Arizona State University West Campus

BIO 345—Organic Evolution
Spring 2010

Course Syllabus

Instructor: Dr. Udo M. Savalli
Office: CLCC 116; 602-543-3750
Office hours: Mon 11:00-12:30, 2-4; Wed 11:00-12:30, or by appointment
Email: udo.savalli@asu.edu or dr.udo@savalli.us
Course web site: http://www.savalli.us Then click on the BIO345 link.
Also accessible via Blackboard

Required Text: D.J. Futuyma 2009. *Evolution*, 2nd ed. Sinauer.
3 Scantron forms: 882-E (100 item)

Class Meeting Time and Place: TR 4:30-5:45, CLCC L1-74
Course Description: Processes of adaptive change and speciation in sexual populations.
Prerequisites: C or better in Bio 187, Bio 188, Chm 113, and Chm 116.

Course Overview: The theory of evolution by natural selection, first proposed by Charles Darwin, is the single most important unifying principle for all of biology; without its broad explanatory power, little in biology would make sense. The primary objective of this class is to understand the processes and patterns of evolutionary change and to understand the theoretical and empirical framework underlying the modern evolutionary thought.

We will start with an overview of evolution, the history of evolutionary thought, the evidence, and an overview of the history of life. We will then explore the basic genetic processes involved in evolutionary change in populations in more detail. Next we will study the nature of adaptations, focusing on topics such as life history strategies, sex and altruism. Next we will investigate how new species are formed from a pre-existing species. Finally, we will examine some macroevolutionary processes.

Course Grading:
Course grades will be based upon an average score of the following:

2 Exams @ 100 pts each	200
Comprehensive Final Exam	200
Homework & in-class assignments*	100
TOTAL	500

* Exact point values of assignments are subject to change.

Course Grades will be based on the following scale:

98 - 100% —	A+
≥93 - <98% —	A
≥90 - <93% —	A–
≥88 - <90% —	B+
≥83 - <88% —	B
≥80 - <83% —	B–
≥77 - <80% —	C+
≥70 - <77% —	C
≥60 - <70% —	D
0 - <60% —	E

Exams will be based on both the material presented in lecture and your readings. Exams will include multiple-choice and some short answer/problem questions. Use or accessing of cell phones, PDAs and similar electronic devices is strictly prohibited during exams.

Missed Examinations: Students missing exams or assignments will get a grade of 0 except for exceptional circumstances (such as severe illness or death in the immediate family; written documentation will be required). Unless the student can arrange to take a lecture exam before it is returned (usually the next class period), makeups (for excused absences only) will be given at a day and time determined by the instructor, but likely towards the end of the semester.

Late Assignments: Assignments are due at the *start of class* on the day indicated on the assignment or announced in class. Work turned in after the due date and time will be severely penalized (minimum of 10% per day) and will not be accepted at all once assignments have been graded and returned to students.

Attendance: Attendance is essential to success in this class. There is no specific point value for attendance, but there may be occasional in-class videos. If you miss class it is your responsibility to get notes from a classmate as well as any announcements and handouts (most handouts can be downloaded from the course web site).

Disruptive or distracting behavior is not allowed. This includes talking (excluding questions and class discussion, of course), reading newspapers, snoring, working on a laptop, etc. It also includes arriving late or leaving class early. Students that disrupt the class may be asked to leave. **Be sure to turn off any cell phones before coming to class**: students whose cell phones ring or who are talking on a cell phone during class may be asked to leave; repeated offenses are subject to additional grade penalties. Students with special circumstances (e.g. sick family member) that requires phone access or leaving early should inform the instructor before class begins.

Withdrawal Policy: Students wishing to withdraw from the course must do so before April 11th.

Incomplete Policy: An incomplete grade (I) will only be given to a student that has completed a substantial portion of the class with a grade of C or higher and who is unable to complete the course requirements due to illness or extenuating non-academic circumstances. Documentation will be required. The Director of the Division of Mathematical and Natural Sciences must approve all incomplete grade requests.

Cheating will NOT be tolerated! Although students are encouraged to study together, all assignments must represent one's own work unless indicated otherwise by the instructor. At a minimum, students should expect a grade of 0 for any assignment in which students violated the code of academic integrity. For more information, students should consult the *ASU Student Academic Integrity Policy* at:

http://www.asu.edu/studentaffairs/studentlife/judicial/academic_integrity.htm

and the Student Code of Conduct at:

http://www.asu.edu/aad/manuals/usi/usi104-01.html

Syllabus

(Tentative and subject to change)

Week of:	Topic	Reading*
January 19-21	Course introduction; Overview and history of evolutionary thought	1
26-28	Reconstructing evolutionary trees	2
February 2-4	Phylogenetics; Macroevolutionary Patterns	2-3, 22
9-11	History of Life; Biodiversity	4-5, 7
16-18	Evolutionary Biogeography	6
23-25	**EXAM 1 — Tue, Feb 23** Mutations; Allele Frequencies	8
March 2-4	Population genetics: Hardy-Weinberg: inbreeding, etc	9
9-11	Population genetics: Genetic Drift	10, 12
16-18	**SPRING BREAK**	
23-25	Population genetics: Natural Selection	11-12
Mar 30-Apr 1	Quantitative genetics	9, 13
April 6-8	**EXAM 2 — Tue, Apr 6** Adaptations & levels of selection	11
13-15	Life history evolution; Evolution of sex	14-15
20-22	Sexual Selection; Coevolution	15, 19
27-29	Species and Speciation	17-18
May 4	Evolutionary development	21
11	**FINAL EXAM** (2:30-4:20 pm)	

*Chapters in Futuyma 2009, *Evolution*.