

**Evolution (Bio 188): Course Information****Summer 2018****Instructor:**

Dr. Ron Coleman

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<http://www.csus.edu/faculty/c/rcoleman/>**Course Location & Times:**

Lec: #50213

Mon, Tues, Wed 9:00 to 11:20 am Room 202 HMB

**Office hours:**

Ron Coleman

Wed 2:00 - 5:00pm

Room 119 HMB

**Course description:**

General survey of evolutionary processes: mechanisms of evolutionary change, adaptation and history of life. Designed for biological sciences majors. Lecture three hours. Prerequisite: Bio 184 or instructor permission. Graded. Units: 3.0.

**Learning Objectives:**Conceptual

- Understand the scope and meaning of evolution
- Be able to argue how and why natural selection works
- Appreciate both verbal and simple quantitative approaches to studying evolution
- Understand the role of mutation, migration, drift, nonrandom mating and genetic linkage in studies of evolution
- Understand adaptation and pleiotropy
- Understand the origin of life
- Understand species concepts, the mechanisms of speciation, and the principles of phylogenetics in reconstructing evolutionary relationships
- Understand the application of evolutionary thinking to such issues as sexual selection, kin selection, aging (senescence), virulence, and life history tradeoffs.

Practical

- Gain experience reading and using the primary scientific literature
- Research and compose a well thought-out term paper on a topic related to evolution, making use of the primary literature
- Understand simple population genetics
- Be able to construct and analyze simple cladograms

**Attendance and Deadlines:**

I expect you to attend every lecture and lab; you miss class at your own risk. Anything I say is fair game for exams, whether it is in the text or not. Some things I say will definitely not be in the text, and some may contradict the text. In the latter case, what I say is taken to be the correct answer. If there is a difference between what I say and what is in the text or what you have learned elsewhere, **please ask about** it in lecture or after class and we will discuss the differences.

My goal as a lecturer is to guide and assist you in learning about this material. I cannot do that if you are not in class or if you do not tell me what you do not understand.

If you miss a class, it is your responsibility to get the notes from another student, not from me. I DO NOT hand out lecture notes, nor do I post them to the web.

Deadlines are strictly adhered to. It is not fair to students that complete work on time for other students to have extra time to do the same work. Plan ahead and schedule your time. Most importantly, don't leave things to the last minute; you don't need that kind of stress!

#### Email policy:

This course does not use SacCT or Canvas. However, we do make regular use of email. On occasion, I may send important messages to your Saclink account. As a Sac State student, you are responsible for regularly checking your Saclink email account (i.e., daily). Failing to do an assignment because you did not check your Saclink email account is your problem. Furthermore, when corresponding with me about this course, you **MUST** use your Saclink email account, not a gmail, yahoo or any other email account. This is an official University policy.

#### Textbook:

Herron, S.J. and S. Freeman. 2013. *Evolutionary Analysis* (5<sup>th</sup> Edition). Pearson Prentice Hall, New Jersey ISBN-10: 0321616677. **REQUIRED.**

#### Exams:

There will be one midterm and a final for the course. Exams are held during the lecture period and will be a mixture of fill-in the blank (very few), short-answer and essay questions. I do not believe in multiple choice questions and do not use them.

Exams will be comprehensive, i.e., anything in the whole course up to that point in time is fair game. My previous students comment on two aspects of my exams: I am a hard grader and I am a fair grader. You can expect long exams that test your knowledge, but they will be exams without tricks. My goal is to have you tell me what you know and understand. You will have to work very quickly.

#### Grading:

**This course is worth 3 units.**

The number of points/questions on a particular exam is irrelevant to the exam's worth -- it is merely a tool for grading. What matters are the following percentages.

Your lecture grade will be calculated according to the following scheme:

Midterm I	35
Final Exam	45
Term Paper	20
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	100%

Your letter grade will be calculated according to the following table:

A = 93.0 to 100%	C+ = 77.0 to 79.9%
A- = 90.0 to 92.9%	C = 73.0 to 76.9%
B+ = 87.0 to 89.9%	C- = 70.0 to 72.9%
B = 84.0 to 86.9%	D+ = 67.0 to 69.9%
B- = 80.0 to 83.9%	D = 60.0 to 66.9%
	F = 0 to 59.9%

I generally do not adjust or curve or scale grades; If you want an "A", work for it and make it happen!

I do not hesitate to correct any errors I make in grading (e.g., incorrect addition or if I missed grading an answer), but keep in mind that I am looking for clear, succinct answers, not answers that sort-of-show-you-possibly-might-know-what-you-mean. If you feel that your answer deserves a better grade, please return it to me promptly.

I do not use "extra credit" assignments.

#### Key Dates:

First class:	July 9
Term Paper proposal:	July 17

Midterm:	July 25
Term Paper part I due:	July 30
Term Paper due:	Aug 8
Final Exam:	Aug 15 (in class)
Last class:	Aug 15

**Honor Code:**

Please do not cheat. Besides the fact that we will be forced to take strong measures if we catch you -- including recommending your dismissal from the class and from the university -- I will be profoundly disappointed in you.

Do not even think about doing any of the following:

- a. giving or receiving information from another student during an examination
- b. using unauthorized sources for answers during an exam such as writing answers on hats, clothing or limbs
- c. illegally obtaining the questions before an exam
- d. altering the answers on an already-graded exam
- e. any and all forms of plagiarism
- f. destruction and/or confiscation of school and/or personal property

**Feedback:**

I appreciate your feedback on this course. It is most useful to tell me things while the course is in progress, rather than waiting until the end of the course. If there is something that needs changing, LET ME KNOW and I will see what I can do about it. This course is a collaboration between you and me. I really enjoy teaching this class and I want you to have a great time as well.

**Course contents (subject to changes)**

1. July 9 Introduction, Syllabus, Judgement Day (start)
2. July 10 Judgement Day (finish), What is evolving, What does evolution mean; Biodiversity,
3. July 11 Term paper handout; Five-step argument for evolution by natural selection
  
4. July 16 Directions of selection
5. July 17 Term Paper proposal; Adaptation; Speciation
6. July 18 Species isolating mechanisms, species concepts; systematics
  
7. July 23 Cladistics
8. July 24 Population genetics I; gene frequencies, selection (quantitative)
9. July 25 Midterm (in class)
  
10. July 30 Term Paper part I due; Hardy-Weinberg; Disadvantageous alleles
11. July 31 Heterozygote advantage
12. Aug 1 Frequency Dependence
  
13. Aug 6 Molecular Evolution and Neutral theory
14. Aug 7 Units of selection
15. Aug 8 Term Paper due; Sexual selection
  
16. Aug 13 [overflow]
17. Aug 14 [Review]
18. Aug 15 Final Exam (in class)