



BIOL 1150 Lab  
General Biology II Laboratory  
"The Diversity of Life"  
CSU Stanislaus, Spring 2015



### I. General Information

**Instructor:** Erica Fleming

**Office Hours:** Mondays 10-10:50, Wednesdays 11-11:50 (or by appt.) in N255

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### II. Course Description

Introduction to the fundamental aspects of **organismal biology**: taxonomy, diversity, form, and function.

BIOL 1150 is the second semester of the two-semester general biology sequence at CSU Stanislaus. The lecture and laboratory portions of the course must be taken at the same time. It is not possible to take the lab or lecture separately, even if you have passed one or the other a previous semester. This course is designed specifically for biology majors, as well as other students who need a comprehensive introduction to biology. All students enrolled in BIOL 1150 must have received a C- or better in 1050; students without a C- or better grade will be unenrolled. To receive credit for the one-year biology sequence, you must take both Biology 1050 and Biology 1150 at CSU Stanislaus, or transfer the complete, equivalent one year *majors* series from another institution.

The General Biology II laboratory is designed to provide students with laboratory and field experience with a focus on the **diversity of life, evolution, and ecology**. We will explore many of the topics that are covered in lecture, but in lab we have the luxury of looking closely at examples of all of the major groups of living organisms on earth, as well as carrying out laboratory and field exercises that give you practice being a scientist. A major goal of this course is for you to develop an appreciation of this diversity, and give you the tools to recognize, classify, and describe virtually all of the world's life.

*"The beginning of wisdom is calling things by their right names."*

Chinese Proverb

### III. Student Learning Objectives

After completing this course, you should be able to:

1. Recognize, identify, and classify the major groups of life on earth (i.e., recalling the scientific names of taxonomic groups at the Kingdom, Phylum, and/or Class level).
2. Describe the basic biology (life cycles, internal and external features, ecology, and evolutionary history) of the major groups of life on earth.
3. Describe how technological advances, including microscopes and genetic sequencing, have expanded our understanding of the diversity of life on earth.
4. Proficiently use compound and dissection microscopes to examine cells, tissues, and organisms.
5. Create cladograms that describe hypothetical evolutionary relationships based on morphological characters of specimens.
6. Analyze and interpret biological data collected in the field and laboratory using statistics and graphs.
7. Cooperate with other students to investigate and learn about the diversity of life.

#### IV. Grades

Grades will be based on exams, an ecology project, a biodiversity survey assignment, a Monterey Bay Aquarium assignment, and quizzes. Your lab grade is worth ~1/3 of your total grade for the course, while the lecture grade is worth ~2/3 of the total.

Quizzes/HW	100 pts.
Ecology Project	35 pts.
Campus Biosurvey	35 pts.
Monterey Bay Aquarium Assignment	30 pts.
Lab Exam 1	50 pts.
Lab Exam 2	50 pts.
<b>TOTAL</b>	<b>300 pts.</b>

#### Quizzes and Assignments

There will be ~100 points allocated to quizzes and/or other lab activities. Quizzes begin promptly at the start of class. You must be present at the time of the quiz in order to take it; there are no make-ups. If you arrive late, you may have little or no time to take the quiz. Once you begin a quiz, you may not leave the room and return to complete it. To do well on quizzes, make sure you are staying on task, completing all of the activities, and closely examining the specimens. Most of our class time will be spent applying the material that is in the lab manual, rather than going over the basic concepts (which you should read and study ahead of time). Pay particular attention to the “objectives” listed at the beginning of each exercise. At the end of each lab, we will have a practice quiz.

#### Lab Exams

Lab practical exams will cover “the diversity of life,” including examples of the various organisms we examine in lab. There will be two types of questions: (1) questions that ask you to identify organisms and give their scientific and/or common names, and (2) short-answer questions about the organisms’ ecology, morphology, and evolutionary history. The exams are not cumulative. Once you begin an exam, you may not leave the room and return to complete it.

#### Ecology Project (35 pts)

The last 4 labs (11-14) are dedicated to ecology. For part of that time, you will carry out a research project related to ecology and biodiversity. Working in a group, you will develop a hypothesis, conduct an experiment, analyze data, and write up a report. The report will be submitted and presented (using PowerPoint, Keynote, etc.) during finals week (May 18-21).

#### Campus Biosurvey (35 pts)

The campus biosurvey is a project to identify 35 different forms of life that occur on the CSU Stanislaus campus. You will be required to find, identify, and take photographs of a wide diversity of organisms. You will submit your photos, along with information on where and when you observed the organism, for credit. The Biosurvey will be due in class during the week of March 30<sup>th</sup>.

#### Field Trip to Monterey Bay Aquarium & Moss Landing Marine Lab (30 pts)

On Saturday, April 18, we will travel by bus – paid for from your lab fees – to the Monterey Bay Aquarium, arguably the finest marine aquarium in the world, where you will complete a stimulating assignment on marine biodiversity. On our return trip to campus, we will visit ‘our’ marine lab, the famous Moss Landing Marine Lab. This is going to be a fun and educational way to spend a Saturday.

## V. Required Course Materials

1. **BIOL 1150 Lab Manual.** Available from the campus bookstore. Bring it with you to each lab. You will need it to follow along with the lab exercises and to answer study questions. It is also handy for making notes and drawings during lab. Because the lab instructors wrote this manual from scratch, it is relatively inexpensive (<\$20). Each student will need her/his own manual.
2. **Photographic Atlas for Biology Lab.** By Van De Graaff and Crawley, 7<sup>th</sup> Edition, Morton Publishing Company. Available from the campus bookstore (~\$30-\$40 new). This book is extremely helpful when we are looking at specimens and performing dissections in class. Virtually every specimen and slide we examine in class is shown and labeled in this photo atlas. It will be your best guide as we examine the diversity of life. You can buy it new or used in the campus bookstore, or online, in bound, soft-cover format, or as loose-leaf, 3-hole punched pages. We recommend the loose pages so they can lay flat in your binder while you do dissections or examine specimens.
3. **Dissection Kit.** Available at the bookstore or at Nasco Lab Supply (4825 Stoddard Rd., Modesto). It should have a scalpel, forceps, a blunt probe, and micro-dissection scissors. A good kit should cost \$10-15. One kit per pair of students will be sufficient.
4. **Campbell's Biology.** Your lecture text book will be very helpful as you work on lab assignments and questions. It is recommended, although not required, that you bring it to lab.

## VI. Laboratory Policies

### Student athletes and DRS students

Please to notify me at the first lab meeting, or during my office hours. **Recording Lectures and Special Accommodations:** Students with documented disabilities should seek special accommodations for all classes through the DRS office on campus. If DRS sends me a file on you that lists recording lectures as an acceptable accommodation, then you may record lectures. Otherwise, you have to do it the old-fashioned way with pen and paper. If you record lectures in any form (video, audio, still pictures, etc.) without accommodation from DRS, that constitutes intellectual property theft, will result in a zero in participation points, and preclude you from turning in any assignments related to the lab session.

### Important Dates

Census Date is February 23<sup>rd</sup>. This is the last day to add/drop the course or change your grading option; it is your responsibility to submit the grade change form to the Admissions and Records Office by 5pm that day.

### Absences/Tardies

**Attendance is required. Do not enroll in this class if you have conflicts or other commitments during your lab period. Every absence will result in one or more zero grades.**

**If you are late to class, or absent from class, you may not make up the quiz you missed.** The only exception to this rule is in the case of illness or traffic emergency, and you must provide documentation. Documentation must be provided at the next office hour, which is also a good time to make up your quiz. Do not wait until the next week during lab to begin this process; the opportunity to make up points will expire.

### Student Conduct

- Practice lab safety at all times (no beverages or open-toed shoes).
- Zero-tolerance policy for cheating and plagiarism. Students cheating on quizzes or exams or representing the work of others as their own will receive a zero for that assignment and will receive an F in the class. Even a quick glance at your neighbor's paper during a quiz is considered cheating, and subject to disciplinary action.

### Tentative Lab Schedule

Week of	
February 2	Syllabus Exercise 1 pg 8-9 due next week
February 9	Quiz 1 Exercise 2, 3, 9 pg 42 due next week
February 16	Quiz 2 Exercise 4, 5, 6 pg 22-24 due next week
February 23	Quiz 3 Exercise 7, 10
March 2	Quiz 4 Exercise 11-13
March 9	Quiz 5 Exercise 14-15
March 16	<b>Exam 1.</b> Afterwards: Exercise 8, 16
March 23	Quiz 6 Exercise 17-24
March 30 <sup>th</sup>	Quiz 7 (15 points) Exercise 25, 26 (Frog Dissection)
<b>SPRING BREAK</b>	
April 13 <sup>th</sup>	Quiz 8 Exercise 25 continued, 27 Biodiversity project due
April 20 <sup>th</sup>	<b>Exam 2.</b> Afterwards: Exercise 28, Insect biodiversity experiment
April 27 <sup>th</sup>	Field Ecology: Study Design and Data Collection
May 4 <sup>th</sup>	Field Ecology: Data Collection, Analysis and Writing
May 11 <sup>th</sup>	Field Ecology: Data Analysis and Writing; Landscape Ecology
May 18 <sup>th</sup>	<b>Ecology Project Due</b>

*"To keep every cog and wheel is the first precaution of intelligent tinkering."*

Aldo Leopold, A Sand County Almanac

*"Mankind has gone very far into an artificial world of his own creation. He has sought to insulate himself, in his cities of steel and concrete, from the realities of earth and water and the growing seed. Intoxicated with a sense of his own power, he seems to be going farther and farther into more experiments for the destruction of himself and his world. There is certainly no single remedy for this condition and I am offering no panacea. But it seems reasonable to believe – and I do believe – that the more clearly we can focus our attention on the wonders and realities of the universe about us the less taste we shall have for the destruction of our race. Wonder and humility are wholesome emotions, and they do not exist side by side with a lust for destruction.*

-Rachel Carson, speech accepting the John Burroughs Medal (April 1952)