748-6000) as soon as possible to arrange for appropriate accommodations. In addition, students who anticipate other problems involving work or family that might affect attendance or completion of any of the other requirements of the course are strongly encouraged to discuss them with me at the beginning of the semester.

Academic Success Services: Your student fees cover usage of the Math Center (784-4433 or www.unr.edu/mathcenter/), Tutoring Center (784-6801 or www.unr.edu/tutoring/), and University Writing Center (784-6030 or http://www.unr.edu/writing_center/). These centers support your classroom learning; it is your responsibility to take advantage of their services. Keep in mind that seeking help outside of class is the sign of a responsible and successful student.

Statement on Audio and Video Recording: Surreptitious or covert video-taping of class or unauthorized audio recording of class is prohibited by law and by Board of Regents policy. This class may be videotaped or audio recorded only with the written permission of the instructor. In order to accommodate students with disabilities, some students may be given permission to record class lectures and discussions. Therefore, students should understand that their comments during class may be recorded. I also ask that you turn off all cell phones and electronic devices before coming to class. You can use your laptop and iPads as long as they are for taking notes or making a quick consultation on an issue we are discussing in class.

Student Absences: By NSHE policy in Title 4 Chapter 20 A, Section 3, paragraph 1, http://system.nevada.edu/tasks/sites/Nshe/assets/File/BoardOfRegents/Handbook/T4-CH20%20-%20General%20Policies%20Regulating%20Students%20and%20Student%20Government.pdf, there are no official absences from any university class. It is the personal responsibility of the student to consult with the instructor regarding absence from class. In the event that a student misses a class because of an official university function or event or because of serious personal issues, the Office of the Vice President for Student Services may, at its discretion, send an explanation to affected faculty. The instructor shall make the final determination on whether the missed work can be done at a time other than during the regularly scheduled class period.

Religious Holy Days: It is the policy of NSHE (Title 4 Chapter 20 A, Section 3, paragraph 2, http://system.nevada.edu/tasks/sites/Nshe/assets/File/BoardOfRegents/Handbook/T4-CH20%20-%20General%20Policies%20Regulating%20Students%20and%20Student%20Government.pdf to be sensitive to the religious obligations of its students. Any student missing classes, quizzes, examinations, or any other class or lab work because of observance of religious holy days should, whenever possible, be given an opportunity during that semester to make up the missed work. The make-up will apply to the religious holy day absence only. It shall be the responsibility of the student to notify the instructor in advance in writing, if the student intends to participate in a religious holy day which does not fall on state holidays or periods of class recess.
This policy shall not apply in the event that administering the assignment at an alternate time would impose an undue hardship on the instructor or the institution which could not reasonably have been avoided.

**Late Work/Missed Exams:** No early exams or quizzes will be given. Make-up exams and quizzes will be at the instructor’s discretion. If you miss an exam or quiz you have 24 hours to contact the instructor via e-mail or the department. Official documentation is required (doctor’s excuse, accident report, etc.) for make-ups. All make-up exams will be essay and must be taken within 1 week after the exam. Otherwise, the student will receive a “0” for that exam. Refer to the course outline for the chapters and dates of the exams. If you have any conflicts with the exam dates, see the instructor immediately. You will not be able to make-up other class assignments.

**TOTAL COURSE POINTS:** Final grades will be determined as a percentage of the following point totals based on quizzes, labs, assignments, and the final [your %, number of points earned/540]

- Quizzes \((10 \times 20) = 200\)
- Labs \((7 \times 20) = 140\)
- Final \((1 \times 100) = 100\)
- Assignments \((5 \times 20) = 100\)
- TOTAL POINTS 540

>95% A
90-94.9% A-
87-89.9% B+
83-86.9% B
80-82.9% B-
77-79.9% C+
73-76.9% C
70-72.9% C-
<70% D
<60% F

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<tr>
<th>Week</th>
<th>Topics</th>
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<tr>
<td>1</td>
<td>Introduction to biological anthropology; history of evolutionary thought</td>
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<td>2</td>
<td>Molecular and Mendelian genetics (Analysis of simple genetic polymorphisms)</td>
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<td>3</td>
<td>Genetics and evolution (Hardy-Weinberg theorem of genetic equilibrium and population genetics)</td>
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<td>4</td>
<td>Human variation</td>
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(Biocultural evolution; DNA sequencing)
5 Human adaptability
(Response to environmental stressors, e.g., adaptation to cold, high altitude)
6 Living primates I
7 Living primates II
8 Macroevolution and dating
(Dating techniques and isotope analysis)
9 Primate origins and evolution
(Paleomagnetism, plate tectonics)
10 Hominid origins, & the Australopithecines
(Comparative anatomy, skeletal imaging)
11 Homo habilis, H. erectus, and contemporaries
12 Archaic sapiens and Neanderthals
(Ancient DNA analysis)
13 Origins of anatomically modern humans
14 The biocultural consequences of agriculture
15 Bioarchaeology/Forensic Anthropology
(Determining sex and ancestry through discriminant function analysis)

Final exam
(xxxxxxxxxxxxx)

Required text: C.S. Larsen. Our Origins. Norton (all lectures and assignments are posted on WebCampus)