Molecular Biology Lab (312L)
Spring 2023
RITA 145

Instructor: Jessica McCoy
Monday 11am-2pm (section 01)
Wednesday 12pm-3pm (section 02)
Wednesday 11am-2pm (section 05)

Jessica McCoy, PhD
mccoyja@cofc.edu
Office Hour: Mon 3pm or by appointment
65 Coming St., Room 102
Virtual Office hours are also available.

Pre/Co Requisites:
BIOL 312, MATH 250 or equivalent course in statistics or permission of instructor

COURSE DESCRIPTION
In this course we will work together to explore modern molecular biology-based techniques and bioinformatic tools to learn how these techniques are applied in current research. This semester we will emphasize techniques for genotyping and gene editing.

Required Course Materials:
You will need a dedicated composition book and lab coat.
A text book is not required for Biol 312L. All lab materials will be available on OAKS.
LEARNING OBJECTIVES and EXPECTATIONS

Learning Objectives:
The goal of this laboratory is to provide participants with a deeper understanding of the modern techniques and applications of molecular biology research. Specifically, this includes:

- Nucleic Acid Extraction and Purification
- Restriction Enzyme Analysis
- Molecular Cloning Steps and Applications
- PCR and Primer Design
- Gene Editing
- High Throughput Sequencing Methods
- Sequence Analysis Pipelines
- Phylogenetic Analyses & Alignment Scoring Matrices
- Genome Browsers/Databases
- Literature Searches, Selection, and Interpretation

Course Expectations:

- Check the weekly schedule prior to each meeting.
- Keep up with your grades. The OAKS based gradebook will be updated throughout the semester.
- Participate in discussion topics, which will occur in-person and via the discussion board.
- Tie loose hair back and wear closed toed shoes to the lab.
- Know that I am available to help. Please reach out via email (mccoyja@cofc.edu).

Grading:
- Quizzes/Assignments - 65%
- Project Summaries - 30%
- Lab Notebook Completion-5%

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GRADING

Your final course grade includes scores earned from:

1. **(65%) Weekly Quizzes and Assignments.** Each lab will begin with a quiz that covers material from the previous lab. No outside sources may be consulted in completion of the quiz.

2. **(30%) Project Summaries.** At the completion of each experiment (2-3 per semester), you will complete a project summary that covers the
background, results, and conclusions of your experiment.

3. **(5%) Lab Notebook.** You are required to keep a record of your weekly activities in a lab notebook. The expectations for the lab notebook will be reviewed in class.

**What is the grading scale?**

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**How does my lab grade affect my lecture grade?**

It does not. The class and the lab are graded separately. The lab is worth 1.0 credit and the lecture is worth 3.0 credits.

**ACADEMIC INTEGRITY/CHEATING POLICY**

Students are expected to be familiar with and comply with the College of Charleston’s official honor code: [https://policy.cofc.edu/documents/12.4.1.pdf](https://policy.cofc.edu/documents/12.4.1.pdf). I have a zero-tolerance policy for cheating, and all violations will result in substantial penalties. If you have any doubts or about what constitutes academic misconduct, please contact me. Consultation of outside sources during online exams constitutes cheating.

Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when identified, are investigated. Each instance is examined to determine the degree of deception involved.

Incidents where the professor believes the student’s actions are clearly related more to ignorance, miscommunication, or uncertainty, can be addressed by consultation with the student. We will craft a written resolution designed to help prevent the student from repeating the error in the future. The resolution, submitted by form and signed by both the
professor and the student, is forwarded to the Dean of Students and remains on file. Cases of suspected academic dishonesty will be reported directly to the Dean of Students. A student found responsible for academic dishonesty will receive a XF in the course, indicating failure of the course due to academic dishonesty. This grade will appear on the student’s transcript for two years after which the student may petition for the X to be expunged. The student may also be placed on disciplinary probation, suspended (temporary removal) or expelled (permanent removal) from the College by the Honor Board. It is important for students to remember that unauthorized collaboration—working together without permission—is a form of cheating. Unless a professor specifies that students can work together on an assignment and/or test, no collaboration is permitted. Other forms of cheating include possessing or using an unauthorized study aid (such as a PDA), copying from another’s exam, fabricating data, and giving unauthorized assistance. Remember, research conducted and/or papers written for other classes cannot be used in whole or in part for any assignment in this class without obtaining prior permission from the professor.

**ATTENDANCE**

Regular attendance is positively correlated with success in any course. Lab attendance and participation is especially important due to the collaborative nature of our projects. A missed quiz will result in a “zero”. Unless you reach out to the instructor prior to your absence with a documented excuse, you will NOT be able to make up missed lab quizzes.

**OAKS**

OAKS, including Gradebook, will be used for this course throughout the semester to provide the syllabus and class materials and grades for each assignment, which will be regularly posted.

**Inclement Weather, Pandemic or Substantial Interruption of Instruction**

If in-person classes are suspended, faculty will announce to their students a detailed plan for a change in modality to ensure the continuity of learning. All students must have access to a computer equipped with a web camera, microphone, and Internet access. Resources are available to provide students with these essential tools.

**SPECIAL REQUESTS**

If there is a student in this class who has a documented disability and has been approved to receive accommodations through SNAP Services, please feel free to come and discuss this with me during my office hours.
Any student eligible for and needing academic adjustments or accommodations because of a disability is requested to speak with the professor in a timely manner so that your needs can be addressed. The College will make reasonable accommodations for persons with documented disabilities. Students should apply for services at the Center for Disability Services located on the first floor of the Lightsey Center, Suite 104. Students approved for accommodations should notify their professors as quickly as possible. This College abides by section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act that stipulates no student shall be denied access to an education “solely by reason of a handicap.” Disabilities covered by law include, but are not limited to, learning disabilities and hearing, sight or mobility impairments. If you have a documented disability that may have some impact on your work in this class and for which you may require accommodations, please see an administrator at the Center of Disability Services, (843) 953-1431 or me so that such accommodation may be arranged.

CONFIDENTIALITY OF STUDENT RECORDS
The Family Educational Rights and Privacy Act of 1974 (FERPA) is a federal law designed to provide students with greater access to and control over information contained in their educational records, while at the same time prohibiting, in most circumstances, the release of any information contained in those educational records without express written consent of the student. This law guarantees privacy of student records, open access by students to their records, restricted release of information to specified authorities or others only with written consent, and procedures allowing students to challenge the contents of their records. The law also requires that an inventory of records be maintained denoting the location, content, and any official review of students' records and identifying the staff member in charge of records and/or reviews. Notice of this law must be provided annually to all students. Forms necessary for obtaining access to student records are provided by the Office of the Registrar.