ANG 6930 (Section 8461) PROSEMINAR IN ANTHROPOLOGY IIA: BIOLOGICAL ANTHROPOLOGY

Prof. Connie J. Mulligan

Class meets in B304 Turlington
Class time: Friday, periods 7-9 (1:55-4:55pm), with a 15 min break

Office hours: Friday, 12:30-1:30, or by appointment
B119 Turlington Hall

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Course description and objectives: This course is a graduate-level introduction to biological anthropology. The course is designed to equip first-year graduate students in the Department of Anthropology with a fundamental understanding of the scope and historical development of biological anthropology as an integral part of the discipline. We will cover five broad topics: 1) evolutionary theory and genetics, 2) primates and our place in nature, 3) human evolution, 4) human variation, and 5) culture and behavior in an evolutionary perspective. The biological anthropology component of the course lasts for the first ½ of the semester. The second half of the semester covers archaeology with Prof. James Davidson.

By the end of the course, you should be able to:

1. Identify the major areas of research in biological anthropology
2. Articulate the role of biological anthropology in the discipline as a whole
3. Describe the basic principles of inheritance and evolutionary theory
4. Explain the significance and role of primatology as part of anthropology
5. Evaluate the evidence for hominid evolution, including the origin of modern humans
6. Explain how and why humans vary biologically and how such variation relates to "race"
7. Discuss the evolutionary basis of human intelligence, culture and behavior
8. Be prepared to teach a section on biological anthropology in an introductory course in four-field anthropology

Reading materials and course format: The Human Species: An Introduction to Biological Anthropology (2012, Ninth edition) by John Relethford will be used to present the fundamentals of biological anthropology. Relevant journal articles will be used to highlight the specifics of major contributions in the field of biological anthropology. A course packet of journal articles and related material is available on the course Sakai webpage. The course meets once a week for three hours. The course format is lecture plus discussion with substantial class participation. The lectures are intended to review the major conceptual points of each new topic and to lay the groundwork for discussion. You are expected to have completed all reading assignments prior to class and you must participate in class discussions of the material. Evaluation of student performance is based on class participation, regular quizzes or questions/comments on assigned journal articles, a journal analysis, and an exam.

Grading: Your final grade for this half of the course will be determined by the following four categories, each of which contributes 100 points: participation (100 pts), 5 quizzes or set of questions/comments (20 pts each),

journal analysis (100 pts), exam (100 pts). Possible points total 400. Your grade for this half of the course will count as 50% of your grade for the entire course and your grade in the archaeology section of the course will count as the other 50% of your grade for the entire course. Grades will be based on the following point percentages: 90-100%=A, 87-90%=B+, 80-87%=B, 77-80%=C+, 70-77%=C, 67-70%=D+, 60-67%=D, < 60%=E. The university grading policy can be found at https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx.

- **Participation** in class discussions is required of all students and will be based on each student's contribution of original discussion, comments, questions, etc. to the class. Participation means speaking up in class and contributing ideas, questions, comments, etc. No credit will be given for simply showing up to class, although attendance is mandatory. Furthermore, punctuality is important and participation points will not be awarded to students who are late to class.
- At the beginning of each class, either a **quiz** will be given or students will hand in at least **three original comments or questions** based on the reading material. Quizzes will cover the day's reading material and will be closed-book. The lowest grade (quizzes or comments/questions) will be dropped. Comments/questions are not just a single sentence, but a developed idea or question in a short paragraph. Missed quizzes or comment/questions cannot be made up.
- For the **journal analysis**, you will select a topic in biological anthropology and systematically track research on this topic. Details will be provided in class. Briefly, you will examine how a topic of interest to you has been covered in the last 15 years in five leading peer-reviewed journals. Your review must include the *American Journal of Physical Anthropology*, *American Anthropologist* and *Current Anthropology*. You will choose two additional journals that are appropriate for your topic. The purpose of this exercise is to: 1) introduce you to the major journals, 2) improve your ability to conduct literature reviews, 3) enhance your skills in identifying a research problem, collecting and analyzing data, and writing up results, and 4) identify patterns across sub-fields, as well as the potential strengths and weaknesses of four-field anthropology.
- The **exam** will consist of problems similar to the short answer questions on the quizzes as well as essay questions. The exam will be take-home and will be given at the end of the semester. Make-up exams will be scheduled only in extenuating circumstances and will require a doctor's note, police report, or similar supporting documentation.

Class attendance policy: Because the class meets only one time per week and because the class format is mainly discussion, it is very difficult to make up missed classes by borrowing notes, etc. Therefore, students are required to attend all classes and to arrive on time. Computers are allowed in class for taking notes although I may ban computers if I feel their use is hindering class discussions. Computers (and other electronic devices) are not allowed during quizzes. Class discussions/lectures cannot be recorded in any manner without special permission.

Strategies for success: Start reading the assigned material at the beginning of the week. Start with the textbook and move onto the journal articles. Continue reading though the week so that you have time to contemplate the readings and think of questions and comments to contribute during class. The journal articles will likely be the most challenging reading and, if you are unfamiliar with the material, you may have to read certain articles more than once. Take notes as you read – this will help crystallize your understanding of the reading and will also provide material to contribute to class. Come to class with several questions or comments already prepared to contribute to the class discussion. Waiting until the night before class to start the readings is a strategy for failure.

Accommodations for students with disabilities: If you require accommodation due to a disability, please make an appointment during my office hours so that we may discuss your needs. Students requesting classroom

accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

Academic honesty: As a result of completing the registration form at the University of Florida, every student has signed the following statement: "I understand that the University of Florida expects its students to be honest in all their academic work. I agree to adhere to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action up to and including expulsion from the University." An excellent website that discusses plagiarism (provides a definition and many useful examples) is http://www.csubak.edu/ssric/Modules/Other/plagiarism.htm. All students should read this material at least once.

UF Counseling Services: On-campus services are available for students having personal problems or lacking clear career and academic goals. They include:

1. University Counseling Center, 301 Peabody Hall, 392-1575, personal and career counseling
2. Student Mental Health, Student Health Care Center, 392-1171, personal counseling
3. Sexual Assault Recovery Services (SARS), Student Health Care Center, 392-1161, sexual assault counseling
4. Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling
5. Additionally, student web-based resources on sexual harassment are available at http://www.ufsa.ufl.edu/students/sh/sexualharassment.shtml

Course schedule:

January 11 – Introduction and overview of the discipline

- Biological anthropology as *anthropology*
- Scope of the discipline
- Professionalization and guidelines for success
- How to read a scientific journal article/sample PubMed search

Required reading

1) Relethford 2012, Introduction (p. 1-8)
    a) Introduction - Anthropology and Biological Anthropology
2) Sakai:
    a) Fuentes A. 2010. The new biological anthropology: Bringing Washburn's new physical anthropology into 2010 and beyond – The 2008 AAPA Luncheon Lecture, *Yearbook of Physical Anthropology* 53:2-12.
    b) Calcagno JM. 2003. Keeping biological anthropology in anthropology, and anthropology in biology. *American Anthropologist* 105:6-15.
    c) Balaresque P et al. 2007. Challenges in human genetic diversity: Demographic history and adaptation. *Human Molecular Genetics* 16:R134-R139.

January 18 – Science and Evolution

- Science as a way of knowing
- Origins of evolutionary thought
- Darwin and natural selection
- Evolution and creationism
- Species concepts and speciation
- Class activity - Inquiry-based exercise on human evolution

Required reading

1) Relethford 2012, Chpts 1 and 4
    a) Chpt 1 – Science and Evolution
    b) Chpt 4 - The Evolution and Classification of Species
2) Sakai:
    a) Klein RG. 2009. Darwin and the recent African origin of modern humans. *PNAS* 106:16007-16009.
    b) Handel AD & Ramagopalan SV. 2010. Is Lamarckian evolution relevant to medicine? *BMC Medical Genetics* 11:73
    c) Talbot M. 2005. Darwin in the Dock. *The New Yorker*, pp 66-77.
    d) Berkman MB et al. 2008. Evolution and Creationism in America's Classroom: A National Portrait. *PLoS Biology*, 6:0920-0924

January 25 – Genetics and the development of evolutionary theory

- Mendelian and molecular genetics
- Population genetics
- Evolutionary forces
- Dating the past
- Reconstructing the past

Required reading

1) Relethford 2012, Chpts 2, 3 and 8
    a) Chpt 2 - Human Genetics
    b) Chpt 3 – The Forces of Evolution
    c) Chpt 8 – The Fossil Record
2) Sakai:
    a) Tattersall I. 2000. Paleoanthropology: The last half-century. *Evolutionary Anthropology* 9:2-16.
    b) "Beyond Stones and Bones", Newsweek, March 19, 2007.
    c) Carroll SB. 2003. Genetics and the making of *Homo sapiens*. *Nature*. 422:849-857.
    d) Granka et al. 2012. Limited evidence for classic selective sweeps in African populations. *Genetics* 192: 1049-1064 *** Focus on Introduction and Discussion, Skip Supplementary Material***

- Topic and abstract for journal analysis is due
- Quiz #1 (covers Chpts 1 and 3)

February 1 – Primate evolution, ecology and behavior

- Primatology as anthropology
- Primate taxonomy and paleobiology
- Diversity of living primates
- Primate models for human evolution and behavior
- Primate behavioral ecology
- Evolution of social relationship
- Comparison of humans and other primates

Required reading

1) Relethford 2012, Chpts 5-9
    a. Chpt 5 - The Primates
    b. Chpt 6 - Primate Behavior and Ecology
    c. Chpt 7 - The Human Species
    d. Chpt 8 – The fossil record
    e. Chpt 9 – Primate origins and evolution
2) Sakai:
    a. Perry SE. 2006. What cultural primatology can tell anthropologists about the evolution of culture. *Annu Rev Anthropol* 35:171-190.
    b. Strier KB. 2008. The effects of kin on primate life histories. *Annu Rev Anthropol* 37:21-36.
    c. Reiseberg LH and Livingstone K. 2003. Chromosomal speciation in primates. *Science* 300:267-268.
    d. Khaitovich P et al. 2005. Parallel patterns of evolution in the genomes and transcriptomes of humans and chimpanzees. *Science* 309:1850-1854.
    e. Judson O. 2008. "Wanted: Intelligent aliens, for a research project" New York Times blog. http://opinionator.blogs.nytimes.com/2008/09/30/wanted-intelligent-aliens-for-a-research-project/

February 8 – Hominoid to hominin

- Early primate evolution
- Dating the ape-human split
- Australopiths
- Origins of genus *Homo*
- *Homo erectus*
- Neanderthals and other archaic humans

Required reading

1) Relethford 2012, Chpts 10-12
    a. Chpt 10 - The First Hominins
    b. Chpt 11 - The Origin of the Genus *Homo*
    c. Chpt 12 - The Evolution of Archaic Humans
2) Sakai:
    a. Gibbons A. 2012. "A new face reveals multiple lineages alive at the dawn of our genus Homo. *Science* 337:635.
    b. Gibbons A. 2009. "A new kind of ancestor: *Ardipithecus* unveiled", *Science*, 326:36-40.
    c. "New statistical model moves human evolution back three million years" ScienceDaily, 11/9/2010.
    d. Balter M. 2012. "Why are our brains so big?" *Science* 338:33-34.
    e. Teaford MR and Ungar PS. 2000. Diet and the evolution of the earliest human ancestors. *Proceedings of the National Academy of Sciences* 97:13506-13511.
    f. Conroy GC. 2002. Speciosity in the early Homo lineage: Too many, too few, or just about right? *Journal of Human Evolution* 43:759-766.
    g. "Neanderthal genome study reveals that we have a little caveman in us" 2010. Scientific American. http://www.scientificamerican.com/article.cfm?id=neandertal-genome-study-r
    h. Stringer C. 2012. What makes a modern human. Nature 485:33-35.
    i. Optional (for those who want more genetics!!) – Noonan JP. Neanderthal genomics and the evolution of modern humans. *Genome Research* 20:547-553.

February 15 – Origin of modern humans and Human variation

- Anatomically modern Homo sapiens
- African replacement or multiregional evolution?
- *Homo floresiensis*
- Global patterns of human genetic variation
- Anthropological critique of race

Required reading

1) Relethford 2012, Chpts 13-14
    a. Chpt 13 – The Origin of Modern Humans
    b. Chpt 14 – Race and Human Variation
2) Sakai:
    a. Tattersall I. 2009. Human origins: Out of Africa. *Proceedings of the National Academy of Sciences* 106:16018-16021.
    b. Scheinfeldt L et al. 2010. Working toward a synthesis of archaeological, linguistic, and genetic data for inferring African population history. *Proceedings of the National Academy of Sciences* 107:8931-8938.
    c. Serre D and P ääbo S. 2004. Evidence for gradients of human genetic diversity within and among continents. *Genome Research* 14:1679-1685.
    d. Haak W. 2008. Ancient DNA, strontium isotopes, and osteological analyses shed light on social and kinship organization of the Later Stone Age. *PNAS*. 105:18226-18231.
    e. Science Breakthrough of the Year Runner-Up – A home run for ancient DNA, http://www.sciencemag.org/content/338/6114/1525.full
    f. Lalueza-Fox C and Gilbert MT. 2011. Paleogenomics of archaic hominins. *Current Biology* 21:R1002-R1009.

Quiz #2 (covers important dates for human evolution in Chpt 13 and also Chpt 14)

February 22 - Evolution of human life history and Evolution of human intelligence

Textbook:

- Population history
- Natural selection and adaptation
- Agriculture and civilization

Sakai:

- Reproduction and fertility
- Human growth and development
- Aging and senescence
- Primate intelligence
- Social behavior
- Evolution of language

Video – African American Lives

Required reading

1) Relethford 2012, Chpt 15-17

a. Chpt 15 – Recent Human Evolution
b. Chpt 16 – Human Biocultural Adaptation
c. Chpt 17 – The Biological Impact of Agriculture and Civilization

2) Sakai:
   a. "Are humans still evolving?" *Science* 2005, 309:234-237.
   b. "Civilization's cost: The decline and fall of human health" *Science* 2009. 324:588.
   c. Helle S, Lummaa V, Jokela J. 2004. Are reproductive and somatic senescence coupled in humans? Late, but not early, reproduction correlated with longevity in historical Sami women. *Proc Roy Soc B* 272: 29-37.
   d. Finch CE. 2010. Evolution of the human lifespan and diseases of aging: Roles of infection, inflammation, and nutrition. *Proceedings of the National Academy of Sciences* 107:1718-1724.
   e. Herrman E et al. 2007. Humans have evolved specialized skills of social cognition: The cultural intelligence hypothesis. *Science* 317:1360-1366.
   f. Gravlee CC et al. 2009. Genetic ancestry, social classification, and racial inequalities in blood pressure in southeastern Puerto Rico, *Public Library of Science ONE* 4:e6821.

- Journal analysis is due
- Take-home exam is given – due in one week