

Syllabus for Biology313L- Cell Biology Lab

Biology 313 LAB (Cell Biology)

Course Time: Tues 9:00-12:00, Tues 2:00-5:00, Wed 2:00-5:00 in RITA 143

Instructor: Dr. Mark D. Lazzaro (lazzarom@cofc.edu), RITA 219, 843-953-7180

Office Hours: By appointment, just send an email.

Course Objectives:

In this lab you will gain first-hand experience with techniques commonly used in cell biological research including quantitative microscopy, histochemistry, spectrophotometry, cell fractionation and centrifugation, organelle isolation, enzyme assays, and protein electrophoresis.

Student Learning Outcomes:

Students will demonstrate:

- An ability to use modern analytical techniques used to study cells and cellular processes.
- The ability to use the scientific method in obtaining, analyzing and evaluating empirical evidence for cellular structure and processes.
- The ability to evaluate and discuss pertinent scientific literature.

Co-requisite or pre-requisite:

Biology 313 (Cell Biology)

Requirements:

You **MUST** wear a lab coat in lab. There are **NO EXCEPTIONS**. There is **NO FOOD OR DRINK** in the lab. No sandals, perforated shoes, or high heels. Wear gloves and goggles when instructed to do so. Wash your hands when you leave the lab. We follow the College lab safety policy. Please read it on the course website on OAKS.

Lab procedures are available on the course website. Go to OAKS, select this class, click on CONTENT. You need to download and read the lab **BEFORE** you come in. It's a good idea to put all your lab stuff in one notebook.

How to do well in this lab:

This is an upper division lab. I expect you to come to lab prepared, work hard, and actively participate in the experiments. Attendance at labs is required. Since it is difficult to prep the labs again, you will need a valid, approved excuse before I will let you make up a lab. A good way to come to lab prepared is to make a flow chart in your notebook detailing how you will run through the lab. This is especially important in some of the later labs, where we will be running gels and isolating cell fractions. These labs have several steps, so you need to be organized.

Grading:

Grades for this course are determined from lab quizzes, written reports, your literature presentation, and the final exam.

Lab quizzes (55 total points). At the beginning of labs 1-11, there will be a brief quiz to test whether you have read the protocol and are prepared for lab. Each quiz is worth 5 points.

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Single lab reports (220 total points). Reports demonstrate your completion and understanding of the lab material. Lab reports are due in the DropBox folder on OAKS at the beginning of the following lab and are worth 20 points each. There is a 5-point penalty, per day, for late reports.

Literature presentation (25 points). Each student will make a 10-minute presentation on a topic in cell biology based on the primary research literature. Details on this project are in the lab procedure. You must select your paper and get it approved .

Lab FINAL EXAM (50 points). The cumulative lab final will test your understanding of labs by asking you to design experiments and analyze results. You will **NOT** do well on the exam if you routinely come to lab unprepared and let your lab partner do all the work.

Grades:

Your final grade is determined as a percentage of the 350 total points as follows:

A	94-100	C	74-76
A-	90-93	C-	70-73
B+	87-89	D+	67-69
B	84-86	D	64-66
B-	80-83	D-	60-63
C+	77-79	F	0-59

Student conduct in this course is governed by the College of Charleston Honor Code. If you will require special accommodations to complete any of the reading, speaking, or writing requirements for this course, please come and see me as soon as possible. Veterans and active duty personnel with special circumstances (e.g. upcoming deployments, drill requirements, disabilities) are welcomed and encouraged to communicate these, in advance if possible, to the instructor. Please see the syllabus insert posted on OAKS to read the required official language on academic integrity and on accommodations for students with disabilities.

Date	Topic	Report Due
January 14, 15	Lab 1- Microscopy	
January 21, 22	Lab 2- Human Blood	Lab 1
January 28, 29	Lab 3- Spectrophotometry of DNA	Lab 2
February 4, 5	Lab 4- Enzyme activity in Mitochondria	Lab 3
February 11, 12	Lab 5- Photosynthesis in Chloroplasts	Lab 4
February 18, 19	Lab 6- Cell Fractionation	Lab 5
February 25, 26	Lab 7- Gel Electrophoresis (SDS-PAGE)	
March 3, 4	Lab 8- Western Blots	
March 10, 11	Lab 9- Analyzing results of Labs 6-9	
March 17, 18	SPRING BREAK	
March 24, 25	Lab 10- Genomics	Labs 6-9
March 31, April 1	Lab 11- Mitosis and cytoskeleton	Lab 10
April 7, 8	Lab12- TBD- maybe no lab	Lab 11
April 14, 15	Student Literature Presentations	Lab 12-TBD
April 21, 22	Student Literature Presentations	
Friday, April 24	4-6 PM LAB FINAL EXAM (Comprehensive)	