

Our Living World: Evolution, Ecology & Behavior (Bio 9) Course Information

Fall 2015

Instructor:

Dr. Ron Coleman

Office: 119 Humboldt

916-278-3474 (w)

916-705-2606 (cell) until 10 pm

rcoleman@csus.edu

or

rcoleman@cichlidresearch.com

website: <http://cichlidresearch.com>

or

<http://www.csus.edu/indiv/c/colemanr/index.html>

Course Location & Times:

Lec: #81643

Mon, Wed, Fri 11:00 to 11:50 am Room HMB 202

Office hours:

Ron Coleman

Wed 2:00 - 5:00pm

Room HMB 119

Course description:

Designed for non-majors, this course is an introduction to the biological science behind important issues that face us today, such as those surrounding evolution, endangered species, conservation of ecosystems, and the behavior of organisms. By gaining an understanding of the scientific approach and the principles of evolution, ecology and behavior, students will be equipped to evaluate scientific developments and arguments in these and other issues as informed citizens. This course satisfies General Education Area B2.

General Education Area B Learning Outcomes

Students will be able to:

- Draw upon one or more of the life sciences to explain and apply core ideas and models concerning living systems and life forms, citing critical observations, underlying assumptions and limitations
- Describe how scientists create explanations of natural phenomena based on the systematic collection of empirical evidence subjected to rigorous testing and/or experimentation
- Access and evaluate scientific information, including interpreting tables, graphs and equations
- Recognize evidence-based conclusions and form reasoned opinions about science-related matters of personal, public and ethical concern

Specific Learning Objectives for this course:

- Understand key issues/discussions in the areas of evolution, ecology and behavior
- Appreciate how scientists study the natural world
- Appreciate biodiversity (morphological and behavioral) and the tree of life
- Understand what evolution is, the evidence for it, and how it operates resulting in changes in organismal structure and function
- Appreciate the relationship between structure and function at various levels of organization; from genes to cells to ecosystems
- Understand what an ecosystem is and the major kinds of interactions between organisms, and between organisms and their environment
- Understand the evolutionary and ecological basis of these interactions including, but not necessarily limited to, cost/benefit tradeoffs, sexual selection, altruism
- Understand the concept of the selfish gene in shaping those interactions
- Appreciate how the actions of people can destabilize ecosystems
- Evaluate media (e.g., newspaper stories) with a keener appreciation of the science behind the story

Attendance, Deadlines:

I expect you to attend every lecture; 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 can't do that if you aren't in class or if you don't tell me what you don't 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. Do you realize that missing a class will likely drop your grade in the course by almost a grade? Do you realize that attendance is one of the best predictors of success in a course? Students who miss more than two classes typically fail this course.

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, do not leave things to the last minute; you do not need that kind of stress!

Bottom line: You cannot turn in assignments "late". Late assignments are worth 0 (zero, nada, nothing, zippo...) and late means 1 minute late. So, an assignment turned in 1 minute late is worth 0.

Assignments

When you turn in an assignment and you get it back, it will either have a check in the upper right corner or an R. If it has a check, you are done. If it has an R, you need to fix it and turn it in again. If it is still not right, you need to fix again and turn it in. This continues until you get it right. So, you might as well get it right in the first place and save yourself a lot of time and trouble.

When you turn in the Revision, **you must attach all previous versions** to the back of the new version. This is so that I can see that you have corrected the things that were wrong.

Code of Conduct

You must show up to class on time. You may not enter the class late. You may not leave the class early. You do not start packing up your bags until I **finish** speaking. You may not leave the class to go to the bathroom unless it is an absolute emergency. All of these activities are very disruptive to me and to your fellow students. Repeat and/or flagrant violations of this code of conduct can cost you up to 20% of your grade.

Email policy

This course does not use SacCT. 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 (IRT-0102, January 1, 2010).

Lab?

This course does **not** have a lab. However, students may elect to enroll in Bio 15L to compliment this course.

Textbook:

Audesirk, T., G. Audesirk & B.E. Byers. (2013) Biology: Life on Earth. Tenth Edition. Pearson Prentice Hall, Upper Saddle River, New Jersey. ISBN 978-0321729712 Older editions as far back as the Eighth Edition will probably be fine. **REQUIRED**

Exams:

There will be two midterms and a final for the course. Midterms are held during the lecture period and will be a mixture of fill-in the blank, 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; however, they will focus on the material since the previous exam. 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	20
Midterm II	30
Final Exam	35
Term paper	10
Quizzes & Assignments	5

	100%

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

A = 93 to 100%	C+ = 77 to 79.9%
A- = 90 to 92.9%	C = 73 to 76.9%
B+ = 87 to 89.9%	C- = 70 to 72.9%
B = 84 to 86.9%	D+ = 67 to 69.9%
B- = 80 to 83.9%	D = 60 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.

There are no "extra credit" assignments.

It is your responsibility to be aware of and understand university policies about drop dates, etc. For example, if you simply stop coming to class, you will be assigned an "F" for the course and you will not be allowed to "drop" the course after the drop deadline.

Honor Code:

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. Most importantly, **cheating indicates that you are a failure as a human being.**

Don't even think about doing any of the following:

- giving or receiving information from another student during an examination
- using unauthorized sources for answers during an exam such as writing answers on hats, clothing or limbs
- illegally obtaining the questions before an exam
- altering the answers on an already-graded exam
- any and all forms of plagiarism
- 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.

Bio 9: Tentative List of Lecture Topics. This list is subject to change.

Week	Topic	Chapter
1 (Aug 31, Sep 2, 4)	Introduction Biodiversity. What it is and why it matters	1,18
2 (Sep 9, 12)	Biodiversity Scientific Approach to understanding the world Scientific Literature	19-24 1
3 (Sep 14, 16, 18)	Endangered Species: The riddle of disappearing frogs: how scientists sort through competing hypotheses Generating Biodiversity: Evolution by Natural Selection	15
4 (Sep 21, 23, 25)	Directions of Selection I Directions of Selection II Sept 25: Term Paper Proposal due	15
5 (Sep 28, 30, Oct 2)	Sept 28: Midterm I Species and Allopatric speciation The Tree of Life: organizing biodiversity (phylogenetics) Go over midterm	14
6 (Oct 5, 7, 9)	Phylogenetics continued (Vertebrate cladogram) Judgement Day I Judgement Day II	15
7 (Oct 12,14,16)	Judgement Day III Evidence for Evolution I Oct 16: Term Paper Part I due	14
8 (Oct 19, 21, 23)	Evidence for Evolution II Origins of Life & Properties of Life	14, 1, 17
9 (Oct 26, 28, 30)	Ecology: Invasive Species (Cane toads) Ecosystems and Biodiversity Oct 30: Midterm 2	29
10 (Nov 2, 4, 6)	Photosynthesis & Deep sea vents Competition Predation	7
11 (Nov 9,11,13)	Nov 9: Term Paper Final due Nov 11: Veterans' Day – no class Arms Races, Mimicry, Symbiosis Trophic Cascades Biomes	27, 28
12 (Nov 16, 18, 20)	Biomes Behavior Selfish Genes	
13 (Nov 23, 25)	Parental Care, Sexual Selection Nov 27 Thanksgiving – no class	25
14 (Nov 30, 2, 4)	Mating Systems	25
15 (Dec 7,9,11)	Summary	
16	FINAL EXAM: Mon Dec 14 at 10:15-12:15pm	