

EVOLUTION

Biology 523/723

MON / WED 8:05 – 9:20

Albertson 304

Fall 2003

INSTRUCTOR: Dr. Greg Farley

OFFICE: AH 404

E-MAIL: gfarley@fhsu.edu

PHONE: 628-5965 (voicemail)

OFFICE HOURS: Monday 3:00 - 5:00, Thursday and Friday 2:00 - 4:00, or by appointment

<u>Week</u>	<u>Dates</u>	<u>Topic(s)</u>	<u>Additional Readings</u>
1	Aug 25 - 27	The Process of Evolution Sources of Variation	Darwin – Chapter 1 (1859)
2	Sept 3	Natural Selection I <i>NOTE: No class Sept 1</i>	Darwin – Chapter 2 (1859)
3	Sept 8 - 10	Natural Selection II <i>Sternberg Museum</i>	James (1983)
4	Sept 15 - 17	Types and Levels of Selection <i>WRITING # 1</i>	Hori (1993)
5	Sept 22 - 24	Adaptation	Blaustein et al. (1994)
6	Sept 29 - Oct 1	Character Displacement <i>EXAM 1 - Monday</i>	Grant (1994)
7	Oct 6 - 8	Speciation	Frey (1993)
8	Oct 13 - 15	Phylogenetic Reconstruction <i>“Lab” Exercise</i>	Chapela et al. (1994); Block et al. (1993)
9	Oct 20 - 22	Extinction <i>EXAM 2 - Wednesday</i>	
10	Oct 27 - 29	Gradualism and Punctuation	The Truth About Dogs (2000)
11	Nov 3 - 5	Development of Body Plans	Raff (1996)
12	Nov 10 - 12	Novelty <i>WRITING # 2</i>	Nee and Harvey (1994)
13	Nov 17 - 19	Fitness and Sexual Selection <i>EXAM 3 - Wednesday</i>	Darwin – Chapter 4 (1859)
14	Nov 24	Coevolution <i>NOTE: No class Nov 26</i>	
15	Dec 1 - 3	Life Histories <i>WRITING # 3</i>	
16	Dec 8 - 10	Human Evolution	Cavalli-Sforza (1994)
17	Dec 17 (Wednesday)	<i>FINAL EXAM</i>	

REQUIRED TEXTS:

EVOLUTION OF LIFE. Starr / Taggart (2004, Tenth edition, Wadsworth)

ON THE ORIGIN OF SPECIES. Charles Darwin (1981 printing, Harvard U. Press)

THE TRUTH ABOUT DOGS. Stephen Budiansky (2000 Penguin Books)

ADDITIONAL READINGS:

The specific readings from the primary (or peer-reviewed) literature listed on the front side are on reserve in the Biology Study Library, or will be provided in class. The papers apply to a wide group of organisms (e.g., plants, insects, fish, birds and mammals) and cover a range of topics in evolutionary biology.

Blaustein, Andrew R., Hoffman, Peter D., Hokit, D.Grant., Kiesecker, Joseph M., Walls, Susan C., and Hays, John B. 1994. UV repair and resistance to solar UV-B in amphibian eggs: A link to population declines? Ecology 91: 1791-1795.

Block, Barbara A., Finnerty, John R., Stewart, Alexandre F.R., and Kidd, Jessica. 1993. Evolution of Endothermy in Fish: Mapping Physiological Traits on a Molecular Phylogeny. Science 260: 210-213.

Chapela, Ignacio H., Rehner, Stephen A., Schultz, Ted R., and Mueller, Ulrich G. 1994. Evolutionary History of the Symbiosis Between Fungus-Growing Ants and Their Fungi. Science 266: 1691-1697.

Frey, Jennifer K. 1993. Modes of Peripheral Isolate Formation and Speciation. Systematic Biology 42: 373-381.

Grant, Peter R. 1994. Ecological Character Displacement. Science 266: 746-747.

Hori, Michio. 1993. Frequency-Dependent Natural Selection in the Handedness of Scale-Eating Cichlid Fish. Science. 260: 216-220.

James, Francis C. 1983. Environmental Component of Morphological Differentiation in Birds. Science 221: 184-186.

Nee, Sean and Harvey, Paul H. 1994. Getting to the Roots of Flowering Plant Diversity. Science 264: 1549-1593.

GRADING:

The final grade will be determined using a percentage based on the following format:

SCALE/GRADE

THREE LECTURE EXAMS @ 100 pts each	300 pts	100 - 90	A
WRITING ASSIGNMENTS	75 pts	89 - 80	B
LITERATURE QUIZZES / DISCUSSIONS	75 pts	79 - 70	C
FINAL EXAM (cumulative)	<u>100 pts</u>	69 - 60	D
Total possible points:	550	< 60	U

ATTENDANCE:

Attendance is expected. Your final grade will be reduced if you miss multiple classes.

GENERAL NOTES:

This is a modified lecture style class, which will include significant out-of-class reading from the texts and papers selected from the current scientific literature. This combination of information sources should provide you with an opportunity to understand the meaning and mechanisms of evolution.

The exams will be essay and short-answer format, which will include material from lecture, the texts, and the weekly primary literature readings. I will also provide you with information on some questions with which you may be unfamiliar, and then ask you to apply the concepts covered in class.

Literature quizzes may be announced or unannounced, and may include a discussion component for some readings. There is significant independent reading for this class, so be sure to organize your time accordingly.