ANTH222: Introduction to Ecological & Evolutionary Anthropology

Fall 2017  LECTURE: Tues & Thurs/11am-12:15pm  ATL 2324
LAB: depends on your section  WDS 0124C

Dr. MH Raxter  Office Hours:
mraxter@umd.edu  By appointment.
or message via ELMS/Canvas  Woods Hall 0124A

Graduate Teaching Assistants
Ms. Emilia Guevara  Ms. Valerie Hall
Message via ELMS/Canvas  Message via ELMS/Canvas

Course Description
In this course you will learn concepts related to:
1. the evolution of human physiology and human behavior;
2. the relationship between hominins and non-hominin primates; and
3. the relationships between human populations (past and present) and their biophysical environment.

Students will explore the evolution of the human species and the nature of contemporary human variation. We begin with the principles of evolutionary theory, genetics, and ecology to establish a framework for the study of human evolutionary biology. Fossil evidence for human evolution will then be considered, including comparisons with non-human primate ecology and evolution, to reconstruct prehistoric lifeways. Finally, discussion turns to modern human variation and diversity, paying particular attention how biocultural adaptations to environmental stressors like climate, nutrition, disease, and culture have and continue to shape our species.

Course Learning Outcomes
By the end of the semester, students should be able to:
• Articulate basic principles of evolution and human genetics, including a history of the ideas leading to our current scientific understanding of these principles and how they are applied in contemporary society;
• Identify similarities and differences between humans and non-human primate species, including the biological basis for cooperation and competition;
• Demonstrate an understanding of the major trends in hominin evolution, including the fossil and molecular evidence for the origins of anatomically modern humans;
• Evaluate influence of genetics, ecology, and sociocultural factors on biological variation, diversity, and adaptation in non-human primates and modern human populations; and
• Apply biocultural and ecological perspectives to explicate human reproductive biology, growth and development, disease patterns, diet/foodways, and livelihoods.

*Important Note*
In this course, you will be examining and handling real skeletal remains of modern (donated) humans, non-human animals, and casts of various species. Photographs of human remains will also be shown in your course texts and lectures to illustrate the evolution of key features in hominins. This course also requires you to visit the zoo and complete a zoo report.
Grading
Grades are WEIGHTED as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Exam 1</td>
<td>25%</td>
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<td>Exam 2</td>
<td>25%</td>
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<tr>
<td>Exam 3/Final Exam</td>
<td>25%</td>
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<tr>
<td>Lab Participation</td>
<td>10%</td>
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<td>Lab Exercises</td>
<td>10%</td>
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<tr>
<td>Zoo Report</td>
<td>5%</td>
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<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
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Exams: You must arrive on-time for all examinations. Although the last exam is not cumulative, you may need to review material from previous lectures for it. Exams are primarily based on lectures and incorporate in-class discussions, examples, journal articles and videos. Only answers marked on scantron forms will be graded.

Final grades will be assigned based on the following percentages.

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<thead>
<tr>
<th>Grade</th>
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<td>A (93-100%)</td>
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<td>A- (90-92%)</td>
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<td>B+ (87-89%)</td>
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<td>B (83-86%)</td>
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<td>B- (80-82%)</td>
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<td>C+ (77-79%)</td>
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<td>C (73-76%)</td>
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<td>C- (70-72%)</td>
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<td>D+ (67-69%)</td>
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<td>D (63-66%)</td>
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<td>D- (60-62%)</td>
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<td>F (0-59%)</td>
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No extra credit is available.

Class Expectations
Students are expected to:
Conduct themselves in a mature manner.
Attend class regularly and on time.
Take notes in class from verbal lecture (i.e. do not rely solely on my PowerPoint slides).
Be familiar with the syllabus and follow the outlined policies.
Pay attention to changes to the syllabus and class schedule (attend class, check your e-mail and Canvas for any changes/updates).

Class Behavior
Students are expected to conduct themselves in a mature manner. The classroom is not your dining hall, living room, or lounge. No eating in the classroom. Cell phones must be on off or on silent. If it is an emergency, please take your call outside of the classroom. Examples of unacceptable behavior include arriving late to class, sleeping, reading material not related to the class, talking about issues not related to the classroom discussion, making and receiving phone calls, writing text messages, using the computer for non-note taking purposes, etc. If a student behaves in a disruptive manner, s/he will be asked to leave the classroom. If a student is sleeping, s/he will be awakened and asked to leave. *My policy is zero tolerance for any type of disruptive behavior. Any disruptive behavior results in your immediate exit from the classroom*. Offense will result in a warning and then a 5% deduction from your final grade for subsequent offenses. A referral may also be made to the Office of Student Conduct or to the University Campus Police.
Academic Integrity
Each student is expected to earn his/her degree on the basis of personal effort. Consequently, any form of cheating on examinations or plagiarism on assignments is unacceptable. If you are caught cheating in an exam, you will receive an F in the course. Refer to the University of Maryland Code of Academic Integrity: http://www.president.umd.edu/policies/docs/III-100A.pdf

Note-taking
My notes are not available to students. You may use your computer for note-taking only (i.e., not web-searching and email checking), and as long as it is not disruptive to the class. I do not give permission to tape or record my lectures.

Students with disabilities
Accommodations are made for students who are registered with the Disability Support Service (DSS) Office and who provide a University of Maryland DSS Accommodation form that is updated for the current semester. Only written DSS documentation of the accommodation will be considered. This form must be presented before the end of the second week of classes. We are not able to accommodate students who are not registered with DSS or who provide us with documentation that has not been reviewed and approved by UMD’s DSS Office after the second week of classes. See: http://www.ugst.umd.edu/courserelatedpolicies.html

University Emergency Closure
In the event that the University is closed for an emergency or because of inclement weather, I will communicate to you via CANVAS or email to make schedule adjustments, including rescheduling of assignment due dates if necessary. Official closures and delays are announced on the campus website and local radio and TV stations. The snow phone line is 301-405-SNOW.

Lecture Attendance and Make-up Policy
Class attendance is necessary in order to do well in this course. Make-up exams will be given only under extraordinary circumstances (e.g. illness or injury, death in the family). If you miss an exam, you must notify me within 24 hours of your absence and then you may only make up the exam if you have a documented excused absence. Otherwise, you will receive a grade of zero for the exam you missed. If the absence is excused, the student must make-up the exam within one week of the date of absence. The make-up exam may be different from the exam given on the scheduled date and time. Any student who will miss class due to a religious holiday must notify the instructor in writing by the end of the second week of classes.

Required Textbook/Reading Material:
+Journal articles on Canvas


**Previous editions of the above texts are NOT acceptable substitutes.**
*Laboratory Sections*

The laboratories are conducted by the teaching assistants who are there to guide you during the lab. The labs provide opportunities for hands-on exploration of concepts discussed in lecture. Lecture and lab topics will not necessarily match each week.

LAB: Attendance Policy

Attendance will be taken in the first 15 minutes of lab. Tardiness is not tolerated. If you are absent for your lab, including arriving 15 or more minutes late to your lab, you will receive a 0 for the day’s participation points AND the day’s exercises.

If you are more than 15 minutes late to lab, you may still participate in the lab in order to learn the material for exams, but you will receive 0 points on all graded items for the day.

Lab exercises must be completed IN-CLASS. If you do not attend, you will not be able to complete the in-class lab exercises, and will therefore lose the points for those particular exercises. You will not be able to make-up in-class lab exercises without an excused absence. Examples of excused absences include: medical emergencies, death in family, court appointments, etc. If you miss class for one of these reasons, you must e-mail the lab instructor BEFOREHAND or within 24 hours of the missed class in order to make up the missed assignment(s). Any student who will miss class due to a religious holiday must notify the instructor in writing by the end of the second week of classes.

LAB: Exercises

Points for lab exercises may only be earned from correct answers.

LAB: Due Dates Policy

Completed lab exercises are due at the end of the class period, unless otherwise stated by the instructor. Sometimes, if time runs out, you may be permitted to “take home” an in-class lab exercise. The completed exercise is then due the next immediate lab class. If you are absent the day the in-class exercise is assigned and it is unexcused, you lose the points. You may NOT turn in the exercise the following week when you attend. If you are present when the in-class exercise is started but are either absent the next lab meeting it is due or are present but do not have the exercise in-hand to submit, you lose those points. Absolutely all assignments are due IN-CLASS. They are not accepted otherwise.

LAB: Cheating/Plagiarism

Many of the in-class labs will be conducted in groups so your answers may be similar to one another. Despite this, each of you must submit your own individual exercises and reports. The zoo report must also be completed INDIVIDUALLY and you must submit your own unique report.

→ Do not complete the labs beforehand because you might a) be doing it wrong. OR b) be doing extra work because sometimes certain questions may be eliminated from the exercises.

→ Eating or drinking is not permitted in lab.
→ Closed-toe shoes only.
# CLASS SCHEDULE

**NOTE:** The instructor reserves the right to change the course outline, schedule, exam dates, or other syllabus content as necessary during the course of the semester. It is the student’s responsibility to attend class and check e-mail and Canvas to be informed of any changes made to the schedule and syllabus.

## Date/Topics

**Week 1: Aug 29 & Aug 31**  
Introduction to biological anthropology  
Characteristics of science  
Development of the theory of evolution

**Week 2: Sept 5 & Sept 7**  
Development of the theory of evolution  
Molecular genetics  
Mendelian genetics  
Mutations

**Week 3: Sept 12 & Sept 14**  
Mendelian genetics  
The synthetic theory of evolution  
Evolutionary forces  
Genetic Case Study

**Week 4: Sept 19 & Sept 21**  
Evolution and classification  
Principles of ecology

**Week 5: ++Tues/Sept 26: Exam 1++**

**Sept 28:**  
Osteology primer  
Primate characteristics

**Week 6: Oct 3 & Oct 5**  
Primate diversity

**Week 7: Oct 10 & Oct 12**  
Primate diversity  
Characteristics of living humans

## Assigned Readings

- **Chapt 1: Science & Evolution**
- **Chapt 2: Human Genetics**
- **Chapt 3: The Forces of Evolution**
- **Chapt 4: The Evolution & Classification of Species**
- **Chapt 5: The Primates**
- **Chapt 6: Primate Behavior & Ecology**
- **Chapt 7: The Human Species**

Wooding et al., 2006 Nature/Canvas
Week 8: Oct 17 & Oct 19
The Fossil Record
Primate evolution
Hominoid evolution
Early Hominins

Week 9: Oct 24 & Oct 26
Early Hominins
Genus Homo

Week 10: ++Tues/Oct 31: Exam 2++
Nov 2
Genus Homo
Hominin Evolution Case Study

Week 11: Nov 7 & Nov 9
Anatomically modern humans
Human variation
Peopling of the Americas

Week 12: Nov 14 & Nov 16
Natural selection in human populations
Human adaptation

Week 13: Tues/Nov 21:
Human adaptation

Thurs/Nov 23: ~Thanksgiving Recess/NO CLASS~

Week 14: Nov 28 & Nov 30
Bioarchaeological analyses

Week 15: Dec 5 & Dec 7
Bioarchaeological analyses
Forensic Anthropology

++Wednesday, December 13: 8-9:15am: Final Exam++
LAB SCHEDULE

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<th>Date/Chapter/Topic</th>
<th>Lab Exercises</th>
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**Week 1: Week of Aug 28**

◆ Zoo Report Assigned Today◆ - Zoo Report Instructions
Chapter 8: Observation of Living Primate Behavior & Morphology
Exercises 8.2, 8.3 & 8.4 due the last day lab for your respective lab section (see Week 15)

Chapter 1: Cellular Genetics
- Cellular genetics
- DNA Typing
Chapter 2: Population Genetics
- Gamete formation

**~Week 2: Week of Sept 4: NO LAB THIS WEEK~**

**Week 3: Week of Sept 11**

Chapter 2: Population Genetics
- Phenotype summary
- Genotype formation
- Pedigree exercises

**Week 4: Week of Sept 18**

Chapter 2: Population Genetics
- Blood-type genetics
- Hardy-Weinberg Population Genetics Lab

**Week 5: Week of Sept 25**

Chapter 3: Human Osteology
- The human skeleton
- Fragment identification
Chapter 4: Growth and Development
- Skeletal development

**Week 6: Week of Oct 2**

- Dental development
- Growth & Development

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<thead>
<tr>
<th>Exercise 1.1</th>
<th>Exercise 1.3</th>
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<td>Exercise 2.1</td>
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<td>Exercise 2.3</td>
<td>Exercise 2.4</td>
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<td>Exercise 2.5</td>
<td>Exercise 3.2</td>
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<td>Exercise 3.3</td>
<td>Exercise 4.1</td>
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<tr>
<td>Exercise 4.2</td>
<td>Exercise 4.3</td>
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Week 7: Week of Oct 9
Chapter 5: Biological Classification
Biological classification Exercise 5.1
Chapter 6: Comparison of the Skeletons of Quadrupeds, Biped & Brachiators Exercise 6.1

Week 8: Week of Oct 16
Chapter 6: Comparison of the Skeletons of Quadrupeds, Biped & Brachiators Metric comparison of skeletons Exercise 6.2
Chapter 7: Comparing the Living Primates Living primate clades Exercise 7.1

Week 9: Week of Oct 23
Dental trends Exercise 7.2
Comparing extant primates Exercise 7.3

Week 10: Week of Oct 30
Chapter 9: The First Primates Early evolution of primates Exercise 9.1
Chapter 10: Miocene Hominoid Evolution Exercise 10.1

Week 11: Week of Nov 6
Chapter 11: The Early Hominins The early hominins Exercise 11.1
Chapter 12: The Genus Homo The genus Homo Exercise 12.1

Week 12: Week of Nov 13
Chapter 13: Anthropometry, Nonmetric Traits, and Dermatoglyphics Measurement record Exercise 13.1
Statistical analysis Exercise 13.2

~Week 13: Week of Nov 20: NO LAB THIS WEEK~

Week 14: Week of Nov 27
Dermatoglyphics Exercise 13.5
Chapter 14: Abnormalities in the Skeleton Abnormalities in the skeleton Exercise 14.1
Week 15: Week of Dec 4
Chapter 15: Human Skeletal Variation & Forensic Anthropology
Forensic anthropology

Exercise 15.1

◆ ◆ ZOO EXERCISES DUE THIS WEEK ◆ ◆
(Exercises 8.2, 8.3 and 8.4)
Due Dates:
Section 101: Mon, Dec 4, 8am
Section 102: Mon, Dec 4, 11am
Section 103: Mon, Dec 4, 2pm
Section 104: Wed, Dec 6, 8am
Section 105: Wed, Dec 6, 11am
Section 106: Wed, Dec 6, 2pm