

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

Prof. Connie J. Mulligan

Class meets in B304 Turlington

Class time: Friday, periods 6-8 (12:50-3:50pm), with a 15 min break

Office hours: Friday, 10:30-12:30, 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. This course was first developed by Dr. Clarence Gravlee and many thanks go to him for course materials.

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 (2010, Eighth 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 at Orange & Blue Textbooks (309 NW 13th St, across from Krispy Kreme Donuts, 352-375-2707). The course meets once a week for three hours. The course format is lecture (~1 - 1 ½ hours) plus discussion with substantial class participation (~1 ½ - 2 hours). 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. Grades will be based on the following point percentages: 90-100%=A, 87-89%=B+, 80-86%=B, 77-79%=C+, 70-76%=C, 67-69%=D+, 60-66%=D, < 59%=E.

- **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, you should be punctual and arrive at class promptly by 12:50.
- 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. 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 of 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 coursepack materials. 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 pieces 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.csuak.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

Course schedule:

January 7 – 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 2010, Ch. 1 (p. 3-11)
 - a) Chpt 1 - Biological Anthropology and Evolution (beginning of chapter)
- 2) Coursepack:
 - a) Calcagno JM. 2003. Keeping biological anthropology in anthropology, and anthropology in biology. *American Anthropologist* 105:6-15.
 - b) Boas F. 1899. Anthropology. *Science* 9:93-96.
 - c) Spencer F. 1981. The rise of academic physical anthropology in the United States (1880-1980): A historical overview. *American Journal of Physical Anthropology* 56:353-364.
 - d) Balaesque P et al. 2007. Challenges in human genetic diversity: Demographic history and adaptation. *Human Molecular Genetics* 16:R134-R139.

January 14 – Science and Evolution

- Science as a way of knowing
- Origins of evolutionary thought
- Darwin and natural selection
- Evolution and creationism
- Species concepts and speciation

Required reading

- 1) Relethford 2010, Chpt 1 (pp 11-29) and 4
 - a) Chpt 1 - Biological Anthropology and Evolution (end of chapter)
 - b) Chpt 4 - The Evolution and Classification of Species
- 2) Coursepack:
 - a) Park MA. 2005. Biological Anthropology, An Introductory Reader, Chpt 9 (pp 40-44), Natural Selection (1858), Charles R. Darwin and Alfred Russel Wallace
 - b) Mayr E. 1997. "What is science?" in *This is biology: The science of the living world*, pp 24-44. Cambridge: Harvard University Press.

- c) Scott EC. 1997. Antievolution and creationism in the United States. *Annual Review of Anthropology* 26:263-289.
- d) Talbot M. 2005. Darwin in the Dock. *The New Yorker*, pp 66-77.
- e) Berkman MB et al. 2008. Evolution and Creationism in America's Classroom: A National Portrait. *PLoS Biology*, 6:0920-0924

January 21 – Genetics and the development of evolutionary theory

- Mendelian and molecular genetics
- Population genetics
- Evolutionary development biology (Evo Devo)

Required reading

- 1) Relethford 2010, Chpts 2-3 and 8
 - a) Chpt 2 - Human Genetics
 - b) Chpt 3 - Microevolution
 - c) Chpt 8 - Paleoanthropology
- 2) Coursepack:
 - a) Tattersall I. 2000. Paleoanthropology: The last half-century. *Evolutionary Anthropology* 9:2-16.
 - b) Foley R. 2001. In the shadow of the modern synthesis? Alternative perspectives on the last fifty years of paleoanthropology. *Evolutionary Anthropology* 10:5-14.
 - c) Carroll SB. 2003. Genetics and the making of *Homo sapiens*. *Nature*. 422:849-857.
 - d) "Beyond Stones and Bones", Newsweek, March 19, 2007.

- Topic and abstract for journal analysis is due

January 28 – 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
- Methods (dating, morphology, taphonomy, stable isotopes, etc) and geologic era

Required reading

- 1) Relethford 2010, Chpts 5-7
 - a. Chpt 5 - The Primates
 - b. Chpt 6 - Primate Behavior and Ecology
 - c. Chpt 7 - The Human Species
- 2) Coursepack:
 - a. Martin RD. 2002. Primatology as an essential basis for biological anthropology. *Evolutionary Anthropology* 11:3-6.
 - b. Strier KB. 2003. Primate behavioral ecology: From ethnography to ethology and back. *American Anthropologist* 105:16-27.

- c. Rieseberg 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. Amici et al. 2010. Monkeys and apes: Are their cognitive skills really so different? *American Journal of Physical Anthropology* 143: 188-197.
- f. "Wanted: Intelligent aliens, for a research project" 2008, Judson, New York Times blog.

February 4 – Hominoid to hominin

- Dating the ape-human split
- Australopiths
- Early hominin subsistence and social organization
- Origins of genus *Homo*
- *Homo erectus*
- Neanderthals and other archaic humans

Required reading

- 1) Relethford 2010, Chpts 9-12
 - a. Chpt 9 - Primate Origins and Evolution
 - b. Chpt 10 - The Beginnings of Human Evolution
 - c. Chpt 11 - The Origin of the Genus *Homo*
 - d. Chpt 12 - The Evolution of Archaic Humans
- 2) Coursepack:
 - a. "A new kind of ancestor: Ardipithecus unveiled", *Science*, 326:36-40.
 - b. "Candidate human ancestor from South Africa sparks praise and debate", *Science*, 328:154-155.
 - c. Klein RG. 2009. Darwin and the recent African origin of modern humans. *Proceedings of the National Academy of Sciences* 106:16007-16009.
 - d. "New statistical model moves human evolution back three million years" *ScienceDaily*, 11/9/2010.
 - 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. Premo LS and Hublin J-J. 2009. Culture, population structure, and low genetic diversity in Pleistocene hominins. *Proceedings of the National Academy of Sciences* 106:33-37.
 - h. Hublin JJ. 2009. The origin of Neanderthals. *Proceedings of the National Academy of Sciences* 106:16022-16027.
 - i. "Tales of a prehistoric human genome" *Science* 2009, 323:866-871.
 - j. Optional (for those who want more genetics!!) – Noonan JP. Neanderthal genomics and the evolution of modern humans. *Genome Research* 20:547-553.

February 11 – Origin of modern humans and Human variation

- *Homo floresiensis*
- Anatomically modern *Homo sapiens*
- African replacement or multiregional evolution?

- Global patterns of human genetic variation
- Anthropological critique of race

Required reading

- 1) Relethford 2010, Chpts 13-14
 - a. Chpt 13 – The Origins of Modern Humans
 - b. Chpt 14 – The Study of Human Variation
- 2) Coursepack:
 - a. Tattersall I. 2009. Human origins: Out of Africa. *Proceedings of the National Academy of Sciences* 106:16018-16021.
 - b. Powledge TM. 2006. What is the Hobbit? *PLoS Biology*. 4:2186-2189.
 - c. 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.
 - d. Serre D and Pääbo S. 2004. Evidence for gradients of human genetic diversity within and among continents. *Genome Research* 14:1679-1685.
 - e. 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.
 - f. “On the origin of art and symbolism” *Science* 2009, 323:709-711.

February 18 - Evolution of human life history and Evolution of human intelligence

Textbook:

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

Coursepack:

- 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 2010, Chpt 15-17
 - a. Chpt 15 – Recent Microevolution in Human Populations
 - b. Chpt 16 – Human Adaptation
 - c. Chpt 17 – The Biological Impact of Agriculture and Civilization
- 2) Coursepack:
 - a. “Are humans still evolving?” *Science* 2005, 309:234-237.
 - b. 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.
 - c. “Dental evidence suggests Neanderthals matured faster than we do” *Science* 2007, 318:1547.

- d. Hawkes K. 2004. Human longevity: The grandmother effect. *Nature* 428:128-129.
- e. Lähderpera M, Lummaa V, Helle S, Tremblay M, Russell AF. 2004. Fitness benefits of prolonged post-reproductive lifespan in women. *Nature* 428:178-181.
- f. 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.
- g. "Civilization's cost: The decline and fall of human health" *Science* 2009. 324:588.
- h. Herrman E et al. 2007. Humans have evolved specialized skills of social cognition: The cultural intelligence hypothesis. *Science* 317:1360-1366.
- i. "Nonhuman primates demonstrate humanlike reasoning" *Science* 2007, 317:1308.

- Journal analysis is due
- Take-home exam is given