ANTHROPOLOGY 617: PRIMATE EVOLUTIONARY BIOLOGY: BODY SIZE
SPRING 2009
MONDAY 4:15-7:05, AS 011

Instructor: Adam Gordon, Ph.D.
Office: AS 246
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Office hours: Tuesday 10:30-12:30, or by appt.

COURSE DESCRIPTION

“You can drop a mouse down a thousand-yard mine shaft; and, on arriving at the bottom, it gets a slight shock and walks away, provided that the ground is fairly soft. A rat is killed, a man is broken, a horse splashes.”
- J. B. S. Haldane, “On Being the Right Size” (1928)

The splashing of the horse vividly illustrates an important point: size matters. This course is an introduction to some of the many relationships between body size and physiology, life history, ecology, locomotion, social structure, time, and space; these are generally known as scaling relationships. We will use the comparative method to identify scaling patterns among mammals (and in some cases, vertebrates) in general, as well as relationships among primates. Equally important as the relationships themselves (if not more) are the deviations from those scaling patterns and the reasons for those deviations. We will address these points, and at the end of the semester we will pay particular attention to interpreting patterns of size evolution and their implications among fossil hominins (i.e., extinct members of the tribe Hominini, those species which are more closely related to humans than to chimpanzees).

This course will use a discussion format, and you and your fellow students are responsible for leading and participating in the discussions – the best way to learn this material is to make efforts to explain it to others! Do not expect me to give lectures during which you can be passive note-takers. This course will be enjoyable and successful for you only if every student actively participates. Read each article closely and be prepared to comment on all of them during every class.

The prerequisite for this course is graduate standing in the Department of Anthropology or permission of the instructor.

REQUIRED READINGS

You will be responsible for the course readings listed on the schedule below. The readings will be made available via Blackboard.

COURSE WEBSITE

The course website can be found on Blackboard. Readings and announcements will be posted there. Check the website regularly for announcements about changes to office hours, readings, or anything else important.
GRADING

This course uses the A-E grade system. Your final grade is determined based on the following components:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Leading discussion</td>
<td>20%</td>
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<tr>
<td>Presentation</td>
<td>20%</td>
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<tr>
<td>Research project</td>
<td>40%</td>
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<tr>
<td>Class participation</td>
<td>20%</td>
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**Leading discussion of readings (20%):** Each student is responsible for leading the class discussion of readings for one week. I expect the discussion leader to not only carefully read all the assigned readings (all students are required to do this for all classes), but also to bring to class a list of topics and/or questions to stimulate a lively discussion in which ALL students will participate. One possible approach (although this is not required) is to use the “Discussions” section of Blackboard to post questions you had about the readings or points that you found particularly interesting – this will give your fellow students advance warning of the items you might bring up in the discussion. The discussion leader will not give lectures about the material, but will be responsible for guiding the class discussion about the readings. I will evaluate your performance as discussion leader based on how well you get your fellow students to talk about the material at hand.

**Research project (40%):** I expect all students to complete an independent research project (i.e., not a literature review) during the course of the semester. Projects should be related to the topics discussed in this class in some way. Projects may be based on a data set previously collected by you, collected by you over the course of the semester, mined from the literature, or drawn from data sets previously collected by myself. I expect each of you to meet with me during my office hours by the end of week 6 to discuss your project topic. Class during week 11 (one month before the projects are due) will be dedicated to discussing your research progress. At that point you will be expected to have collected the majority of your data, and you will give a brief presentation on the status of your analysis along with any difficulties you are encountering. You must be prepared to present a preliminary analysis at this time! Discussion will follow each presentation, and students are expected to provide constructive criticism on all projects.

Projects should be written in scientific journal format, with an abstract, introduction, materials and methods, results, and discussion. The project should be contextualized in terms of the relevant literature. Papers will be graded on content, style, and grammar. Papers are due on Monday, May 4th at the beginning of class.

**Presentation of research project (20%):** During the last class meeting, students will present their research projects in a conference meetings-style talk. Each student will have twenty minutes: fifteen minutes for the presentation, and five minutes for questions. You will be graded on the clarity of your verbal presentation, your ability to handle questions, and the clarity of your slides. Presentations should provide a brief introduction and contextualization, but should focus on the results and implications of the research. You are expected to use PowerPoint, and your slides should reinforce your talk without distracting the audience; i.e., only one figure per slide, minimal text (just a few bullet points per slide, no paragraphs), and what text there is should be large and easily readable (i.e., 20 point or larger).

**Class participation (20%)**: During the class discussions, I will take note of who makes comments and asks questions. Do the assigned readings before coming to class and be prepared
to participate. Everyone must participate in the discussions – it is NOT acceptable to let all the others do the talking and not comment or ask questions. You are not expected to be an expert in the topics of discussion. You ARE expected to ask questions and make comments during class to show me that you are making an effort to understand the material, regardless of background, interest, amount of sleep, etc. DO NOT rely on the discussion leader or me to do all the discussing. Everyone should think about the readings – relevance, importance, unresolved questions, confusing bits, etc. – and talk about these things in class.

Attendance: Attendance is mandatory in this course and is reflected in your participation grade. Poor attendance suggests you are not committed to doing well in the course. I will allow excused absences in the case of religious holidays, documented illness, professional conferences, and possibly other activities, but please let me know about these absences with as much advance notice as possible. I will also allow one unexcused absence without penalty; however, it is common courtesy to let me know in advance if you know you are going to miss a class, or to let me know afterwards why you missed a class. I understand that people have family emergencies, have car trouble, suffer power failures that render alarm clocks useless, etc. – just please let me know why you missed class. If you have more than one unexcused absence, I will deduct 4% from your final grade for each additional absence. If for some reason you will miss the class for which you are scheduled to lead the discussion, it is your responsibility to find someone to trade with you – if you fail to do so, you automatically get a zero for leading discussion (which counts for 20% of your final grade).

ACADEMIC INTEGRITY

Academic dishonesty of any kind will not be tolerated in this course. Academic dishonesty includes, but is not limited to, cheating, plagiarizing, fabricating information or citations, facilitating acts of academic dishonesty by others, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students. Students who are found to be academically dishonest will receive academic sanctions as outlined in the university’s Graduate Regulations and Degree Requirements: http://www.albany.edu/graduatebulletin/requirements_degree.htm#penalties

STUDENTS WITH DISABILITIES

If you have special needs, please notify me immediately; I will be happy to work with you. Let me know if you anticipate needing any type of special accommodation in this course or have questions about physical access. For more information about “reasonable accommodation”, please see the Disability Resource Center website: http://www.albany.edu/disability/rap.shtml

MAJOR DEADLINES

Tuesday, March 3rd: Meet with Dr. Gordon by this date to discuss research project
Monday, April 6th: Have completed data collection and present preliminary analysis in class
Monday, May 4th: Final research presentation in class, and research papers due at the beginning of class – no exceptions
## COURSE SCHEDULE

Note that this schedule is subject to change.

<table>
<thead>
<tr>
<th>WEEK</th>
<th>TOPIC</th>
<th>READINGS</th>
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| 1: 1/26 | Introduction | Peters, 1983 Ch. 1 (pp. 1-9)  
Fleagle, 1985 |
| 2: 2/2 | Size, Statistics, and the Comparative Method | Peters, 1983 Ch. 2 (pp. 10-23)  
Nunn and Barton, 2001  
Desquevises et al., 2003  
Warton et al., 2006 |
| 3: 2/9 | Life history and ecological correlates of body size I: Metabolism | Brown et al., 2000  
Peters, 1983 Chs. 3 & 4 (pp. 24-53)  
Symonds and Elgar, 2002  
Ross, 1992 |
| 4: 2/16 | **NO CLASS**  
(WINTER BREAK) | Ross, 1998  
Nunn and Barton, 2000  
Pérez-Barberia et al., 2007  
Raichlen et al., in prep. |
| 5: 2/23 | Life history and ecological correlates of body size II | Gillman, 2007  
Cardillo et al., 2005  
Jernvall and Wright, 1998  
Purvis et al., 2000 |
| 6: 3/2 | Temporal trends in body size evolution | Ashton et al., 2000  
Freckleton et al., 2003  
Lomolino, 2005  
Lehman, 2007 |
| 7: 3/9 | Ecogeographical trends in body size evolution | Alexander, 1985  
Biewener, 1989  
Biewener, 2005  
Yamanaka et al., 2005 |
| 8: 3/16 | Size and locomotion | Leigh, 1992  
Godfrey and Sutherland, 1996  
Walker et al., 2006 |
| 9: 3/23 | Growth and development | Jungers, 1990  
Kappelman, 1996  
Smith, 1996 |
| 10: 3/30 | Body size, skeletal size, and size estimation in fossils |  |
| 11: 4/6 | **RESEARCH DAY** |  |
| 12: 4/13 | **NO CLASS**  
(SPRING BREAK) |  |
## FULL CITATIONS FOR READINGS


Raichlen DA, Gordon AD, Muchlinski MN, and Snodgrass JJ. *in preparation*. Causes and significance of variation in mammalian basal metabolism.

Reno PL, Meindl RS, McCollum MA, and Lovejoy CO. 2003. Sexual dimorphism in *Australopithecus afarensis* was similar to that of modern humans. *Proceedings of the National Academy of Sciences USA*. 100: 9404-9409.


