ANTH222: Introduction to Ecological & Evolutionary Anthropology

Summer 2017

LECTURE: Tues & Thurs/9am-12:45pm
LAB: Mon & Wed/9am-11:30am

Dr. Michelle H. Raxter
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Office Hours:
By appointment.
Woods Hall 0124A

Teaching Assistant
Ms. Hannah Dale
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Course Description
ANTH 222, an introductory course in Ecological and Evolutionary Anthropology, is an opportunity for students to learn basic concepts and methods for the interdisciplinary study of:
1. the evolution of human physiology and human behavior;
2. the relationship between hominids and non-hominid 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 have the opportunity to examine and handle real skeletal remains of modern (donated) humans and a variety of non-human animals. Photographs of human remains will also be shown in lecture to illustrate the evolution of key features in our hominin ancestors.
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>20%</td>
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<tr>
<td>Exam 2</td>
<td>20%</td>
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<tr>
<td>Exam 3/Final Exam</td>
<td>20%</td>
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<tr>
<td>Lab Participation</td>
<td>15%</td>
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<tr>
<td>Lab Exercises/Assignments</td>
<td>20%</td>
</tr>
<tr>
<td>Zoo Report</td>
<td>5%</td>
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<tr>
<td>Total</td>
<td>100%</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 my lectures and incorporate in-class discussions, examples, journal articles and videos so as to favor students who attend class.

Final grades will be assigned based on the following percentages.

- **A** (93-100%)
- **B-** (80-82%)
- **D+** (67-69%)
- **A-** (90-92%)
- **C+** (77-79%)
- **D** (63-66%)
- **B+** (87-89%)
- **C** (73-76%)
- **D-** (60-62%)
- **B** (83-86%)
- **C-** (70-72%)
- **F** (0-59%)

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).
- Read the text chapters assigned.
- Be familiar with the syllabus and follow the outlined policies.
- Pay attention to changes to the syllabus and class schedule (come to 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. Please turn cell phones 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:**

*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: 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 you 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.

<table>
<thead>
<tr>
<th>Date/Topics</th>
<th>Assigned Readings</th>
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<tbody>
<tr>
<td><strong>Week 1: May 30</strong></td>
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<tr>
<td>Introduction to biological anthropology</td>
<td>Chapt 1: Science &amp; Evolution</td>
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<tr>
<td>Characteristics of science</td>
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<td>Development of the theory of evolution</td>
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<td>Molecular genetics</td>
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<td>Mendelian genetics</td>
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<td>Mutations</td>
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<td><strong>Week 2: June 6</strong></td>
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<tr>
<td>The synthetic theory of evolution</td>
<td>Chapt 3: The Forces of Evolution</td>
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<td>Principles of Ecology</td>
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<td>Osteology Primer</td>
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<td><strong>Week 3</strong></td>
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<td><strong><strong>Tues/June 13</strong></strong></td>
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<td>9-10:15am: Exam 1</td>
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<td>10:30am: After Exam Lecture</td>
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<td>Primate characteristics</td>
<td>Chapt 5: The Primates</td>
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<tr>
<td>Primate diversity</td>
<td>Chapt 6: Primate Behavior &amp; Ecology</td>
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<td><strong>Thurs/June 15</strong></td>
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<tr>
<td>Primate diversity</td>
<td>Chapt 6: Primate Behavior &amp; Ecology</td>
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<tr>
<td>Characteristics of Living Humans</td>
<td>Chapt 7: The Human Species</td>
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<td>Paleoanthropology</td>
<td>Chapt 8: The Fossil Record</td>
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<td><strong>Week 4: June 20</strong></td>
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<tr>
<td>Paleoanthropology</td>
<td>Chapt 8: The Fossil Record</td>
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<tr>
<td>Primate evolution</td>
<td>Chapt 9: Primate Origins and Evolution</td>
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<td>Hominoid evolution</td>
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<td>Early Hominins</td>
<td>Chapt 10: The First Hominins</td>
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Week 5
**Tues/June 27**
9-10:15am: Exam 2

10:30am: After Exam Lecture:
Genus Homo
Anatomically modern humans

Chapt 11: The Origin of the Genus Homo
Chapt 12: The Evolution of Archaic Humans
Chapt 13: The Origin of Modern Humans

Thurs/June 29
Human variation
Natural selection in human populations
Agriculture, disease, urbanization

Chapt 14: Race & Human Variation
Chapt 15: Recent Human Evolution
Chapt 17: The Biological Impact of Agriculture & Civilization

Week 6
~Tues/July 4: July 4th Holiday/No Class~

**Thurs/July 6: 9-10:15am: Exam 3/Final Exam**
### LAB SCHEDULE

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<table>
<thead>
<tr>
<th>Date/Chapter/Topic</th>
<th>Lab Exercises</th>
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**Week 1**  
**Wed/May 31**

*Zoo Report Assigned Today*  -  Zoo Report Instructions  
Chapter 8: Observation of Living Primate Behavior & Morphology  
Exercises 8.2, 8.3 & 8.4 due Wed/July 5

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

**Week 2**  
**Mon/June 5**  
Chapter 2: Population Genetics  
- Phenotype summary  
- Genotype formation  
- Pedigree exercises

**Wed/June 7**  
Chapter 2: Population Genetics  
- Blood-type genetics  
- Hardy-Weinberg Population Genetics Lab

**Week 3**  
**Mon/June 12**  
Chapter 3: Human Osteology  
- The human skeleton  
- Fragment identification  
- Chapter 4: Growth and Development  
- Skeletal development  
- Dental development

**Wed/June 14**  
Chapter 5: Biological Classification
Biological classification
Chapter 6: Comparison of the Skeletons of Quadrupeds, Bipeds & Brachiators
Quadrupeds, bipeds & brachiators
Metric comparison of skeletons

**Week 4**
**Mon/June 19**
Chapter 7: Comparing the Living Primates
Living primate clades
Dental trends
Comparing extant primates

**Wed/June 21**
Chapter 9: The First Primates
Early evolution of primates
Chapter 10: Miocene Hominoid Evolution

**Week 5**
**Mon/June 26**
Chapter 11: The Early Hominins
The early hominins
Chapter 12: The Genus Homo
The genus Homo

**Wed/June 28**
Chapter 13: Anthropometry, Nonmetric Traits, and Dermatoglyphics
Measurement record
Statistical analysis
Dermatoglyphics

**Week 6**
**Mon/July 3**
*4th of July Break*

**Wed/July 5**
Chapter 14: Abnormalities in the Skeleton
Abnormalities in the skeleton
Chapter 15: Human Skeletal variation & Forensic Anthropology
Forensic anthropology

***ZOO EXERCISES DUE TODAY***
(Exercises 8.2, 8.3 and 8.4)