

# Introduction to Ecology (Bio 160)

Lecture MW: 8:00 - 8:50 pm ~ BRH 214

Lab M, Tu, or Th: 9 – 11:50 ~ SQU 328

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Course website: <http://www.csus.edu/indiv/k/kneitel/Teaching.htm>

## Course Description

This course is designed to provide you with a basic understanding of ecological principles, from the individual to the ecosystem level. In addition, we will cover ecological topics that relate to human interactions with their environment.

## Objectives

- Provide you with a basic understanding of ecology
- Examine how humans affect and are affected by the environment
- Stimulate interest and appreciation for the ecological world

## Expectations:

- Students are expected to attend lectures and lab **on time**. Tests will be primarily based on material presented in class.
- Assigned readings are meant to be completed prior to class.

## GRADING

### LECTURE (Half of total grade):

2, 1 hour tests (each worth 25% of your grade) and a final (worth 50% of your grade) will be given- tests will be primarily short answers and essays.

### LAB (Half of total grade):

- (A) 3 quizzes (3x10 points = 30 points)
- (B) 8 assignments (8x10 points = 50 points)
- (C) Current-event assignment (2 x 20 points)
- (D) Large research projects [paper and presentation] (100 points)
- (E) Sierra Nevada field trip (20 points): Sign up for one of the 2 field trip dates (4/16 or 5/7)

\*\*\*In addition, there is another 10 points available for participation and attendance in lecture and lab. No extra credit assignments are offered.

## TEXTBOOKS

*Lecture text:*

Molles Ecology: concepts and applications. McGraw-Hill, Boston.

\*\*\*A word on using this text in this course: **Use the book to help you understand topics covered in class, read the assigned chapter beforehand and use the examples to crystallize the concepts covered in class.**

*Lab texts:*

1) McMillan 2001. Writing papers in the biological sciences. 3<sup>rd</sup> edition Bedford/St. Martin's

\*\*\*A word on using this text in this course: **This is an excellent book that covers how to write a research article with details on each of the components....USE IT!!!!**

2) Baxter, J. 2004. General Ecology Lab Manual.

## Tentative Course Syllabus (dates and topics may be changed at any time)

Week	Date	Lecture Topic	Lecture Reading*	Lab Topic	Lab Reading**
1	1/24	Introduction to Ecology	Ch. 1	Scientific method, American River Walk (A#1)	B: 4-6
	1/26	The ways of the earth	Ch. 4, 5		
2	1/31	The ways of the earth	“ “	BIOMES (A #2)	Molles-Ch. 2,3
	2/2	Global patterns of diversity/extinction	Pp 548-54		
3	2/7	Evolutionary Ecology	Ch. 8	Natural selection (A#3)	B: 7-11
	2/9	Evolutionary Ecology			
4	2/14	Describing populations	Ch. 9	QUIZ #1; Library Program (A#4; meet in Library 2023)	Mc: Ch. 1
	2/16	Tools of population ecology	“ “		
5	2/21	Population growth	Ch. 10,11	Data process/analysis, project brainstorming	Mc: Ch. 2,3; B: 23-35
	2/23	<b>NO LECTURE</b>			
6	2/28	Population regulation	“ “	Research articles; Data collection	Mc: Ch. 4
	3/2	Life History	Ch. 12		
7	3/7	The niche	Pp 327-8, 404-8	Cemetery demography (A#5); Data processing; <b>Current event #1 due</b>	Handouts
	3/9	<b>MIDTERM 1</b>			
8	3/14	Competition	Ch. 13	QUIZ #2; Forage ecology (A#6)	Handouts Mc: Ch. 7
	3/16	Predation/Mutualisms	Ch. 14,15		
9	3/21	<b>SPRING BREAK</b>			
	3/23	<b>SPRING BREAK</b>			
10	3/28	Food webs	Ch. 17	Movie (M & T) (A#7) <b>***NO LAB THURS</b>	Mc: Ch. 8
	3/30	Biogeography	Ch. 22		
11	4/4	Metacommunities		Biological invasions (A#8)	B: 38-42
	4/6	<b>MIDTERM II</b>			
12	4/11	<b>NO LECTURE</b>		Movie (Thurs) <b>***NO LAB M &amp; T</b>	
	4/13	Succession	Ch. 20		
13	4/18	Measure of Diversity	Ch. 16	QUIZ #3	
	4/20	Prod./main. of Diversity	“ “		
14	4/25	Prod./main. of Diversity	“ “	<b>Current event #2 due and discussion</b>	
	4/27	Ecosystem ecology	Ch. 18,19		
15	5/2	Ecosystem ecology	“ “	Project work	

	5/4	Human issues and ecology	Ch. 23		
16	5/9	Human issues and ecology	“ “	<b>Project presentations</b>	
	5/11	The future of Ecology			
	<b>5/18</b>	<b>FINAL</b>		<b>8 am-10 am</b>	

**\*Lecture Reading: Molles (M), *Ecology***

**\*\*Lab Reading: McMillan (Mc); Baxter (B), *Ecology lab manual***

**Term Paper Assignment—Bio 317A, Spring 2004**

Your final grade is based on your cumulative point total for both the lecture and the lab combined.

Grading percentages will be as follows:

<b>Percentage (%)</b>	<b>Grade</b>	<b>Percentage (%)</b>	<b>Grade</b>
>= 93	A	73 – 76.9	C
90 – 92.9	A-	70 – 72.9	C-
87 – 89.9	B+	67 – 69.9	D+
83 – 86.9	B	63 – 66.9	D
80 – 82.9	B-	60 – 62.9	D-
77 – 79.9	C+	<= 59.9	F

### **Learning teams**

Much of our work in the lab will occur in learning teams of 3 – 4 individuals. Working together in teams promotes learning and cooperation among group members to achieve common goals. Learning teams will work together on lab exercises, discussions and the team project. Teams will be rewarded for overall group learning and good cooperative skills. More information on learning team structure and assessment will be given in class.

### **Labs**

Because the lab is where you will actually *do* ecology, I consider them the most important part of a general ecology class. The lab is your chance to learn the tools of the trade and get hands-on field experience. As much as possible, I hope the labs will reinforce what you are learning in the lecture. I also hope that they will stimulate you to think critically, creatively and quantitatively and to identify and understand ecological patterns in the field.

The lab will comprise about 52% of your course grade. This makes sense both in terms of the time you will spend in the lab and the importance of the lab experience in meeting the course learning objectives.

Therefore, successful completion of the lab is critical to successful completion of the course.

### **Team Projects**

As a class, we will conduct two research projects (one small, one large) during the lab course. The first will be rather simple and will be a good preparation for the second larger project to follow. For each of these projects, you will work in your learning teams. All team members are responsible for participating in the research projects. In fact, part of your individual grade will be based upon how effectively you participate as a team member. Additional information on the team project will be given in class.

### **Computers**

Eight computers are available in the lab. We will use the computers for several lab exercises and for the lab research projects. If you own a laptop and you have the appropriate software, you are welcome to use it for the lab exercises.

### **Missed quizzes and late assignments**

Other than circumstances that are beyond your control, you cannot make up a lab quiz. Lab quizzes are designed as a way of receiving points for attending lab. If you know you cannot attend a lab, you must notify me in advance. Make-up labs must be during another lab period in the same week. However, I discourage attending other lab sections because of space limitations and the team nature of many lab projects. Late assignments will be accepted, but graded down 10% of the full point value per day late.

### **Classroom behavior and academic honesty**

I expect that all students in my class will exhibit appropriate and respectful behavior and adhere to the university's policy on academic honesty. Cheating and plagiarism will not be tolerated and will be severely punished. University policy on academic honesty clearly defines what constitutes cheating and plagiarism. Because many students are not familiar with what exactly constitutes plagiarism, the university defines plagiarism as: "the use of distinctive ideas or works belonging to another person without providing adequate acknowledgement of that person's contribution." The university further states that "Regardless of the means of appropriation, incorporating another's work into one's own requires adequate identification and acknowledgement." I strongly encourage you to read the university's complete policy on academic honesty, which is provided on the web at: <http://www.csus.edu/admbus/umannual/UMA00150.htm>.

As an example of plagiarism, if you cut and paste material from someone else's work and do not acknowledge the source of that material, that's considered plagiarism. If, after reviewing the university's policy, you are still unsure about what is and what is not plagiarism, please ask!

Anyone caught cheating or plagiarizing will not receive the points for the particular assignment on which they cheated or plagiarized; in other words, you will receive an F on the assignment. In addition, I may forward their name to the dean of student affairs. If a student is caught plagiarizing a second time, they will receive an F grade in the course and their name will be forwarded to the dean of student affairs.

### **Persons with disabilities**

I am sensitive to students with disabilities. Any student having a visible or invisible disability that adversely affects their ability to succeed in my class should speak with me by the second week of class. This will allow me enough time to make reasonable accommodations in advance of exams and quizzes.

### **A note on cell phones**

A cell phone that rings during class is disruptive to me and to other students. If, for personal reasons, you must leave your cell phone on and take a call during class please set the ringer to vibrate and take the call outside of class. Otherwise, I request that all cell phones be turned off during class.

### **For those more ambitious and interested in further exploring ecology, here are some suggested readings:**

- Geographic Ecology by Robert MacArthur
- Species Diversity in Ecological Communities edited by Ricklefs and Schluter
- Foundations of Ecology edited by Real and Brown
- Ecology by Krebs
- Ecological Niches by Chase and Leibold