Analysis of Primate Anatomy

ANT 391L
Spring 2016
Tues 9-12 SAC 4.124
Instructor: Liza Shapiro
Office hours: SAC 5.128 Tues 3:30-4:30 and Thurs, 1:00-2:00 or by appointment
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This course is an in-depth exploration of the relationship between primate anatomical form and function. Throughout the course, various aspects of anatomy will be examined in detail for associations between particular behavioral activities and particular morphological configurations. (Emphasis will be on postcranial anatomy, as the department offers other courses covering cranial anatomy in detail). Examples will be viewed in the context of different theoretical approaches to the study of functional morphology, and the application of naturalistic and experimental methods to the investigation of functional morphology in living primates will be reviewed. The course is also designed to demonstrate how tested associations between form and function in living primates are used to reconstruct the locomotor behavior of fossil primates. Therefore, emphasis will be on anatomical systems that are more likely to be preserved in the fossil record.

Prerequisites:
Each student should have a basic knowledge of osteological anatomy and primate systematics at the start of the course. If you feel deficient in these areas, you must take the time to learn/review this material as soon as possible.

Required Reading:
2. Readings provided online (Canvas).

Additional HIGHLY recommended textbook:
This book provides more detailed descriptions of anatomy by region than the Langdon book, but is focused on hominoids.

Requirements:
1. Discussion: All students are required to participate fully in discussion of the assigned readings.

2. Lecture: Each student will give a 60-90 minute lecture on TWO course topics, based on assigned reading plus additional literature review of your own. For each topic, present your lecture and serve as moderator for class discussion of the assigned literature.

3. Lab: Design and set up a lab exercise for your classmates on one of the course topics (this can
be the same one you did a lecture for, or another one). Labs will be completed by students outside of class time.

4. Research project: paper and presentation

**Paper:** Students are required to carry out a research project and write it up in journal article style. The paper should be approximately 15 pages long, but no more than 20. (Note: Alternatively, you may write a more extensive term paper on a topic of your choice relating to primate anatomy, without doing original research. If you choose this option, the paper should be longer, e.g., 25-30 pages, since it will be a thorough literature review).

Possible resources for projects include our primate skeletal collection, the mammalian and human collections at the Texas Archaeological Research Laboratory and Vertebrate Paleontology Laboratory, UT’s High-Resolution X-ray Computed Tomography Facility (Dept of Geological Sciences), cadavers for dissection, microscribe, live primates at MD Anderson (Bastrop) and San Antonio, and equipment for high speed video motion capture. Please come by to talk to me at any time about your project ideas, problems, etc.

**Presentation:** All students will be required give a formal 10-15 minute presentation to the class on their paper topic, on the last day of class (May 3).

**Grading:**
1. Participation in discussion 20%
2. Class lectures and moderation of discussion 30%
3. Creation of lab exercise 20%
4. Term project (paper and presentation) 30%

**Presentation of project:** May 3 (last day class meets)
**Paper due** Monday May 7 by 5:00 p.m.

**SCHEDULE:**

Jan 19  Introduction
Jan 26  Methodological and theoretical approaches to functional morphology
Feb 2  Primate body size and scaling
Feb 9  Bone structure and primate adaptation
Feb 16  Muscle structure and function
Feb 23  Developmental perspectives on primate anatomy
March 1  Ecological perspectives on primate anatomy
March 8  Primate dental and mandibular anatomy and function
March 15  SPRING BREAK
March 22  Functional morphology of the primate spine
March 29  Locomotor adaptations of the forelimb I
April 5  Forelimb II: Primate hands: manipulation and locomotion
April 12  Locomotor adaptations of the hindlimb I
April 19  Pelvic anatomy and obstetrics
April 26  Locomotor adaptations of the hindlimb II: Feet
May 3  Student presentations

Paper due Monday, May 9

**Religious holy days.** By UT Austin policy, you must notify me of your pending absence at least fourteen days prior to the date of observance of a religious holy day. If you must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, you will be given an opportunity to complete the missed work within a reasonable time after the absence.

**Absence for military service.** In accordance with section 51.9111 of the Texas Education Code, a student is excused from attending classes or engaging in other required activities, including exams, if he or she is called to active military service of a reasonably brief duration. [The maximum time for which the student may be excused has been defined by the Texas Higher Education Coordinating Board as "no more than 25 percent of the total number of class meetings or the contact hour equivalent (not including the final examination period) for the specific course or courses in which the student is currently enrolled at the beginning of the period of active military service."] The student will be allowed a reasonable time after the absence to complete assignments and take exams.

**Students with disabilities:** Students with disabilities may request appropriate academic accommodations from the Division of Diversity and Community Engagement, Services for Students with Disabilities at ssd@austin.utexas.edu, 471-6259 (voice), 410-6644 (video phone) or http://ddce.utexas.edu/disability/
**Emergency evacuation:** (Office of Campus Safety and Security, 512-471-5767, http://www.utexas.edu/safety/)

- Occupants of buildings on The University of Texas at Austin campus are required to evacuate buildings when a fire alarm is activated. Alarm activation or announcement requires exiting and assembling outside.

- Familiarize yourself with all exit doors of each classroom and building you may occupy. Remember that the nearest exit door may not be the one you used when entering the building.

- Students requiring assistance in evacuation shall inform their instructor in writing during the first week of class.

- In the event of an evacuation, follow the instruction of faculty or class instructors.

- Do not re-enter a building unless given instructions by the following: Austin Fire Department, The University of Texas at Austin Police Department, or Fire Prevention Services office.