

## FANTASTIC ANTHROPOLOGY AND FRINGE SCIENCE

Time: Mondays, periods 8-10 (3:00 – 6:00)

Place: TUR B304

Instructor: David Daegling, Turlington B376 392-2253 x245  
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Office Hours: MW 10:00 – 11:00 AM; W 2:00 – 3:00 PM.

**COURSE OBJECTIVES:** This course examines the articulation and perpetuation of so-called paranormal and fringe scientific theories concerning the human condition. We will examine these unconventional claims with respect to 1) underlying belief systems, 2) empirical and logical foundations, 3) persistence in the face of refutation, 4) popular treatment by mass media and 5) institutional reaction. The course is divided into five parts, corresponding to major assignments (see below). Part I explores forms of inquiry and considers the demarcation of science from pseudoscience. Part II concerns “crank” theories of human evolution. Part III investigates unorthodox ideas of human biology. Part IV examines claims of extraterrestrial and supernatural contact in the world today. Part V further scrutinizes institutional reaction to fringe science, popular coverage of science, and the culture of science in the contemporary United States.

**COURSE REQUIREMENTS:** Attendance is mandatory. Unexcused absences (i.e., other than medical or family emergency) result in a half grade reduction of your final grade. Participation in class discussions is required (25% of your final grade). In addition, written work is required for each of the five parts of the course (75% of your grade). These will take the form of essays and short papers to be completed concurrently with our discussions of these topics. Late papers are subject to a full letter grade reduction. There are no examinations. Readings are available in a course packet from Orange and Blue Textbooks (309 NW 13<sup>th</sup> Street, 375-2707) and on line through UF Libraries. Required books (Petto & Godfrey, *Scientists Confront Creationism*, Pflock and Brookesmith, *Encounters at Indian Head*) are also available at Orange and Blue Textbooks.

**OTHER POLICIES:** Cell phones and pagers must be turned off. Plagiarism in any form is subject to university policy as outlined by the Dean of Students (<http://www.dso.ufl.edu/judicial/academic.htm>). 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.

## COURSE SCHEDULE:

### Part I: Forms of Inquiry

8/22 Fringe science quiz

8/29 Philosophy of skepticism, defining pseudoscience

### Part II: Human Evolution

9/12 African genesis

9/26 Primordial religion

10/3 Creationism I: Historical and social context

10/10 Creationism II: Bible science and intelligent design

10/17 Bigfoot

10/24 The aquatic ape

### Part III: Human Biology

10/31 Pristine humanity

11/7 Racial determinism

11/14 Alternative medicine

### Part IV: Worlds Beyond

11/21 Crop circles and PSI

11/28 UFO abductions

### Part V: Science and Culture

12/5 Institutional reaction to fringe science, Popular coverage of science

## Course Readings and Assignments

### 8/29 Philosophy of Skepticism

Brush SG (1986) Skepticism: Another alternative to science or belief. In Hanson RW, ed, *Science and Creation: Geological, Theological and Educational Perspectives*. New York, Macmillan, pp.160-173.

Kurtz P (1988) Skepticism about the paranormal: legitimate and illegitimate. *Experientia* **484**: 282-287.

Thagard P (1980) Resemblance, correlation and pseudoscience. In MP Hanen, MJ Osler and RG Weyant (eds) *Science, Pseudoscience and Society*. Waterloo, Ontario, Wilfrid Laurier University Press. pp.17-27.

Gardner M (1957) *Fads and Fallacies in the name of Science*. NY, Dover. Read Chapter 4, "The Forteans."

Bregman NJ, McAllister HA (1982) Eyewitness Testimony: The Role of Commitment in Increasing Reliability. *Social Psychology Quarterly* **45** (3): 181-184.

**WEBSITES:** [www.csicop.org](http://www.csicop.org) [www.forteana.org](http://www.forteana.org)

**ASSIGNMENT:** Articulate a principle by which to distinguish science from pseudoscience. Justify through argument or example. Three pages maximum.

### 9/12 African Genesis

Dart RA (1959) *Adventures with the Missing Link*. New York, Viking. Read Chapter 1, "A mystery in limestone," Chapter 9, "The antiquity of murder," Chapter 10, "The hyena myth," Chapter 11, "The bones tell their story."

Ardrey R (1961) *African Genesis*. New York, Delta. Read Chapter 1, "The new enlightenment," Chapter 6, "The romantic fallacy," Chapter 11, "Cain's Children."

## 9/26 Primordial Religion

- Gimbutas M (2001) Old Europe in the Fifth Millenium BC. In KM Endicott and R Welsch (eds) *Taking Sides: Clashing Views on Controversial Issues in Anthropology*. Guilford, CT: McGraw-Hill/Dushkin. pp. 138-145.
- Meskel L (2001) Goddesses, Gimbutas and “New Age” Archaeology. In KM Endicott and R Welsch (eds) *Taking Sides: Clashing Views on Controversial Issues in Anthropology*. Guilford, CT: McGraw-Hill/Dushkin. pp 146-156.
- Allen C (2001) The Scholars and the goddess. *Atlantic Monthly* (digital edition, 1/01).
- Sheaffer R (1999) The goddess has no clothes. *Skeptical Inquirer* **23**(3):51-53.
- Gibbons J (1999) The Goddess Unmasked. *The Virtual Pomegranite* **8**.
- Angier N (2000) Goddess theory. *New York Times Book Review* (9/17).

**WEBSITES:** <http://www.starhawk.org/pagan/religion-from-nature.html>  
[http://www.awakenedwoman.com/goddess\\_spirituality.htm](http://www.awakenedwoman.com/goddess_spirituality.htm)

## 10/3 Creationism I: Historical and Social Context

- Petto A, Godfrey LR (2008) *Scientists Confront Creationism: Intelligent Design and Beyond*. New York, WW Norton.
- Scott EC (1999) The Creation/Evolution Continuum. *NCSE Reports* **19**(4):16-23.  
(<http://ncse.com/creationism/general/creationevolution-continuum>)

**WEBSITES:** <http://www.icr.org/> <http://www.natcenscienced.org/>  
<http://www.answersingenesis.org/home.asp> <http://home.austarnet.com.au/stear/default.htm>

## 10/10 Creationism II: Bible Science and Intelligent Design

Wells J (2000) Survival of the fakest. *American Spectator* Dec/Jan; reprinted courtesy Discovery Institute.

Padian K, Gishlick AD (2002) The talented Mr. Wells. *Quarterly Review of Biology* **77**: 33-37.

Gish DT (1996) Creation, evolution and the historical evidence. In M Ruse (ed), *But is it Science?* Amherst, NY: Prometheus Books, pp 266-282.

**ASSIGNMENT:** Contrast the approaches of evolutionary biologists versus creationists in terms of the rhetorical devices used to bolster their respective positions. Do the two camps have different definitions of science? 4-6 pages.

## 10/17 Bigfoot

Krantz GS (1984) Research on unknown hominoids in North America. In Markotic V, Krantz G (eds) *The Sasquatch and Other Unknown Hominoids*. Calgary: Western Publishers. pp 128-147.

Bayanov D, Bourtsev I, Dahinden R (1984) Analysis of the Patterson-Gimlin film, why we find it authentic. . In Markotic V, Krantz G (eds) *The Sasquatch and Other Unknown Hominoids*. Calgary: Western Publishers. pp 219-234.

Daegling DJ and Schmitt DO (1998) Bigfoot's screen test. *Skeptical Inquirer* **23**: 20-25.

Fahrenbach WH (1998) Sasquatch: Size, scaling and statistics. *Cryptozoology* **13**:47-75.

Milligan L (1990) The "truth" about the Bigfoot legend. *Western Folklore* **49**:83-98.

Meldrum DJ (2004) Midfoot flexibility, fossil footprints and sasquatch steps: New perspectives on the evolution of bipedalism. *Journal of Scientific Exploration* **18**:65-79.

Meldrum DJ (2007) Ichnotaxonomy of giant hominoid tracks in North America. In (Lucas, Spielmann and Lockley, eds.), 2007, *Cenozoic Vertebrate Tracks and Traces*. New Mexico Museum of Natural History and Science Bulletin 42:225-231.

Dennett MR (2008) Science and footprints. *Skeptical Inquirer* **32**:264-272.

**WEBSITES:** <http://www.n2.net/prey/bigfoot/> [www.angelfire.com/biz/bigfootcentral/](http://www.angelfire.com/biz/bigfootcentral/) [www.bfro.net/](http://www.bfro.net/)

## 10/24 The Aquatic Ape

Cunnane SC (1980) Aquatic ape theory reconsidered. *Medical Hypotheses* **6**(1): 49-58.

McGraw M (1939) Swimming behaviour of the human infant. *Journal of Pediatrics* **15**: 485-490.

Verhaegen MJB (1995) Aquatic Ape Theory, speech origins and brain differences with apes and monkeys. *Medical Hypotheses* **44**: 409-413.

Verhaegen M, Peuch P-F, Munro S (2001) Aquarboreal ancestors?. *Trends Ecol Evol* **17**: 212-217.

Rhys-Evans PH (1992) The paranasal sinuses and other enigmas: An aquatic evolutionary theory. *Journal of Laryngology & Otology* **106**(3):214-225.

Langdon JH (1997) Umbrella hypotheses and human evolution: A critique of the Aquatic Ape hypothesis. *Journal of Human Evolution* **33**: 479-494.

**WEBSITES:** [www.wf.carleton.ca/Museum/aquatic/cont.htm](http://www.wf.carleton.ca/Museum/aquatic/cont.htm) [www.primate.wisc.edu/pin/aquatic.html](http://www.primate.wisc.edu/pin/aquatic.html)  
[www.geocities.com/Athens/5168/aat.html](http://www.geocities.com/Athens/5168/aat.html)

**ASSIGNMENT:** Critique AAT in terms of the following: 1) scholarship, 2) internal consistency, 3) paleobiological support, 4) evolutionary theory. 5-7 pages.

## 10/31 Pristine humanity

Headlund TN (1992 ) Introduction. In:TN Headlund (ed) *The Tasaday Controversy: Assessing the Evidence*. Washington, DC, American Anthropological Association. pp 9-17.

Berremen GD (1991) The Incredible “Tasaday”: Deconstructing the myth of a “stone-age” people. *Cultural Survival Quarterly* **15**(1):3-44.

Molony CH (1992). The Tasaday language: Evidence for authenticity? In:TN Headlund (ed) *The Tasaday Controversy: Assessing the Evidence*. Washington, DC, American Anthropological Association. pp 107-116.

## 11/7 Racial determinism

Becker BA, Rushton JP, Ankney CD, Knight B (1992) Differences in brain size. *Nature* **358**:532.

Rushton JP (1988) Race differences in behavior: A review and evolutionary analysis. *Personality and Individual Differences* **9**:1009-1024.

Lieberman L (2001) How “caucasoids” got such big crania and why they shrank. *Current Anthropology* **42**:69-95.

Marks J (2001) Black, white, other. In KM Endicott and R Welsch (eds) *Taking Sides: Clashing Views on Controversial Issues in Anthropology*. Guilford, CT: McGraw-Hill/Dushkin. pp. 40-44

Gill GW (2001) The beauty of race and races. In KM Endicott and R Welsch (eds) *Taking Sides: Clashing Views on Controversial Issues in Anthropology*. Guilford, CT: McGraw-Hill/Dushkin. pp 45-50.

Olson S (2001) The genetic archaeology of race. *Atlantic Monthly* **287**(4):69-80.

## 11/14 Alternative medicine

- Castro M (1999) Homeopathy: A theoretical framework and clinical application. *J. Nurse-Midwifery* **44**:280-290.
- Schwartz GER, Russek LGS (1998) The plausibility of homeopathy: the systemic memory mechanism. *Integrative Medicine* **1**:53-59.
- Jacob J, Jimenez LM, Malthouse S, Chapman E, Crothers D, Masuk M, Jonas WB (2005) Homeopathic treatment of acute childhood diarrhea: results from a clinical trial in Nepal. *Journal of Alternative and Complementary Medicine* **6**: 131-139.
- Sampson W, London W (1995) Analysis of homeopathic treatment of childhood diarrhea. *Pediatrics* **96**: 961-964.
- Upledger JE (1995) Craniosacral Therapy. *Physical Therapy* **75**: 328-330.
- Hartman SE, Norton JM (2002) Interexaminer reliability and cranial osteopathy. *Scientific Review of Alternative Medicine* **6**: 23-34.
- Balon, J, Aker PD, Crowther ER, Danielson C, Cox PG, O'Shaughnessy D, Walker C, Goldsmith CH, Duku E, Sears, MR. (1998) A Comparison of Active and Simulated Chiropractic Manipulation as Adjunctive Treatment for Childhood Asthma. *New England Journal of Medicine* 339: 1013-1020.

**WEBSITES:** <http://www.quackwatch.com/> <http://www.upledger.com/home.htm> <http://www.naha.org/>

**ASSIGNMENT:** Should health care practice be based on a conventional scientific foundation or be tailored to public demand? Can the two coincide? 3-7 pages.



## 11/21 Crop circles and PSI

Jahn RG, Dunne BJ, Nelson RD, Dobyns YH, Bradish GJ (1997) Correlations of random binary sequences with pre-stated operator intention: A review of a 12-year program. *Journal of Scientific Exploration* **11**:345-367.

Sheldrake R, Smart P (2001) A Dog That Seems to Know When His Owner is Returning: Preliminary Investigations. *Journal of the Society for Psychical Research* **62**: 220-232.

Tart CT (1977) PSI: Scientific studies of the psychic realm. New York: EP Dutton. Read Chapter 8, "Remote viewing."

Hyman R (1986) Parapsychological research: A tutorial review and critical appraisal. *Proceedings of the IEEE* **74**:823-849.

Blackmore S (2001) What can the paranormal tell us about consciousness? *Skeptical Inquirer* **25**(2): 22-27.

Levengood WC (1994) Anatomical anomalies in crop formation plants. *Physiologia Plantarum* **92**: 356-363.

Levengood WC, Talbott NP (1999) Dispersion of energies in worldwide crop formations *Physiologia Plantarum* **105** (4): 615–624.

Grassi F, Cocheo C, Russo P (2005) Balls of light: the questionable science of crop circles. *Journal of Scientific Exploration* **19**:159-170.

**WEBSITES:** <http://www.psiexplorer.com/home.htm>  
<http://www.mcn.org/1/miracles/weeping.html> [www.doorbell.net/tlr/fraudw.htm](http://www.doorbell.net/tlr/fraudw.htm) [www.swirlednews.com](http://www.swirlednews.com)  
[www.paradigmshift.com](http://www.paradigmshift.com) <http://www.csicop.org/klassfiles/Home.html> <http://www.mufon.com/>

**ASSIGNMENT:** Is it possible to design a controlled protocol for evaluation of crop circles? You are testing the hypothesis that humans cannot produce them. 3 pages maximum.

## 11/28 UFO abductions

Pflock K, Brookesmith P (2007) *Encounters at Indian Head*. San Antonio, TX, Anomalist Books.

**WEBSITES:** <http://www.johnemackinstitute.org/> <http://www.ufodisclosure.com/main.html>

## **12/5 Institutional reaction to fringe science, popular coverage of science**

Lilienfeld SO (2001) Science and politics, oil and water. *Skeptical Inquirer* **25**(3):59-61.

Mann CC (2001) Anthropological warfare. *Science* **291**:416-421.

Osler MJ (1980) Apocryphal knowledge: The misuse of science. In MP Hanen, MJ Osler and RG Weyant (eds) *Science, Pseudoscience and Society*. Waterloo, Ontario, Wilfrid Laurier University Press. pp. 273-290.

Evans W (1996) Science and reason in film and television. *Skeptical Inquirer* **20**(1):45-58.

Asimov I (1981) Asimov's corollary. In Frazier K (ed) *Paranormal Borderlands of Science*. Buffalo, NY, Prometheus, pp. 223-232.

**ASSIGNMENT:** Answer one of the following questions in a 5-10 page essay. 1) can scientific practice operate independently of political philosophy? 2) Is the poor state of scientific literacy in contemporary society the fault of popular media or the scientific community? 3) What obligation does the academic scientific community have to investigate "paranormal" claims?