

**ANTHROPOLOGY 416: PRIMATE EVOLUTIONARY BIOLOGY**  
**FALL 2017**  
**MONDAY & WEDNESDAY 4:15-5:35 PM, BB 129**

Instructor: Adam Gordon, Ph.D.

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Office hours: Wednesday, 9:30 to 11:30 am or by appointment. **(NOTE: The best way to reach me is to come to office hours. The next best way is by email. However, please be aware that I receive a large volume of student email, so it may take several days before I respond.)**

**Course Material:**

- Required Textbook: Fleagle JG. (2013). Primate Adaptation and Evolution, Third Edition.
- Additional readings will be posted on Blackboard.

**Prerequisites:** There are no required prerequisites for this class.

**Course Description:** This course addresses the principles and particulars involved in reconstructing the evolutionary history of non-human primates. After a basic grounding in the anatomy, ecology, and systematics of living primates, we will explore some of the major events at different points in the evolutionary past of primates, especially open questions that are still debated. In particular, we will examine each of the major radiations of fossil primates with respect to adaptive diversity, functional morphology, and systematics to try to better understand the chain of evolutionary innovations that set the baseline from which the human lineage is derived.

**Course Objectives:** Upon completion of this course, students should have an understanding of the following:

- 1) the systematics of living primates, including the basic anatomical differences that distinguish them functionally and phylogenetically.
- 2) current methodologies for reconstructing phylogenetic relationships among primates.
- 3) the adaptations and phylogenetic relationships among fossil primates, and the relationship of fossil primates to living primates.
- 4) major research questions relevant to significant periods in primate evolution.

More broadly, this course aims to help students formulate testable questions, identify the types of data needed to address those questions, assess data quality, and evaluate possible answers to those questions based on an informed interpretation of the data.

**Grading:** Final grades will be given as A-E. Each student's grade will be based on written summaries of assigned readings, one short quiz, midterm and final exams, an annotated bibliography, and class participation (including a group presentation).

**Academic Integrity:** All graded work must be completed in accordance with the university's Undergraduate Academic Regulations policy on Standards of Academic Integrity:

[http://www.albany.edu/undergraduate\\_bulletin/regulations.html](http://www.albany.edu/undergraduate_bulletin/regulations.html)

## Textbook and Website

**Required Textbook:** Fleagle, J. (2013). Primate Adaptation and Evolution, Third Edition. Academic Press.

**Blackboard:** In addition to the textbook readings, there will be additional required readings available as web links or in PDF format on Blackboard. On the Blackboard page for this course there is a folder called “Readings.” Inside are folders for each week, each of which contains a list of the required readings, links to any required external websites, and PDFs for any other required readings.

## Course Requirements

**Quiz:** There will be a short quiz at the beginning of the fourth class session to test your knowledge of anatomical terms that will be used throughout the semester.

**Exams:** There will be two exams: a midterm and a final. Each exam will consist of a variety of types of questions, such as multiple choice, short answers, and essays.

**Annotated bibliography:** Each student will be required to produce an annotated bibliography reviewing the primary literature on a topic of your choice and cleared by me. Further information on the annotated bibliography can be found at the end of this syllabus. The annotated bibliography will be due at the beginning of class on December 11, 2017.

**Reading summaries:** Approximately once a week, students will be expected to turn in written assignments at the beginning of class related to the readings for that day or week. The exact nature of the assignments will differ throughout the semester, but these will typically be summaries of assigned articles or answers to specific questions about the assigned readings. The point of these exercises is to ensure that students have read the material before class so that they come to class prepared to ask questions about what they didn’t understand or to discuss topics that they would like to explore further, rather than encountering the material for the first time during class.

**Class participation:** Students are expected to attend every class session and participate in discussion. In addition, the class will be divided into six groups of four or five students each, and each group will make a presentation on assigned readings and lead discussion one day in the second half of the semester. Each student’s class participation grade will be based on their participation in discussion throughout the semester and on their presentation/leading of discussion once during the semester.

### **Grading:**

Midterm exam:	24%	Reading summaries:	20%
Final exam:	24%	Class participation:	10%
Annotated bibliography:	20%	Anatomical terms quiz:	2%

Your final grade is based on your overall percentage according to the standard cutoffs. Below are the minimum percentages required for each grade:

A: 93.33%	A-: 90%	B+: 86.67%	B: 83.33%	B-: 80%	C+: 76.67%
C: 73.33%	C-: 70%	D+: 66.67%	D: 63.33%	D-: 60%	E: below 60%

## Course Policies

The following policies are included to provide clear guidelines on issues that students often face throughout the semester.

**Make-up Exams:** In most cases there will be no make-up exams. If you miss an exam, you will receive a zero for that exam. Exceptions will be made only 1) with *proof* of dire emergency or illness, 2) with advance notice of a compelling time conflict *in some cases* (see web link below), or 3) due to religious observance. I will not provide alternative exam times for students who have personal travel plans or commitments (e.g., early travel home for Thanksgiving, family vacation during the final exam period). Please refer to the “Attendance and Timely Compliance with Course Requirements” section of the university’s Undergraduate Academic Regulations for more details ([http://www.albany.edu/undergraduate\\_bulletin/regulations.html](http://www.albany.edu/undergraduate_bulletin/regulations.html)). Be aware that the University Health Center will provide medical excuses only under very specific situations ([http://www.albany.edu/health\\_center/medicalexexcuse.shtml](http://www.albany.edu/health_center/medicalexexcuse.shtml)).

**Students with Disabilities:** Students with disabilities who need special accommodations should notify me and have appropriate documentation on file with the Disability Resource Center (<http://www.albany.edu/disability/index.shtml>). I will be happy to accommodate your needs with sufficient advance notice.

**Late Assignments:** In general, I will not accept assignments late. **If** for some reason I do agree to accept an assignment late, I will assess a late penalty.

**Attendance:** While I do not plan to take formal attendance every week, I am aware of who consistently comes to class and who does not. Missing class for any reason, other than for those excused absences listed above, may result in a low class participation grade (which accounts for 10% of your final grade). Whether you come to class or not, you are responsible for keeping up with what happens in class. This applies to the content of the class, handouts, and announcements about class policies, events, deadlines, etc. In particular, I reserve the right to change deadlines and exam dates, and you will be held to those dates regardless of whether you were in class for the announcement or not. Announcements and amendments to this syllabus will be posted on Blackboard, but it is easy to miss other pertinent information if you are absent from class.

**Grades:** The grade you receive, either on an individual exam or assignment or as your final grade, is not subject to negotiation. It is your grade unless an error has been made (e.g., if you marked “B” and the correct answer was “B”, but your answer was marked incorrect). If you think an error has been made, let me know within one week of receiving the assignment or exam grade.

**IMPORTANT NOTE:** If you are struggling in the course, please come for help *during* the semester when there is still time for me to help you. Take advantage of my office hours or make an appointment with me. Do not wait until the course is over and ask me to change your grade because you are trying to graduate, you are on academic probation, or you have had a tough time with your personal life this semester. By then it is too late for me to help you.

**Academic Integrity:** Students who violate university policy on academic integrity are subject to disciplinary penalties, including the possibility of a failing grade for the course, disciplinary probation, suspension, or expulsion from the University. Prohibited activities include, but are not limited to, cheating, plagiarism, collusion, falsifying academic records, misrepresenting facts, and any act designed to give unfair academic advantage to the student (such as, but not limited to, submission of essentially the same written assignment for two courses without the prior permission of the instructor), or the attempt to commit such an act. For more information, refer to the section “Standards of Academic Integrity” in the Undergraduate Academic Regulations ([http://www.albany.edu/undergraduate\\_bulletin/regulations.html](http://www.albany.edu/undergraduate_bulletin/regulations.html)).

## COURSE SCHEDULE & READINGS

### Week 1

- M 8/28 Introduction
- W 8/30 Adaptation, Evolution, and Primate Systematics  
**Textbook:** Fleagle, Chapters 1 (pp. 1-6)  
**Web:** [http://evolution.berkeley.edu/evolibrary/article/phylogenetics\\_01](http://evolution.berkeley.edu/evolibrary/article/phylogenetics_01)  
(read through all 16 pages)

### Week 2

- M 9/4 NO CLASS (Labor Day)
- W 9/6 The Primate Body  
**Textbook:** Fleagle, Chapter 2 (pp. 9-33)

### Week 3

- M 9/11 Primate Lives (**QUIZ: Anatomical terms**)  
**Textbook:** Fleagle, Chapter 3 (pp. 35-54)
- W 9/13 Living Primate Radiations – Prosimians  
**Textbook:** Fleagle, Chapter 4 (pp. 57-86)

### Week 4

- M 9/18 Living Primate Radiations – Platyrrhines  
**Textbook:** Fleagle, Chapter 5 (pp. 89-117)
- W 9/20 NO CLASS (Rosh Hashanah)

### Week 5

- M 9/25 Information Literacy and Library Resources  
**Blackboard:** TBA
- W 9/27 Living Primate Radiations – Catarrhines I  
**Textbook:** Fleagle, Chapter 6 (pp. 119-148)

### Week 6

- M 10/2 Living Primate Radiations – Catarrhines II  
**Textbook:** Fleagle, Chapter 7 (pp. 151-166)
- W 10/4 Primate Ecology and Biogeography I  
**Textbook:** Fleagle, Chapter 8 (pp. 169-178)  
**Blackboard:**
- Stokstad E. (2009). On the origins of ecological structure. *Science*. 326: 33-35.
  - Kamilar JM, Beaudrot L. (2013). Understanding primate communities: recent developments and future directions. *Evolutionary Anthropology*. 22: 174-185.

### Week 7

- M 10/9 Primate Ecology and Biogeography II
- W 10/11 Primate Adaptations I  
**Textbook:** Fleagle, Chapter 9 (pp. 181-198)  
**Blackboard:**
- Lambert JE. (1998). Primate digestion: Interactions among anatomy, physiology, and feeding ecology. *Evolutionary Anthropology*. 7: 8-20.
  - Ungar P. (1998). Dental allometry, morphology, and wear as evidence for diet in fossil primates. *Evolutionary Anthropology*. 6: 205-217.

### Week 8

M 10/16 Primate Adaptations II

W 10/18 **MIDTERM EXAM**

### Week 9

M 10/23 The Fossil Record  
**Textbook:** Fleagle, Chapter 10 (pp. 201-209)

W 10/25 Primate Origins and Early Primates I  
**Textbook:** Fleagle, Chapter 11 (pp. 211-225)  
**Blackboard:** Readings to be determined by Group A in consultation with Dr. Gordon.

### Week 10

M 10/30 **Group A:** Primate Origins and Early Primates II

W 11/1 Early Primates and Prosimian Evolution I  
**Textbook:** Fleagle, Chapter 12 (pp. 229-260)  
**Blackboard:** Readings to be determined by Group B in consultation with Dr. Gordon.

### Week 11

M 11/6 **Group B:** Early Primates and Prosimian Evolution II

W 11/8 Early Anthropoids I  
**Textbook:** Fleagle, Chapter 13 (pp. 265-286)  
**Blackboard:** Readings to be determined by Group C in consultation with Dr. Gordon.

### Week 12

M 11/13 **Group C:** Early Anthropoids II

W 11/15 Fossil Platyrrhines I  
**Textbook:** Fleagle, Chapter 14 (pp. 291-307)  
**Blackboard:** Readings to be determined by Group D in consultation with Dr. Gordon.

### Week 13

M 11/20 **Group D:** Fossil Platyrrhines II

W 11/22 NO CLASS (Thanksgiving Break)

### Week 14

M 11/27 Miocene Catarrhines I  
**Textbook:** Fleagle, Chapters 15 & 16 (pp. 311-339, 345-358)  
**Blackboard:** Readings to be determined by Group E in consultation with Dr. Gordon.

W 11/29 **Group E:** Miocene Catarrhines II

### Week 15

M 12/4 Fossil Hominins I  
**Textbook:** Fleagle, Chapter 17 (pp. 361-390)  
**Blackboard:** Readings to be determined by Group F in consultation with Dr. Gordon.

W 12/6 **Group F:** Fossil Hominins II

### Week 16

M 12/11 Patterns in Primate Evolution (**DUE: Annotated bibliography**)  
**Textbook:** Fleagle, Chapter 18 (pp. 395-407)

### Exam Period

M 12/18 **FINAL EXAM** (10:30 am to 12:30 pm in BB 129)

## **Annotated Bibliography – Due December 11<sup>th</sup> at 4:35 p.m.**

You are required to compile an annotated bibliography on a contested topic related to primate evolution (more about the topic below). Annotated bibliographies should include a list of citations and a brief description of each text. These descriptions should include a summary of the main points and an evaluation of the text, perhaps with reference to other sources summarized in your bibliography. The descriptions must be written in complete sentences – do **not** simply make lists summarizing the content of each reference. Use your own words to paraphrase the text – do **not** use direct quotes. In your evaluation of the text, you must also explain how the information discussed in each article fits into your topic.

Your research topic will be an issue which has at least two points of view (see below). You **must** precede your annotated bibliography with a one-page summary of your topic and the issues under consideration. You **must** also have two paragraphs of annotation for each article: one paragraph summarizing and evaluating the overall purpose of the authors in writing the article, and a second paragraph explaining the relevance of the article to your research topic. The second paragraph must also indicate which particular point(s) of view are supported or refuted by the article. If you have never written an annotated bibliography before, you may find these websites helpful:

<http://www.library.cornell.edu/olinuris/ref/research/skill28.htm>

<http://www.wisc.edu/writing/Handbook/AnnotatedBibliography.html>

### **Topic:**

Your topic should be related to a question in primate evolution that has conflicting points of view in the literature (this should not be difficult in primate paleontology!), and you should present a bibliography with support for both (or more) points of view. There are several such topics that we address over the course of the semester. Here are some that you might consider:

- Are plesiadapiforms primates? What are the lines of evidence used to support the various positions, and what are the phylogenetic implications?
- What were the selective pressures in the earliest primates that produced the suite of traits we see today in living primates, and what is the fossil evidence for the various evolutionary scenarios?
- What are the phylogenetic relationships among adapoids, omomyoids, tarsiers, and haplorhines?
- Who are the early ancestors of platyrrhines and how did platyrrhines get to South America?
- What can we infer from the Miocene fossil record about the relationships among Eurasian apes, African apes, and hominins, particularly with regard to the biogeography of African ape origins?
- What can we infer regarding locomotion and social structure of early hominins based on the fossil record?

You must confirm your topic with me by November 13<sup>th</sup>.

### **References:**

Your annotated bibliography must include at least 12 references, and these references must be peer-reviewed journal articles or articles in scholarly books (if you do not know what peer-reviewed articles or scholarly texts are, or how to find them, ask me!). You may not use more than three journal articles from a single journal issue nor more than two chapters from a single edited volume (*e.g.*, you cannot fulfill the requirements of this assignment by summarizing 12 articles from a single issue of the *American Journal of Physical Anthropology*). You may NOT use websites or text books as references. On the course Blackboard site you will find links to several journals that might be of use. Look under "Web Links". There are also links to library databases which you can use to search for relevant articles. Your citation style should be consistent throughout the annotated bibliography and follow that of a scientific journal such as the *Journal of Human Evolution* or the *American Journal of Physical Anthropology*. Please feel free to contact me for help if you are having trouble finding references on your topic.

### **Submission:**

You must both (1) e-mail me a text-version of your annotated bibliography (*i.e.*, Word document, Open Office file, etc.), and (2) turn in a paper copy by the beginning of class on December 11<sup>th</sup>.