ANTHROPOLOGY 416: PRIMATE EVOLUTIONARY BIOLOGY
FALL 2009
MONDAY & WEDNESDAY 2:45-4:05 PM, ES 144

Instructor: Adam Gordon, Ph.D.
Office: AS 246
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Office hours: Tuesday, 10 am to noon, or by appt. (NOTE: The best way to reach me is to come to office hours. The next best way is by e-mail. However, please be aware that I receive a large volume of student e-mails, so I will not be able to respond right away.)
Course Material:
Required Textbook: Fleagle, J. (1999). Primate Adaptation and Evolution, Second Edition.
Primate Evolution Website: http://www.laits.utexas.edu/shapiro/
Additional readings will be posted on Blackboard.

PREREQUISITES:
There are no required prerequisites for this class.

COURSE DESCRIPTION:
This course addresses the principles and specifics involved in nonhuman primate evolution. After a basic grounding in the anatomy, ecology, and systematics of living primates, we will explore each of the major radiations of fossil primates with respect to adaptive diversity, functional morphology, and systematics.

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.

GRADING:
Final grades will be given as A-E. Each student's grade will be based on a midterm (28%), final (30%), annotated bibliography (20%), quiz and on-line lab assignments (12%), and class participation (10%).

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

Textbooks/Readings/Websites:

Required Textbook: Fleagle, J. (1999). Primate Adaptation and Evolution, Second 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.

Primate Evolution Website: http://www.laits.utexas.edu/shapiro/. To log on, use Name: shapiro, Password: pr1mate. (Note that the number "1" replaces the letter "i" in the password.) This website has been developed by Dr. Liza Shapiro and her graduate students at the University of Texas at Austin. This website is a useful supplemental resource, but there will also be specific assigned readings from it, and students will be assigned 5 digital laboratories that are linked to the website (see "Lab assignments" below).

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 on a separate handout. The annotated bibliography will be due at the beginning of class on December 7, 2009.

Lab assignments: From the main page of the Primate Evolution Website, click on "Electronic Laboratories." This will lead you to the assignments and downloadable answer sheets. You must hand in the answer sheets **at the beginning of class** on the following dates **(note that lab 3 is due before lab 1):**

Digital Lab 3: Subfossil Lemurs	Due: Sep. 21
Digital Lab 1: Early Primates	Due: Nov. 4
Digital Lab 2: Early Anthropoids	Due: Nov. 11
Digital Lab 4: Fossil Platyrrhines	Due: Nov. 18
Digital Lab 5: Fossil Hominoids	Due: Nov. 30

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	28%
Final exam	30%
Annotated bibliography	20%
Quiz and lab assignments	12% (2% per assignment)
Class participation	10%

Course Policies

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

Make-ups: There will be no make-up exams. 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 below), or 3) due to religious observance. I will not provide alternative exam times for students who have personal travel plans or commitments. 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

Students with disabilities: Students with disabilities who need special accommodations should notify the instructor and have appropriate documentation on file with the Disability Resource Center (http://www.albany.edu/disability/DRC/).

Late assignments: In general I will not accept assignments late. If for some reason I do agree to accept an assignment late, you will be penalized 10% of your original grade per day late. This could change your grade dramatically (e.g., a 90% would become 81% after one day, 72% after two days, etc.). Do yourself a favor and turn assignments in on time.

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 are given, either on an individual exam or assignment or as your final grade, is not the starting point of a negotiation. It is your grade unless an error has been made. If you think an error has been made, let me know within one week of receiving the assignment or exam grade.
**** Important**! 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, 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 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

COURSE SCHEDULE & READINGS

Week 1

M 8/31 Introduction

W 9/2 Adaptation, Evolution, and Primate Systematics
Textbook: Fleagle, Chapters 1 (pp. 1-9)
Web: http://evolution.berkeley.edu/evolibrary/article/phylogenetics_01
http://www.fossilnews.com/1996/cladistics.html

Week 2

M 9/7 NO CLASS (LABOR DAY)

W 9/9 The Primate Body
Textbook: Fleagle, Chapter 2 (pp. 11-43)

Week 3

M 9/14 Primate Lives **(QUIZ: Anatomical terms)**
Textbook: Fleagle, Chapter 3 (pp. 47-73)

W 9/16 Living Primate Radiations – Prosimians
Textbook: Fleagle, Chapter 4 (pp. 81-122)
Blackboard: Tattersall I. (2008). Reconstruction of an extraordinary extinct primate from Madagascar. *Proceedings of the National Academy of Sciences, USA*. 105: 10639-10640.

Week 4

M 9/21 Living Primate Radiations – Platyrrhines **(DUE: Digital Lab 3: Subfossil Lemurs)**
Textbook: Fleagle, Chapter 5 (pp. 133-174)

W 9/23 Living Primate Radiations – Catarrhines I
Textbook: Fleagle, Chapter 6 (pp. 185-223)

Week 5

M 9/28 NO CLASS

W 9/30 Living Primate Radiations – Catarrhines II
Textbook: Fleagle, Chapter 7 (pp. 235-259)

Week 6

M 10/5 Primate Ecology and Biogeography I
Textbook: Fleagle, Chapter 8 (pp. 267-282)
Blackboard: Stokstad E. (2009). On the origins of ecological structure. *Science*. 326: 33-35.
Reed KE, Bidner LR. (2004). Primate communities: past, present, and possible future. *Yearbook of Physical Anthropology*. 47: 2-39.

W 10/7 Primate Ecology and Biogeography II

Week 7

M 10/12 Primate Adaptations I
Textbook: Fleagle, Chapter 9 (pp. 283-290)
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.

W 10/14 Primate Adaptations II

Week 8

M 10/19 **MIDTERM EXAM**

W 10/21 The Fossil Record
Textbook: Fleagle, Chapter 10 (pp. 315-326)

Week 9

M 10/26 Primate Origins and Early Primates I
Textbook: Fleagle, Chapter 11 (pp. 329-347)
Primate Evolution Website: From fossil database page, click on and read "Paleocene", "Eocene", and "Plesiadapiformes"
Blackboard: Cartmill M. (1992). New views on primate origins. *Evolutionary Anthropology*. 1: 105-111.
Sargis EJ. (2002). Primate origins nailed. *Science*. 298: 1564-1565.
Kirk EC, Cartmill M, Kay RF. (2003). Comment on "Grasping primate origins". *Science*. 300: 741b.

W 10/28 Primate Origins and Early Primates II

Week 10

M 11/2 Early Primates and Prosimian Evolution I
Textbook: Fleagle, Chapter 12 (pp. 353-388)
Primate Evolution Website: From fossil database page, click on and read "Adapoids" and "Omomyoids"
Blackboard: Yoder AD. (1997). Back to the future: a synthesis of strepsirrhine systematics. *Evolutionary Anthropology*. 6: 11-22.
Martin R. (2003). Combing the primate record. *Nature*. 422: 388-390.
Steiper ME, Young NM. (2008). Timing primate evolution: lessons from the discordance between molecular and paleontological estimates. *Evolutionary Anthropology*. 17: 179-188.

W 11/4 Early Primates and Prosimian Evolution II **(DUE: Digital Lab 1: Early Primates)**

Week 11

M 11/9 Early Anthropoids I
Textbook: Fleagle, Chapter 13 (pp. 397-421)
Blackboard: Kay RF, Ross C, Williams BA. (1997). Anthropoid origins. *Science*. 275: 797-804.
Bajpai S, Kay RF, Williams BA, Das DP, Kapur VV, Tiwari BN. (2008). The oldest Asian record of Anthropoidea. *Proceedings of the National Academy of Sciences, USA*. 105: 11093-11098.

W 11/11 Early Anthropoids II **(DUE: Digital Lab 2: Early Anthropoids)**

Week 12

M 11/16 Fossil Platyrrines I
Textbook: Fleagle, Chapter 14 (pp. 427-447)
Blackboard: Houle A. (1999). The origin of platyrrhines: an evaluation of the Antarctic scenario and the floating island model. *American Journal of Physical Anthropology*. 109:5 41–559.

Dominy NJ, Lucas PW, Osirio D, Yamashita N. (2001). The sensory ecology of primate food perception. *Evolutionary Anthropology*. 10: 171–186.
Jacobs GH. (2002). Progress toward understanding the evolution of primate color vision. *Evolutionary Anthropology*, Suppl. 1: 132–135.

W 11/18 Fossil Platyrrines II **(DUE: Digital Lab 4: Fossil Platyrrhines)**

Week 13

M 11/23 Miocene Catarrhines I
Textbook: Fleagle, Chapters 15 & 16 (pp. 453-483, 491-506)
Blackboard: Köhler M, Moyà-Solà S. (1997). Fossil muzzles and other puzzles. *Nature*. 388: 327-328.
Andrews P, Pilbeam D. (1996). The nature of the evidence. *Nature*. 379: 123-124.
Begun D. (2003). Planet of the apes. *Scientific American*. 289 (July): 74-83.

W 11/25 NO CLASS (THANKSGIVING BREAK)

Week 14

M 11/30 Miocene Catarrhines II **(DUE: Digital Lab 5: Fossil Hominoids)**

W 12/2 Fossil Hominins I
Textbook: Fleagle, Chapter 17 (pp. 511-542)
Blackboard: Collard M, Aiello LC. (2000). From forelimbs to two legs. *Nature*. 404: 339-340.
Richmond BG, Strait DS. (2000). Evidence that humans evolved from a knuckle-walking ancestor. *Nature*. 404: 382-385.
Kivell TL, Schmitt D. (2009). Independent evolution of knuckle-walking in African apes shows that humans did not evolve from a knuckle-walking ancestor. *Proceedings of the National Academy of Sciences, USA*. 106: 14241-14246.

Week 15

M 12/7 Fossil Hominins II **(DUE: Annotated bibliography)**

Exam Period

Tu 12/15 **FINAL EXAM** (3:30-5:30 pm in ES 144)