ANG 6583 section 6528

Issues in Evolutionary Anthropology **Fall 2012**

TIME: Mondays Periods 8 – 10 (3:00 – 6:00 PM)

PLACE: TUR B304

INSTRUCTOR: David Daegling, TUR B376
392-2253 x245 daegling@ufl.edu

OFFICE HOURS: MW 10:30 – 11:30 AM; W 1:00 – 3:00 PM.

COURSE OBJECTIVES:

This seminar examines the role of evolutionary theory in the methods and practice of biological anthropology. Major issues in evolutionary biology are explored through examples from the anthropological literature, and we will also consider the contribution of cognate fields to evolutionary theory. The challenges in applying theoretical concepts to specific research questions and the influence of evolutionary theory on anthropological thought are emphasized.

COURSE REQUIREMENTS:

This course is administered through e-learning (https://lss.at.ufl.edu/). Attendance and active participation in the seminar are essential for the success of the course. Absence from class and/or failure to participate in discussion of assigned readings will detrimentally influence your course grade. Each week, you will be asked to discuss issues raised in the assigned readings and offer questions for further discussion. Three papers (5-7 pages each) will be assigned over the course of the semester; topics for these papers will be distributed two weeks in advance. Papers are to be submitted as printed or electronic copies at the beginning of class on the due date. Participation will account for 25% of your course grade, each paper accounts for 25% of your grade as well. Information on current UF grading policies for assigning grade points can be found at http://gradcatalog.ufl.edu/content.php?catoid=4&navoid=907#grades.

OTHER POLICIES:

Cell phones and pagers must be turned off during class. Late papers are subject to a full letter grade reduction. Incompletes will not be granted for any work submitted beyond the end of term (12/5). Plagiarism in any form is subject to university policy. 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. Students experiencing personal problems that are interfering with their academic performance are encouraged to contact the University Counseling Center (301 Peabody Hall, 392-1575), Student Mental Health (Student Health Care Center, 392-1171), or Sexual Assault Recovery Services (Student Health Care Center, 392-1161).

COURSE SCHEDULE:

Week	***Topic***
1 (8/27)	Fundamentals of Evolution
2 (9/10)	Natural Selection
3 (9/17)	The Adaptationist Paradigm
4 (9/24)	Species Concepts
5 (10/1)	Systematic Philosophy (**1st paper due**)
6 (10/8)	Units of Selection Revisited
7 (10/15)	Tempo and Mode in Evolution
8 (10/22)	Macroevolution
9 (10/29)	Genes, Phenotypes and Morphology
10 (11/5)	Heterochrony and Life Histories (**2nd paper due**)
11 (11/19)	Cooperation and Human Behavior
12 (11/26)	Trends in Evolution
13 (12/3)	Social and Cultural Dimensions of Evolutionary Theory (**3rd paper due**)

Course Readings: George C. Williams (1966) *Adaptation and Natural Selection* is required and is to be read in its entirety by Week 2 (9/10). Douglas Futuyma's *Evolutionary Biology* is strongly recommended as a supplementary text for students who have not had coursework or training in evolutionary theory. There will be no formal assignments from this text. Of the assigned articles, several of these are available in a course packet from Orange and Blue Textbooks (309 NW 13th St., 375-2707). The remainder is available online through licenses to the UF libraries (marked in red font). To access these from a computer not on the UF network requires a Gatorlink account (http://www.gatorlink.ufl.edu/).

Week 3 Adaptationist Paradigm

Gould SJ and Lewontin RC (1979) The spandrels of San Marco and the Panglossian paradigm: A critique of the adaptationist programme. *Proceedings of the Royal Society of London. (SeriesB)* **205**: 581-598.

Gould SJ and Vrba ES (1982) Exaptation -- a missing term in the science of form. *Paleobiology* **8**: 4-15.

Bock WJ (1980) The definition and recognition of biological adaptation. *Am. Zool.* **20**: 217-227.

Radinsky LB (1985) Approaches in evolutionary morphology: A search for patterns. *Annual Review of Ecology and Systematics* **16**:1-14.

Tattersall I (2002) Adaptation: The unifying myth of biological anthropology. *Teaching Anthropology SACC Notes* **9**(1): 9-11.

Week 4 **Species Concepts**

Simpson GG (1951) The species concept. *Evolution* **5**: 285-298.

Sokal RR (1973) The species problem reconsidered. *Systematic Zoology* **22**: 360-374.

Tattersall I (1992) Species concepts and species identification in human evolution. *J. Human Evol.* **22**: 341-349.

Groves C (2004) The what, why and how of primate taxonomy. *International Journal of Primatology* **25**:1105-1126.

Week 5 **Systematic Philosophy**

Simpson GG (1945) The principles of classification and a classification of mammals. *Bull. Am. Mus. Nat. Hist.* **85**: 1-33.

Sneath PHA and Sokal RR (1962) Numerical taxonomy. *Nature* **193**: 855-860.

Hennig W (1965) Phylogenetic systematics. *Ann. Rev. Entomol.* **10**: 97-116.

Gingerich PD (1990) Stratophenetics. In *Palaeobiology: A Synthesis*, DEG Briggs, PR Crowther (eds) Oxford: Blackwell Scientific, pp. 437–442.

Ridley M (1986) *Evolution and Classification: the Reformation of Cladism*. New York, Longman. pp. 86-97.

Week 6 **The Units of Selection**

Lewontin RC (1970) The units of selection. *Annual Review of Ecology and Systematics* **1**: 1-18.

Wagner G, Pavlicev M, Cheverud JM (2002) The road to modularity. *Nature Rev Genet* **8**:921-931.

Sober E and Wilson DS (1994) A critical review of philosophical work on the units of selection problem. *Philosophy of Science* **61**:534-555.

Gould SJ and Lloyd EA (1999) Individuality and adaptation across levels of selection: How shall we name and generalize the unit of Darwinism? *Proceedings of the National Academy of Sciences* **96**:11904-11909.

Week 7 **Tempo and Mode in Evolution**

Gould SJ and Eldredge N (1977) Punctuated equilibria: The tempo and mode of evolution reconsidered. *Paleobiology* **3**: 115-151.

Levinton JS & Simon CM (1980) A critique of the punctuated equilibria model and implications for the detection of speciation in the fossil record. *Systematic Zoology* **29**: 130-142.

Potts R (1996) Evolution and climate variability. *Science* **273**: 922-923.

Tattersall I (2000) Paleoanthropology: The last half-century. *Evolutionary Anthropology* **9**:2-16.

Foley R (2001) In the shadow of the modern synthesis? Alternative perspectives on the last fifty years of paleoanthropology. *Evolutionary Anthropology* **10**: 5-14.

Week 8 **Macroevolution**

Charlesworth B, Lande R and Slatkin M.1982. A Neo-Darwinian commentary on macroevolution. *Evolution* **36**:474-498.

Wright S. 1982. The shifting balance theory and macroevolution. *Ann Rev Genet* **16**:1-19.

Erwin DH. 2000. Macroevolution is more than repeated rounds of microevolution. *Evol Dev* **2**: 78-84.

Week 9 **Genes, Phenotypes and Morphology**

Waddington CH (1942) Canalization of development and the inheritance of acquired characters. *Nature* **150**: 563-565.

King M-C and Wilson AC (1975) Evolution at two levels in humans and chimpanzees. *Science* **188**: 107-116.

Hlusko LJ (2004) Integrating the genotype and phenotype in hominid paleontology. *Proc. Nat. Acad. Sci.* **101**: 2653-2657.

Dwyer PD (1984) Functionalism and structuralism: Two programs for evolutionary biologists. *American Naturalist* **124**: 745-750.

Cheverud JM (1996) Developmental integration and the evolution of pleiotropy. *American Zoologist* **36**: 44-50. (NB: Journal now named *Integrative & Comparative Biology*).

Week 10 Heterochrony and Life Histories

Leigh SR (2004) Brain growth, life history and cognition in primate and human evolution. *Am J Primatol* **62**: 139-164.

Peccei JS (2001) Menopause: Adaptation or epiphenomenon? *Evolutionary Anthropology* **10**: 43-57.

Kappeler P (1996) Causes and consequences of life history variation among strepsirhine primates. *American Naturalist* **148**: 868-891.

Bribiescas RG (2006) On the evolution, life history and proximate mechanisms of human male reproductive senescence. *Evolutionary Anthropology* **15**: 132-141.

Week 11 Cooperation and Human Behavior

Dugatkin LA (1999) *Cheating Monkeys and Citizen Bees*. New York, Free Press. Chapter 2, "One good turn deserves another."

Boehm C (1997) Impact of the human egalitarian syndrome on Darwinian selection mechanics. American Naturalist **150**: S100-S121.

Fehr E and Gächter S (2002) Altruistic punishment in humans. *Nature (London)* **415**:137-140.

Durham WH (1992) Applications of evolutionary culture theory. *Annual Review of Anthropology* **21**:331-353.

Hrdy SB (1990) Sex bias in nature and history: A late 1980s reexamination of the "biological origins" argument. *Yrbk. Phys. Anthropol*. **33**: 25-37.

Week 12 Trends in Evolution

Grehan JR, Ainsworth R (1985) Orthogenesis and evolution. *Systematic Zoology* **34**: 174-192.

Raup DM (1993) *Extinction: Bad Genes or Bad Luck*. New York, W.W. Norton. pp. 64-106.

Bonner JT (1988) *The Evolution of Complexity by Means of Natural Selection*. Princeton University Press. pp. 220-246.

McShea DW (1994) Mechanisms of large-scale evolutionary trends. *Evolution* **48**:1747-1763.

Week 13 **Social and Cultural Dimensions of Evolutionary Thought**

Popper K (1996) Darwinism as a metaphysical research program. In M Ruse (ed) *But is it Science? The Philosophical Question in the Creation/Evolution Controversy*. Amherst, NY, Prometheus. pp.144-155.

Nelkin, D (1986) Science, rationality and the creation/evolution dispute. In RW Hanson (ed) *Science and Creation.* New York, MacMillan. pp. 33-45.

Dawkins R (1976) *The Selfish Gene*. Oxford University Press. Chapter 11, "Memes: the new replicators."

Marks J (2009) What is the viewpoint of hemoglobin, and does it matter? *Hist Phil Life Sci* **31**:241-262.

Rudolph JL and Stewart J (1998) Evolution and the nature of science: on the historical discord and its implications for education. *Journal of Research in Science Teaching* **35**:1069-1089.