

BI 101L General Biology I Lab  
Fall 2002 Friday 2-4:50 PM  
Henry Hall 8

70'02  
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Office: Henry Hall 16, 735-4807  
Office Hours: WF 12-2; T 1-2

**Course Description:**

Biology 101 laboratory course is a one credit course that is distinct from, but accompanies, the Biology 101 general biology lecture course for non-science majors. This course is designed to 1) apply the principles and concepts presented in lecture; 2) introduce students to the scientific method and writing style; 3) give students hands-on experience in a laboratory setting. The experiments will come from the biochemical, cellular and molecular fields of biology as well as genetics and biotechnology.

**Course Objectives:** Students should be able to demonstrate the following at the end of the semester:

1. Knowledge of the scientific method and writing through lab reports and one short research report;
2. Familiarity with how to chemically assay for organic molecules;
3. The parts of a cell and various physiological/biochemical aspects of a cell including enzymes, membrane processes and photosynthesis;
4. Familiarity with molecular biological techniques including isolation of DNA and its analysis and manipulation with the polymerase chain reaction;
5. Knowledge of Mendelian genetics and mechanisms of heredity as surveyed in humans and flies;
6. Comprehension of biodiversity.

**Text:** There is no text for this course. Handouts describing laboratory activities, lab notebook guidelines and specifications for lab reports will be provided.

**Grade Determination:** The grade the student earns in this course will be based on:

1. **Lab notebooks. [2 checks @ 25 points each]** Lab notebooks are an essential element to practicing science. The purpose of the lab notebook is to keep a complete record of your laboratory experiments including expectations (hypotheses), observations and data. A bond composition notebook or a three ring binder can be used. Notebooks will be collected at each midterm exam and graded.
2. **Lab report. [1@ 50 points each].** Laboratory reports are to be written in the format of a scientific publication which will be discussed early in the semester. More specific information on the content and format of the reports will be given in the handout for that laboratory exercise. Reports *must be typed* on a computer within a word processing program. Please make sure to run a spell check on your report! Double line spacing and 12 point sized font are recommended. Any report or assignment turned in to the instructor within 24 hours AFTER the due date will be penalized one letter grade. No papers will be accepted after the 24 hour grace period
3. **Assignments. [1@ 25 points, 3@ 10 points each].** These are short 1-2 page assignments that entail analysis of experimental data gathered in a laboratory exercise.
4. **Research assignment. [1 @ 40 points].** This assignment is intended to give the student experience in researching a scientific topic, specifically a human genetic disease. References, one of which may be a text book, must be included. There *must be at least two other* references, one of which must be a journal or newspaper article. Only one student from the lab section can write



on a particular disease and you must indicate to me which topic you will be researching. The paper must be five pages or less. Papers *must be typed* on a computer within a word processing program making use of a spell check function. The report should be double spaced and in 12 point sized font. Any paper turned within 24 hours AFTER the due date will be penalized one letter grade. No papers will be accepted after the 24 hour grace period. More information on the topic, suggested sources of information and format will be submitted after the first lab exam.

5. **Lab Exams. [2 @ 75 points each].** There will be two lab exams. The second lab exam is not cumulative, e.g., it covers material only from the first lab exam.
6. **Quizzes. [8 @ 5 points each].** Quizzes will be given at the beginning of many laboratory sessions. Familiarity with the steps in the laboratory will minimize accidents and increase the likelihood of success in conducting the experiments. Therefore, you will be given a quiz to assess your preparedness for the laboratory procedures—focus on studying safety and experimental procedures while preparing for the lab quiz.

Grades will be assigned on the following scale: A > or = 90%, B > or = 80%, C > or = 70%, D > or = 60% and F as receiving < 60% of the total possible points.

**Class standing:** I will try to keep the class informed of the class curve particularly after the first midterm exam. Students with D or F grades will receive deficiency notices prior to the **November 8** drop date deadline. Students who receive one of these notices are strongly encouraged to make an appointment to see the instructor to discuss their further progress in the course.

**Attendance:** One week's worth of classes for a laboratory course is held once a week. If you miss a lab, you have missed an entire week of class. Since there is not another section of the BI101L course AND set-up for laboratory is essentially impractical for a single student, no makeup labs are available in most cases. If you miss one lab, you will not be able to submit any assignment from that lab (since you have not done the work) nor make up a quiz if given. If you miss two labs, your grade will be lowered by one letter grade. Miss three labs *at any time* during the semester and I will strongly advise you to leave the course.

## GRADING

Lab Report	50 points
Research Report	40 points
Assignments	70 points
Quizzes [8 @ 5 points each]	40 points
Lab Notebooks [2 @ 25 points each]	50 points
Lab Exams [2 @ 75 points each]	<u>150 points</u>
<b>Total</b>	<b>400 points</b>

The following is a *tentative* schedule of laboratory sessions, all on Friday at 2 PM:

Lab #	Date	Laboratory Topic	Assignment due date
1	Aug 30	<i>Intro/Microscopy</i>	
2	Sept 06	<i>Scientific Method/Writing</i>	I. Due Sept. 13
3	Sept 13	<i>Chemical Analysis of Food</i>	
4	Sept 20	<i>Osmosis &amp; Diffusion</i>	
5	Sept 27	<i>Cells and Cell Structure</i>	II. Rewrites due
6	Oct 04	<i>Enzymology</i>	
7	Oct 11	<i>Photosynthesis</i>	Lab Report due
8	Oct 18	<b>Lab Exam I</b>	Lab Notebooks due
9	Oct 25	<i>DNA Isolation</i>	
10	Nov 01	<i>Chromosomes and Cell Division</i>	III. Due Nov. 08
11	Nov 08	<i>Genetics of Flies and Humans</i>	IV. Due Nov 15
12	Nov 15	<i>PCR &amp; DNA Fingerprinting</i>	
13	Nov 22	<i>Biodiversity (Field Trip)</i>	Research Report due
14	Dec 06	<b>Lab Exam II</b>	Lab Notebooks due