



**BIOL 1150-004**  
**General Biology II Laboratory**  
**"The Diversity of Life"**  
**CSU Stanislaus, Spring 2012**



### **I. General Information**

**Time:** Wednesday 2:00-4:50 pm

**Location:** N206

**Instructor:** Dr. Ann Kohlhaas, Professor, Department of Biological Sciences

**Office Hours:** Tuesday and Thursday 1:30 – 3 pm and by appointment, N275

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### **II. Course Description**

Introduction to the fundamental aspects of **organismal biology**: taxonomy, diversity, form and function. Prerequisite: BIOL 1050.

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. This course is designed specifically for biology majors, as well as other students who want a comprehensive introduction to biology. BIOL 1150 is not a G.E. course. Because it is a prerequisite to the Biology major, and nearly all upper-division biology courses, it is a content-heavy course that requires a substantial time commitment.

The General Biology II laboratory is designed to provide students with laboratory and field experience with a focus on the **diversity of life**. 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. 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. Identify and know the scientific and common names of the major groups of life on earth, including prokaryotes, protists, fungi, plants, and animals.
2. Describe the basic biology of the major groups of life on earth, such as their internal and external features, habitats, and evolutionary history.
3. Know how to use compound and dissection microscopes to examine cells, tissues, and organisms.
4. Create cladograms based on morphological characters of specimens.
5. Propose studies and experiments to answer biological questions using the scientific method.
6. Work effectively with other students to perform laboratory tasks.

#### IV. Grading

Grades will be based on three practical exams, a biodiversity survey assignment, a field trip, and attendance/presentations/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. Note: Points from lab may not be 1:1 equivalent to points for the lecture portion of the course; nevertheless, your lab grade will still be worth 1/3 of the total.

Attendance/Presentations/Quizzes	100 pts. (10 points per lab, except Lab 1 and exams)
Campus Biosurvey	70 pts.
Monterey Bay Aquarium Assignment	30 pts.
Lab Exam 1	20 pts.
Lab Exam 2	30 pts.
Lab exam 3	50 pts.
<b>TOTAL</b>	<b>300 pts.</b>

#### In-Class Quizzes, Presentations, and Activities

There will be 10 points per lab session covering quizzes, presentations, participation, and attendance. Typically, I will give a short quiz at the beginning of class covering the general concepts we will be covering that day in lab. Questions will come from material in the lab workbook, which you need to read ahead of time to be prepared for class. Pay particular attention to the “objectives” listed at the beginning of each exercise. These quizzes will be given right at the beginning of class. There are no makeup quizzes; latecomers will receive a zero on the quiz.

We will also often have a quiz at the end of class as well. You must be present at the time of the quiz in order to take it; there are no make ups. Students who leave lab early and then return at the end of the class will not be allowed to take the quiz. Usually, the questions will come from questions at the end of each lab exercise. Lab questions often require thinking critically about the topic and making educated guesses. The answers will not always be obvious, and there may not be a “right answer.” If you are still stuck after thinking about the question for a while, you SHOULD read up on the topic in Campbell. Your answers will be judged and graded based on completeness, originality, and level of critical thinking. To do well on this quiz, make sure you are staying on task, completing all of the activities, and closely examining the specimens.

At various times during lab, I will randomly choose one or more groups to present their answers to questions from the day’s lab assignment. In order to get credit for your presentation, you and your group members need to give a thorough explanation that answers the question. A simple, off-the-top-of-your-head answer will not get full credit.

#### Lab Exams

Lab exams will include 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.

### Campus Biosurvey

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 Lab 10. See the handout for more information.

### Monterey Bay Aquarium Field Trip

An all-day field trip to the Monterey Bay Aquarium is a **required** part of the class. We will meet on the CSU Stanislaus campus, by the reflecting pond in front of the library, at **7:45 am on April 21**. Buses will take us to the aquarium. We will return by 6:00 pm. There is no cost. You should bring a clipboard or other hard surface for writing, the MBA handout that we give you ahead of time, pencils (not pens!), comfortable walking shoes, a jacket, and a lunch or lunch money. Be prepared for being outside in a range of weather conditions.

### **V. Required Course Materials**

1. **BIOL 1150 Lab Manual and Worksheets.** Available from the campus bookstore as a course pack by the second full week of classes.
2. **Photographic Atlas for Biology Lab.** By Van De Graaff and Crawley, 6<sup>th</sup> Edition, Morton Publishing Company, ISBN 9780895828033. Available from the campus bookstore.
3. **Dissection Kit.** Available at the bookstore or at Nasco Lab Supply (Modesto). Should have a scalpel, forceps, blunt probe, and micro-dissection scissors.
4. **Campbell's Biology.** Your lecture text book will be very helpful as you work on lab assignments and questions.

### **VI. Laboratory Policies**

This course requires your presence in lab every week, and for the **entire lab period**. Because the laboratory setups change from class to class, it is **not possible to make-up missed laboratories**. Unexcused absences will result in no points for quizzes and group presentations given that day. If you know you will miss a lab ahead of time, tell your lab instructor at least one week in advance. Quizzes will begin promptly at the beginning of lab. If you are late you will have less time to complete your quiz. If you arrive after a quiz has been collected you will not be able to take that quiz.

I have a no-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.

You need to make productive use of lab time in order to make sure you finish all of the assignments and examine all of the specimens. **You should expect to spend the entire 2 hour and 50 minute class period working on lab each week.** Leaving lab early, even if you come back at the end of class, will mean that you will get zero points for any presentations or quizzes for that day. If you finish your lab assignment early, you should take advantage of the extra time to study any specimens that are available. Identifying specimens requires developing keen observation skills, and an ability to recognize similarities amidst differences. These skills are only developed through practice.

## Laboratory Schedule

Lab 1	Feb. 1	1. Introduction, Syllabus 2. History of life (Exercise #1) 3. Biological classification and the web of life (Exercise #2)
Lab 2	Feb. 8	1. Prokaryotes: Microbes in the Environment, Part I (Exercise #3) 3. Microscope review (Exercise #4) 4. Bacteria Cells (Exercise #5)
Lab 3	Feb. 15	1. Microbes in our environment, Part II (Exercise #6) 2. Eukaryotes: Protists (Exercise #7)
	Feb. 22	Exam #1 (Exercises 1-7)
Lab 4	Feb. 29	1. Fungi and Lichen (Exercise #8) 2. Cladograms (Exercise #9) 3. Introduction to Plants (Exercise #10)
Lab 5	Mar. 7	1. Bryophytes (mosses and allies) (Exercise #11) 2. Pteridophytes (ferns and allies) (Exercise #12) 3. Gymnosperms (conifers and allies) (Exercise #13)
Lab 6	Mar. 14	1. Angiosperms (flowering plants) (Exercise #14) 2. Supermarket Botany (Exercise #15)
	Mar. 21	Exam #2 (Protists, Fungi, Plants; Exercises 8-15)
Lab 7	Mar. 28	1. Animal Cells and Tissues (Exercise #16) 2. Parazoa: Porifera (Exercise #17) 3. Radiata: Cnidaria (Exercise #18)
Lab 8	Apr. 4	1. Platyzoa: Platyhelminthes (Exercise #19) 2. Lophotrochozoa: Annelida (Exercise #20), Mollusca (Exercise #21)
	Apr 11	No Class, Spring Break
Lab 9	Apr. 18	1. Ecdysozoa: Nematoda (Exercise #22), Arthropoda (Exercise #23) 2. Deuterostomes: Echinodermata (Exercise #24)
	Sat., April 21	Monterey Bay Aquarium Field Trip, 7:45 am – 6:00 pm
Lab 10	Apr. 25	1. Chordata (Exercise #25) 2. Vertebrate anatomy (frog dissection) (Exercise #26)
Lab 11	May 2	1. Animal adaptations: mammal skulls and skeletons (Exercise #27) 2. Ecosystems and Landscape Ecology (Exercise #28)
	May 9	Exam #3 (Animals, Exercises 16-28)