The University of Georgia-Griffin Campus
BIOL 3110L - Basic Skills in the Laboratory, 4 credit hours
Fall Semester 2022, CRN 24934
9:00-11:45 AM In-Person Class, Tues/Thurs, Room 255-Redding

Instructor: Dr. Margie M. Paz mpaz@uga.edu
128 Flynt, 770-229-3380

Office Hours: 10:45 – 11:45 AM Mon/Wed. Please e-mail me, so a meeting can be set up. To comply with the Family Educational Rights and Privacy Act (FERPA), all communication must be through a secure medium (UGAMail or eLC). Instructors are not allowed to respond to messages that refer to individual students or student progress in the course through non-UGA accounts.

Course Overview
This class is designed to familiarize you with the basic laboratory bench procedures you have read about, but with which you may have little or no direct experience. It is the goal of this class that by the end of the semester, you will understand how to perform a given protocol and, more importantly, why it works. The course syllabus is a general plan for the course, deviations announced to the class by the instructor may be necessary.

Prerequisites: [(BIOL 1107 and BIOL 1107L) or (BIOL 2107H and BIOL 2107L)] and [(CHEM 1212 and CHEM 1212L) or (CHEM 1412 and CHEM 1412L)]

Laboratory Manual
There is no official lab manual. Laboratory notes and protocols will be posted on the eLearning Commons (*e*LC) and must be read prior to lab.
Some lab exercises were adapted from Cain, G. D., Wenzel, D. M. C., and Walker, J. R. 2003. BIOL 3110L laboratory manual. University of Georgia.

Attendance:
Punctual attendance in the lab is required. Lecture slides and handouts will be available on the web via eLC to simplify note-taking. You are responsible for printing your own copies (you may use the printers at the Student Learning Center) and should do so before class. Having my slides with you will make note-taking easier, but additional material and examples are given in class. You will be responsible for all content and instructions given during the lecture and announcements made in class (including on days when you miss a class)**.** Missing more than one class period: a) places a significant burden upon your laboratory partner(s); b) prevents you from gaining applied experience, a major goal of this class; and c) disrupts the continuity needed to complete multi-week experiments. Medical/professional school interviews will be counted as excused absences only if Dr. Paz is contacted prior to the absence. **Please turn off all cell phones and pagers.**

Website and *e*LC:
We will be using *e*LC throughout the semester. I often communicate via *e*LC, which you should check regularly. Class materials will be available on *e*LC including the syllabus, slides of lecture outlines, laboratory exercises, assignments, course announcements, etc. Students are responsible for printing their own copies, and should do so in advance of needing them.
To get to the course page, go to https://uga.view.usg.edu/ and login with your UGA MyID.

Exams: There will be three examinations: one designed to test your "practical" skills and two subsequent exams designed to test your knowledge of the theoretical foundation of each laboratory procedure. There will be no final exam; instead, you will submit a lab report covering experiments in the second half of the course. The report will be written in the style of a scientific paper. Your laboratory notebook will be checked for accuracy. A WRITTEN EXCUSE is REQUIRED for all make-up exams. In the case of severe illness or family emergency, you must inform and email the instructor prior to the exam. In addition, presentation of a signed letter from your doctor, etc., will be required. An unexcused absence will result in a grade of zero. An absence will be counted as unexcused if the instructor is not notified before the exam is given. If you believe there has been a grading error on your exam, questions about grading must be submitted in writing within one week of the return of the exam.

Grading:	
Exams (3)	300 pts
Lab report	100 pts
Lab notebook	75 pts
Participation/Assignments/Quizzes	75 pts
Total points possible	**550 pts**

If you turn in an assignment/test/quiz at any time within 24 hours after the assignment/test/quiz is due, it will lose 10% of the possible point value. Late submissions will not be accepted thereafter.

Grading Scale: The letter grade will be determined according to the scale shown below.
A >93%, A- 90 to 92%, B+ 87 to 89%, B 83 to 86%, B- 80 to 82%, C+ 77 to 79%,
C 73 to 76%, C- 70 to 72%, D 60-69%, F below 60

Laboratory Safety/Techniques: You will be given a list of lab safety rules that you are expected to read and follow. You will also be taught proper laboratory techniques that are to be used in the lab. If you fail to follow these rules and techniques during the semester, points will be deducted from your performance at a rate of 1 point per incidence. The first incidence will result in warning and reminder of proper procedures. After that, points will be deducted for each subsequent occurrence. You will be notified at the time of the occurrence.

Academic Honesty and the Honor Code: As a University of Georgia student, you have agreed to abide by the University's academic honesty policy, *UGA Student Honor Code: "I will be academically honest in all of my academic work and will not tolerate academic dishonesty of others."* A Culture of Honesty, the University's policy and procedures for handling cases of suspected dishonesty, can be found at *www.uga.edu/ovpi* . Students are responsible for informing themselves about those standards before performing any academic work. Academic work includes, but is not limited to, course assignments, quizzes, exams, in-class questions, and course evaluations.

Mental Health and Wellness Resources:

- If you or someone you know needs assistance, you are encouraged to contact Student Care and Outreach in the Division of Student Affairs at 706-542-7774 or visit https://sco.uga.edu. They will help you navigate any difficult circumstances you may be facing by connecting you with the appropriate resources or services.
- UGA has several resources for a student seeking mental health services (https://www.uhs.uga.edu/bewelluga/bewelluga) or crisis support (https://www.uhs.uga.edu/info/emergencies).
- If you need help managing stress anxiety, relationships, etc., please visit BeWellUGA (https://www.uhs.uga.edu/bewelluga/bewelluga) for a list of FREE workshops, classes, mentoring, and health coaching led by licensed clinicians and health educators in the University Health Center.
- Additional resources can be accessed through the UGA App.

UGA Griffin Campus Specific Resources

- If you or someone you know needs assistance, you are encouraged to contact Student Affairs at 770-412-4096. They will help you navigate any difficult circumstances you may be facing by connecting you with the appropriate resources or services.
- UGA Griffin Campus Counseling Services serves as a resource for a student seeking mental health services, and can be contacted at 706-612-8792 or via email at griffincounseling@uga.edu.
    - Students can schedule an appointment, here: https://bit.ly/3dAWO9d

Special Learning Needs
If you have a documented disability and require classroom accommodations, please see me at the end of the first class meeting or make an appointment during office hours. If you plan to request accommodations for a disability, please register with the Disability Resource Center online at https://drc.uga.edu . You must be registered with the Disability Resource Center to receive academic accommodations.

Schedule
This course is intended to duplicate the experience of working in a research laboratory. Therefore, one cannot predict exactly when certain experiments will be performed, or when one must deviate from the experimental outline in order to complete a procedure and produce accurate results. Thus, you can expect a certain amount of deviation from the schedule. In general, you will be introduced to basic techniques during the first half of the semester. During the second half of the semester you will use these techniques to isolate, clone, amplify, and subclone antibiotic resistance genes. **You must complete each set of the experiments correctly before you can progress to the next step.** Your final grade in this class depends in large part upon your progress in this set of experiments. These experiments will be used in writing your laboratory report.

Approximate Lab Schedule Fall 2022 (In-Person Instruction)
Success in the laboratory requires attention to detail. It is critical that you pay careful attention to the technical aspects of each experiment. Read the material about each experiment prior to coming to class.

	Topics
Unit 1 **9/22 Thu**	Introduction, Lab Safety Calculations and Pipetting Media Preparation & Sterile Techniques Bacterial culture systems and growth measurement Lecture: Gel electrophoresis & Restriction Enzymes Set-up RE digestion reactions (practice digests) Making a gel Gel electrophoresis for practice digests PCR-based VNTR human DNA typing Lecture: Bioluminescence & transformation pGLO transformation **EXAM I**
Unit 2 **10/27 Thu**	Lecture: Recombinant DNA Technology LRP I: Isolation of pKAN and pAMP LRP II: Restriction enzyme digestion pAMP & pKAN plasmids LRP III: Verification of restriction enzyme digestions, purification of DNA fragments LRP IV: Ligation LRP V: *E. coli* transformation with recombinant plasmids LRP VI: Colony selection and culture for isolation LRP VII: Plasmid DNA purification from transformed *E. coli* LRP VIII: Restriction enzyme analysis of recombinant plasmids LRP IX: Gel Electrophoresis of RE fragments from LRP VIII **EXAM II**
Unit 3 **11/29 Tue**	DNA Fingerprinting-paternity testing ELISA (Enzyme-Linked ImmunoSorbent Assay) Proteomics, Western Blot Bioinformatics lab **EXAM III**
Dec. 1st	**Lab Report Due by 5:00 pm** (There will be a 10% deduction from your lab report grade if you turn in your report at any time after 5:00 pm or within 24 hours after it is due.) **Reports submitted after 5:00 pm Dec. 2nd will not be accepted**.

LRP - Lab Report Project