Genetics Lab Fall 2021

Instructor

Jessica McCoy, PhD
mccoyja@cofc.edu
65 Coming Street, Room 102
Office Hours: Tuesday 9am-11am, or by appointment
Welcome to Genetics Laboratory!

*Fall 2021 Sections and Meeting Times*

All sections meet in **RITA 169**

**Biol 305L-01:** Monday 2pm-5pm

**Biol 305L-02:** Tuesday 2pm-5pm

**Biol 305L-03:** Wednesday 2pm-5pm
Course Overview.

In this laboratory course we will work together using model organisms and genetics techniques to learn how to apply many of the concepts covered in lecture: genetic crosses, genotype vs phenotype, dominance, epistasis, penetrance, expressivity, allelic series, single nucleotide polymorphisms, gene arrays, and much more! Recent techniques in molecular genetics are also covered. Our laboratory meets three hours per week.

Prerequisites: BIOL 111/111L, BIOL 112/112L.

Co-requisites or prerequisites: BIOL 211 and 211D, BIOL 305, MATH 250 or equivalent course in statistics or permission of instructor.
Required Materials.

Text Book:
None. Protocols and other information will be provided in class or posted on OAKS

Other Required Materials
- (1) Composition Notebook
- Laboratory Coat
- Closed Toed Shoes, Long Pants

Students will demonstrate the ability to

- set up and explain data obtained from genetic crosses
- understand Mendelian Genetics and common deviations
• apply basic statistical tools to genetics data

• demonstrate an understanding of the critical genetic concepts of mutations, alleles, and gene interaction, as well as the role of the environment in genotype-phenotype interpretation

• demonstrate an understanding of basic molecular genetic techniques

• exhibit proficiency for developing hypotheses and interpreting results on the basis of hypotheses.

• produce publication quality summary figures

• understand some of the implications of modern genetics to society

Our Planned Experiments.

1. Mutagenesis in bacteria

2. Connecting Genotype to Phenotype using Dog Samples
3. Allelic series and molecular basis of phenotype in Drosophila

4. Allelism testing in yeast

5. Gene Array Technology

6. Population Genetics Case Studies

For detailed weekly schedule, please see link below, or check our OAKS page.

Weekly Schedule - Genetics Lab - F2021

Grading.
Course Grade Calculation:

35% Individual Lab reports

65% quizzes

Grading Scale:

92 and above: A

90-91.9: A-

87-89.9: B+

83-86.9: B

80-82.9: B-

77-79.9: C+

74-76.9: C

70-73.9: C-

67-69.9: D+

64-66.9: D

60-63.9: D-

below 60: F
Your attendance at live meetings is required. If an emergency situation prevents your attendance, please reach out to me as soon as you can to receive instructions regarding missed work.

Honor Code and Academic Integrity.

Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when identified, are investigated. Each incident will be examined to determine the degree of deception involved. Incidents where the instructor determines the student’s actions are related more to a misunderstanding will handled by the instructor. A written intervention designed to help prevent the student from repeating the error will be given to the student. The intervention, submitted by form and signed both by the instructor and the student, will be forwarded to the Dean of Students and placed in the student’s file. Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students. A student found responsible by the Honor Board 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. Students should be aware that unauthorized collaboration--working together without permission--is a form of cheating. Unless the instructor specifies that students can work together on an
assignment, quiz and/or test, no collaboration during the completion of the assignment is permitted. Other forms of cheating include possessing or using an unauthorized study aid (which could include accessing information via a cell phone or computer), copying from others’ exams, fabricating data, and giving unauthorized assistance. 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 instructor. Students can find the complete Honor Code and all related processes in the Student Handbook at: http://studentaffairs.cofc.edu/honorsystem/studenthandbook/index.php

Accommodations for Students with Disabilities

Any student eligible for and needing accommodations because of a disability is requested to speak with the professor during the first two weeks of class or as soon as the student has been approved for services so that reasonable accommodations can be arranged. Center for Disability Services/SNAP.

Recording of Classes (via ZOOM)

Class sessions will be recorded via both voice and video recording. By attending and remaining in this class, the student consents to being recorded. Recorded class sessions are for instructional use only and may not be shared with anyone who is not enrolled in the class.
SAFETY POLICY AND PROCEDURES

The School of Sciences and Mathematics of the College of Charleston understands that the safety of our students, staff and faculty is of paramount importance. Engendering a safety culture is an important part of our mission in teaching and doing science. Each department, course of instruction, or research lab may require higher standards or procedures. The policies and procedures set forth below are understood to be minimum requirements across our departments.

In this document, the term “laboratory” is meant for a work space/facility where chemicals, biological agents, or equipment is used for research and/or instruction.

No one (student, staff, faculty, or visitor) will be allowed in a laboratory (teaching or research) to perform experiments or where experiments may be in progress unless these regulations are followed.

Students dismissed from a teaching lab due to violations of the safety procedures will not be allowed to re-enter the laboratory until authorized to do so by their supervisor (instructor) and, in the case of research laboratories, by the department chair or designee. Any course work missed because of a violation of these guidelines cannot be made up at another time (or by an extension of the lab period) and will be treated as an unexcused absence.

1. You are responsible for knowing the biological, chemical, electrical, ergonomic, mechanical, and physical hazards associated with the equipment and materials that are being utilized in the laboratory. Listen to all instructions and ask questions about that which you do not understand.

2. Know the location of safety equipment: telephones, emergency shower, eyewash, fire extinguisher, fire alarm pull.

3. Know the appropriate emergency response procedures. If there is an injury or emergency, call 953-5611.

4. Do not work alone in the laboratory if you are working with hazardous materials or equipment.

5. Use hazardous chemicals, equipment, and biological agents only as directed and for their intended purpose.
6. Do not engage in horseplay, pranks or other acts of mischief while in lab.

7. Drinking, eating, and application of cosmetics is forbidden in laboratories where chemicals or biohazards are present. Smoking is forbidden in all College buildings.

8. Appropriate personal protective equipment shall be worn. The dress code for laboratory work when using chemicals, biological or physical hazards, or when instructed to do so by the laboratory supervisor is as follows:

   a) Wear safety glasses or goggles at all times. b) No exposed skin on arms, legs or torso.

   c) Wear lab coats or other approved protective garments.

   d) Wear gloves or other personal protective equipment (PPE) as directed by the instructor or mandated by prudent practices based on the chemicals being handled. If in doubt, wear appropriate gloves. Latex is not permitted. Avoid cross-contamination.

   e) Remove PPE (gloves and lab coat) when exiting the laboratory.