

Biology 496: GENETICS AND EVOLUTION ACTIVITY SECTION
Spring 2009
Class Syllabus

Tuesday, 2:00 - 3:30 Adams Humanities 1112

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Office: LS 212, 594-0414 Office hours: Tuesday 12:00-1:00

Catalog description

Weekly activity section for Biology 352, covering topics in Mendelian genetics, population genetics and Evolutionary Biology.

Student learning outcomes

- 1) Students will be able to apply concepts in Mendelian genetics to breeding studies, pedigree analysis and phenotypic ratios in natural populations.
- 2) Students will be able to interpret patterns of genetic variation in natural populations in terms of the population genetics concepts of nonrandom mating, mutation, gene flow, drift and natural selection.
- 3) Students will be able to interpret patterns in the history of life in terms of the evolutionary biology principles of lineage diversification, speciation, extinction and adaptation, and apply these concepts to contemporary examples.

Crashing

No crashers will be accepted.

Bring to class each week

- 1) Texts: same as Bio 352

Pierce, B.A. 2008. Transmission and population genetics. Freeman.

Freeman, S. and J.C. Herron. 2007. Evolutionary Analysis. 4th edition. Oxford.

OPTIONAL: Ayala, F. J. 1982. Population and evolutionary genetics: a primer.

Benjamin/Cummings, Menlo Park, CA. This book is now out of print, and because it was published in 1982, it contains almost no information on DNA. Nevertheless, this book most closely parallels the material presented in the second portion of the course. A copy of this book is on reserve in the library. You may also be able to find a used copy through Amazon.com or a similar source for less than \$5.

- 2) Calculator. Just leave it in your backpack for the remainder of the semester.
- 3) USB drive (“thumb drive”) for transferring files to and from the classroom computers

Prerequisites

Concurrent enrollment in Biology 352, no exceptions.

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Class web site

Beginning with week 2, all class material will be posted on Blackboard (<https://blackboard.sdsu.edu>), which will be updated approximately weekly. Print out all handouts BEFORE you come to the activity section.

Common courtesy

The use of cell phones in any way (including text messaging) is distracting to other students and the instructor. **TURN OFF CELL PHONES** prior to activity section and please **DON'T TEXT MESSAGE**. **The use of all electronic devices except calculators is strictly prohibited during quizzes and exams.**

Academic dishonesty

There is a zero-tolerance policy for cheating of any sort. If you are caught cheating on an exam or quiz you will receive a grade of zero on that exercise. The incident will be reported to the campus judicial officer and may lead to your suspension or expulsion from the University.

Attendance policy

There is only one section of Bio 496, and you will be evaluated on participation in discussions and group projects. There will be a short quiz every week. As a result, there is no simple way to “make up” a missed activity section.

To accommodate unexpected illnesses or absences, **every student may drop their lowest quiz score**. Arrangements for other graded material that is missed due to unavoidable conflict or illness will be handled on a case by case basis. Note that **the instructor must be given prior notice in all cases** by email and/or phone.

Posting grades

All grades will be posted on the Blackboard web site as soon as they are available.

Tentative grading criteria

28 pts	Quizzes (2 pts each, 14 weeks)
10 pts	Discussion participation (2 pts each, 5 weeks)
39 pts	Homework (3 pts each, 13 weeks)
23 pts	Essay on species concepts <u>due May 19</u>
100 pts	TOTAL

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Tentative list of topics

Updated 02/04/09

January 27	Orientation, introduction
February 3	Mutations
February 10	Mendelian genetics
February 17	3-point testcross
February 24	Introduction to population genetics
March 3	Hardy-Weinberg principle
March 10	Migration
March 17	Random drift
March 24	Natural selection (genetics)
March 31	SPRING BREAK
April 7	The concept of evolution
April 14	Phylogeny
April 21	Species concepts
April 28	Evolutionary constraints
May 5	The unit of selection
May 12	Historical patterns of evolution