NOTE: This draft syllabus is for my "campus" course in evolution. The web version will be somewhat different. I am posting this syllabus for you so you can get an overview of topics covered by a typical evolution course. Although the web-based course will incorporate some lectures and materials from the Freeman and Herron text, it is also likely to include "case-studies", writing assignments, and perhaps some topical "blog" type discussions. At the beginning of the semester, I will make the BIOL 430 Web syllabus available to you.

Evolution: Theory and Process (BIOL 430) Spring 2012 Course Syllabus

Lectures: TR 2:20-3:40pm, TCNW 224 Instructor: Dr. Carl Dick, TCNW 126, carl.dick@wku.edu Office Hours: TR 3:40-4:40pm, or by appointment Home Page: <u>http://www.wku.edu/biology/staff/carl\_dick</u> Required Text: Freeman, S. & J.C. Herron, 2007. Evolutionary Analysis, 3<sup>rd</sup> or 4<sup>th</sup> Edition.

**Overview:** Evolutionary biology is not merely a subdiscipline of biological science - it embodies the fundamental framework by which we understand the natural world. Simply put, evolutionary science is an objective way for us to make sense of the world. Evolution can be thought of as comprising two components: (1) the historical fact of evolution, and (2) the theory of how evolution occurs. Evolutionary biology is multidisciplinary, encompassing information from geology, paleontology, genetics, systematics, ecology, biogeography, etc.. This course will draw on diverse information, but will emphasize concepts, critical thinking, and connections. The goals of this course are for you to (1) develop a general understanding of the fact and theory of biological evolution, (2) learn how to apply an evolutionary perspective to questions in other areas of biology, and (3) develop an appreciation of evolutionary biology as a dynamic, rigorous, hypothesis-driven field of science.

**Evaluation:** There will be four exams, including a comprehensive final. Exams will be held in the lecture hall, and will be closed-book format. Questions shall comprise material from the textbook, lectures, or (possibly) from other assigned readings or special seminars. They may include, but are not limited to, true/false, multiple choice, short answer, short essay, or problem-solving questions. Note that the lecture schedule is tentative and subject to change, but that exam dates are fixed and will only be changed under limited circumstances (eg. university closure). There will be no opportunity to make up an exam without an excused absence *and* notification before the exam to be missed. The first three exams are worth 100 points each, and the final is worth 200 points. Grades will be based as follows: A = 90-100%; B = 80-89%; C = 70-79%; D = 60-69%; F = 59% or below.

Disability accommodation: Students with disabilities and who require accommodation

(academic adjustments and/or auxiliary aids or services) for this course must contact the Office for Student Disability Services at the Downing University Center, Room A-200 (Tel. 270-745-5004). Do not request accommodation directly from the professor or instructor without a letter of accommodation from the Office for Student Disability Services.

LECTURE SCHEDULE (based on 4 <sup>th</sup> Edition; subject to change)				
DATE	ТОРІС	READING		
Introduction to evolution; evolutionary thinking (Chaps 2-4)				
24 January	Intro; history of evolutionary thought	none		
26 January	Thinking evolutionarily, patterns in evolution	Ch. 2, 4		
31 January	Patterns in evolution, natural selection	Ch. 2, 3, 4		
02 February	Natural selection	Ch. 3		
07 February	EXAM 1			
Machanisms of avalution (Chans 5-0)				
09 February	Mutation and variation	Ch 5		
14 February	Selection and mutation	Ch 6		
16 February	Selection and mutation migration	Ch 6 7		
21 February	Genetic drift, nonrandom mating	Ch. 7		
23 February	Linkage equilibrium, sex	Ch. 8		
28 February	Multiple loci, quant, genetics, selection	Ch. 9		
01 March	EXAM 2			
05-09 March	SPRING BREAK			
Adaptation, character ev	olution, phylogenetic systematics (Chaps 4,	10-15)		
13 March	Phylogenetic systematics	Ch. 4		
15 March	Phylogeny reconstruction	Ch. 4		
20 March	Evolution and comparative method	Ch. 10		
22 March	Sexual selection	Ch. 11		
27 March	Kin selection	Ch. 12		
29 March	Sociality and altruism	Ch. 12		
03 April	Live history evolution	Ch. 13		
05 April 10 April	Evolution and human behavior	ТВА		
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Speciation and history of life (Chaps 16-20)				
12 April	Species concepts	Ch. 16		
17 April	Speciation	Ch. 16		

19 April	Fossil record	Ch. 18
24 April	Origin of life	Ch. 17
26 April	Evolution of early life	Ch. 17
22 April	Macroevolutionary pattern	Ch. 18
01 May	Macroevolutionary pattern	Ch. 18
03 May	Human evolution	Ch. 20
07 May	FINAL EXAM (1300-1500)	

## **Agreement Form**

In order to remain enrolled in BIOL 430/430HON/430G, you must complete and return this form to the instructor by **31 January 2012**. Failure to submit a completed form by that date may cause you to be dropped from the course.

By signing this form, you agree to the following statement:

"I have read the BIOL 430/430G course syllabus and understand and accept its contents. I also understand that all work in this course must be my own and all required work must be completed to receive a passing grade for this course. I understand that cheating, plagiarism, and other forms of dishonesty are violations of academic integrity and will be dealt with according to University policy. I further agree that is it my responsibility to make changes in my enrollment status, according to the policies and deadlines outlined in the University Catalog and/or Academic Calendar."

Printed Name	
Signature	

Date signed