

# FALL SEMESTER 2024 - BIOLOGY 3300L sections 03, 04, 08, 12 GENETICS LABORATORY in SL 2005

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“Drop in” office meeting times: Mon. 9:30-10:30am, Wed. 10:00-11:00am, and Thurs. 2-2:30pm

## Genetics Lab

Welcome! Our goal is for genetics students to think scientifically-- to ask questions, gather background information, form appropriate hypotheses and experiments, gather and analyze data, form conclusions, and communicate to others via writing and speaking. Obtaining these skills is a multi-year, multi-course process and it will not be completed in this one course. But Biol 3300L will continue building this knowledge foundation. Other goals include gaining the ability to read and carry out lab protocols, take ownership of the question(s) being tested, recognize confounding factors, and articulate fundamental genetic concepts that are at play within the protocol or science question being tested.

## Course Description: (from the KSU undergraduate catalog)

This course is designed to reinforce principles and applications of transmission genetics, cytogenetics, and molecular genetics. Students will learn to use problem-solving, data analysis and quantitative methods to explore these areas of genetics. Exercises in molecular genetics will expose students to methods of recombinant DNA technology.

Prerequisites: A grade of “C” or better in BIOL 1107 and 1107L and Chem 1211 and 1211L

Co-requisites: BIOL 3300

## Teaching philosophy

Genetics lab has multiple components: understanding concepts, performing experiments, and analyzing data to make conclusions. We have a limited time in lab together to accomplish a lot! I’m here to provide multiple learning materials before lab, to coach you during lab, and to answer your questions. Successful students will engage with lab content *before* lab in order to be ready to master the material *during* lab.

## Assessments

In order to earn a grade in this course, I need to assess your progress. Formative assessments help me understand where to clarify the material, and give you an opportunity to practice. Summative assessments show me what you have learned. We will have several types of graded assessments (described below).

Pre-lab – formative assessment to determine understanding of assigned reading and preparation

Post-lab/practice test - formative assessment to determine progress on recently completed material

Test/Practical/Poster – summative assessment to establish whether learning objective(s) has been met

## Life Happens....

When you turn to the next page, you will see the specific details of our course. Before you turn the page, I want you to know that I understand that things happen and they may not fit the description of “acceptable excuses” listed here. For this reason, I will drop your lowest pre-lab assignment grade, your lowest post-lab grade, and offer to replace the written midterm test with the cumulative final. Additionally, if you are in an unexpected situation, please let me know as soon as possible so we can minimize its impact on your grade!

This is an **On-site** (in-person/face-2-face) course delivered in a traditional in-person classroom setting at scheduled dates and times. KSU may shift the method of course delivery at any time during the semester in compliance with University System of Georgia health and safety guidelines. In this case, alternate teaching modalities that may be adopted include hyflex, hybrid, synchronous online, or asynchronous online instruction. For this reason, you should pre-arrange access to stable internet capable of handling streaming video demands and a computer with (internal or external) functioning webcam with microphone.

### Contacting me

**Virtual practice time** will be held by appointment via Teams or Zoom. Make an appointment 4 hours in advance on the online calendar at <https://jcoop135.youcanbook.me> Virtual practice is a great time to ask a question over material, get help working a problem, or talk about study techniques.

**“Drop in” meeting times** will be Mondays 9:30-10:30am, Wednesdays 10:00-11:00am, and Thursday 2-2:30pm in my office SL 3005. You can also drop in right after lab, but please let me know in lab that you are coming by. Drop in meetings are great for reviewing test performance, grade discussions, and also everything we can do during virtual practice time. You can also just come by to say “hi!”

Feel free to email me with specific questions or concerns. Please put the class name in the subject line and sign your full name to the email. If you need to schedule a meeting with me outside of the above times, please email me to suggest 2 possible times/days to choose from. Any change to the regular meeting times will be posted on our D2L website. PLEASE DO NOT email through D2L as this will delay your time to get a response. Please allow 24 hours for a response on weekdays and 48 hours on weekends.

### Required Materials, Readings & Policies:

- **Lab activities.** These will be available *only* at the Course Website in Desire2Learn (<https://kennesaw.view.usg.edu>). They will include, but not be limited to, the exercises found in *Laboratory Materials to Accompany Biol 3300L for Fall Semester 2024, Kennesaw State University*. Check the schedule to be sure of the correct exercise you will be performing for a given week. **A printed copy or full-size, write-able tablet version is required for labs** that will be conducted face-to-face. Reading the lab manual and note-taking on a phone is not accepted for face-to-face labs.
- **Lab notebook.** By the second lab session, you must have a bound, hard-cover notebook (composition notebook, for example), NOT spiral bound. You *do not* need to purchase an expensive specialty lab notebook. Use it for this lab only. Use a pen for all entries.
- **Computer or tablet to bring to lab.** some assignments will be completed online in lab, so access to a device is important. A phone will not work for many assignments, so do not plan on using a phone. If you do not have a device, please let me know and also contact University Information Technology Services at 470-578-3555 to see if a device can be borrowed.
- **Computer and internet access.** Some lab assignments will be carried out partially or fully online out of class. If you do not have internet access or a device that can adequately access the internet, contact University Information Technology Services at 470-578-3555. Note that the GA Department of Community Affairs has compiled a listing of public WiFi hotspots

available throughout the state here: <https://broadband.georgia.gov/georgia-internet-access-covid-19-update>.

- **Turnitin.** Students agree that by taking this course all required papers/posters may be subject to submission for textual similarity review to Turnitin.com for the detection of plagiarism. All submitted papers will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. Use of the Turnitin.com service is subject to the Terms and Conditions of Use posted on the Turnitin.com site.
- **Face Masks in lab.** Everyone is welcome to wear a mask in the lab. Unvaccinated individuals are strongly encouraged to wear a mask to protect themselves and others. We will be working closely during lab, and masks can help protect everyone. <https://coronavirus.kennesaw.edu/>
- Review this syllabus and read the lab activity—and any other required reading described in the manual for the activity--before attending any lab (good science depends on knowing the experiment beforehand). Contact me if you have any questions.

## LEARNING OBJECTIVES

These Learning Objectives are important for your knowledge of genetics and the molecular biosciences.

By the end of the course students should be able to:

1. Demonstrate knowledge of genetics concepts and use this knowledge to make predictions and solve problems.
2. Use lab equipment to perform experiments and keep a lab notebook.
3. Produce and present a poster to explain one experiment, its results, and your conclusions.
4. Use critical thinking skills to analyze data to make a conclusion
5. Use computer tools to analyze data

## GRADING STRUCTURE

The overall course grade will be based on the following grading scheme:

Lab Notebook	25% of course grade
Pre-lab D2L quizzes (single lowest will be dropped)	10% of course grade
Post-lab D2L practice (single lowest will be dropped)	10% of course grade
1 Test	15% of course grade
1 Lab practical	15% of course grade
1 Poster	25% of course grade

Grade	*Total percentage
A	90% - 100%
B	80% - 89.99%;
C	70 – 79.99%;
D	60 – 69.99%;
F	below 60 %

\*Tests and overall grades are not “rounded up”

No extra credit will be given

## LABORATORY ATTENDANCE AND NOTEBOOK

*Attending each lab period is important!* (and required). The point of lab classes is to practice the art of science, not just read about it. Be aware that you may be dismissed from lab for failure to follow directions related to safety procedures.

1. **LAB DRESS CODE** When labs are held in-person, take on a professional mindset and *dress for lab*. We use lots of glassware and hazardous chemicals and must prevent or anticipate accidents. Students should be covered down to the ankle with the middle of the body completely covered, and toes and heels must be covered. High heels are not allowed. Shoes must cover the entire foot without gaps. Long hair must be tied back. Safety glasses are required. No headphones or earbuds may be worn. For practicability, this dress code applies for ALL labs, including “dry labs”. **If you are inappropriately dressed, you cannot attend lab.**
2. **ATTENDANCE** will be taken promptly at the beginning of lab. Plan to arrive just before lab begins and stay the entire period. Students who arrive after attendance is taken will receive a late penalty of 5 points deducted from their notebook grade. Students who leave early before lab is completed, will also receive a 5 point penalty to their notebook grade. The lab is complete when your instructor dismisses you. *You may be dismissed from lab for failure to follow dress code or for not bringing a copy of the lab activity instructions.*
3. If you miss lab for medical or legal reasons, provide official documentation for the absence to be excused and notify the instructor as soon as possible. It is usually not possible for a student to make up a missed lab activity outside of the regularly scheduled lab week period; it *may* be possible for a student to attend another lab section that same week, if arranged ahead of time and pending permission from both instructors. **If you know in advance that you must miss a lab for medical or legal reasons, contact me as soon as possible.** We strongly recommend avoiding even excused absences, which can have a significant negative impact on your lab grade. **Lab notebook points cannot be earned** and you will be at a disadvantage on the lab test. If you miss lab and it is not due to a medical or legal reason it is considered unexcused. Unexcused absences from *two* laboratory periods will result automatically in a final grade of "F" for the term, regardless of other work. Any combination of excused and unexcused absences from *three* laboratory periods will result automatically in a final grade of "F" for the term, regardless of other work
4. Entries in your LAB NOTEBOOK must be completed during every lab activity and either turned in or graded at the end of the lab period. Specific directions are provided in an additional instruction document, and each lab activity includes details of what to write in your notebook. Be sure to follow directions carefully as your notebook is worth 25% of your grade. **Lab notebook entries cannot be “made up” when you are absent** from the lab activity. Participation and completion of the “Poster Information Sheet” and showing progress on your poster during the poster work session counts as one lab notebook entry. Your instructor will inform you of any other “special” lab notebook assignments.

LAB NOTEBOOK points may be lost for:

- a) being late to lab or leaving early
- b) not having a printed copy of the lab, or a full size electronic copy (phones are not acceptable)
- c) not following or participating in clean-up for the activity
- d) off-topic phone/computer use

## PRE-LAB QUIZZES AND POST-LAB PRACTICE QUESTIONS

1. Pre-lab quizzes of 5-10 questions will be posted on D2L and available two days before the relevant lab. They are due 1 hour before lab time and may cover background information on the lab activity for the week as well as any problems you were asked to solve prior to lab. You will have one attempt to answer these questions, so be sure to carefully read the lab material before answering. Quizzes will be graded and results will be posted by the Monday of the week following each quiz. The single lowest pre-lab quiz will be dropped from your grade. Contact the helpdesk ([studenthelpdesk@kennesaw.edu](mailto:studenthelpdesk@kennesaw.edu) 470-578-3555) if you experience D2L problems. Pre-lab quiz points also include material in the lab handout that is assigned and to be completed BEFORE lab.
2. Post-lab practice questions, similar to questions found on the lab tests, will be posted on D2L. These questions are your chance to apply lab concepts and become familiar with our testing format. Your answers on these practice tests will be graded immediately and you will have an opportunity to correct them. The single lowest post-lab quiz will be dropped from your grade. Contact the helpdesk if you experience D2L problems.
3. Like homework, the post-lab practice questions are intended for you to refine thinking skills on your own, at home. It is in your best interest to do your own work and to treat these questions as if they were real test questions. The true value is in being able to do well on your own, and not just getting the right practice answers through someone else or AI. The same is true for when you are conducting the actual lab; don't let your lab partner do all the activity/learning.

## LAB ASSESSMENT POLICY

1. One midterm test is scheduled (see schedule for date and content covered). It will be in multiple choice format and is worth 15% of the final grade. Bring a laptop or tablet (not phone) with Respondus Lockdown to take the test. Please contact me in advance if you are unable to take the test on a device.
  - a. Make-up tests are given for excused absences only (see above). Make up exams may be of any format and will feature new questions. For excused absences, the student must notify the instructor of the absence within 24 hours of the original test and arrange a make-up test within one week of the missed lab test. After this a grade of 0 will be recorded. There are no make-up tests for unexcused absences.
2. One lab practical is scheduled (see schedule for date) and is worth 15% of the final grade. During this test, you will demonstrate the lab skills you have learned (for example, using the pipette aids; see study guide). For this reason, it is important that you learn how to use all of the equipment in the lab correctly.
3. You will work in a group to complete and present a poster on one of our experiments. Specific directions are provided in additional documents on D2L. The poster will help you learn how to effectively communicate scientific information in writing and verbally. A draft of the poster is worth 5% of your grade, the presentation is worth 5%, the final poster is worth 10%, and peer grades from your poster work group are worth 5%. If you do not complete the peer grades for your group, you will receive a 0 for your peer grade (regardless of the grade your peers assign you).

4. An optional comprehensive lab final will be given during the final exam period. This assessment is a *cumulative* test that can be used to replace your score on the midterm written test. Only the highest score will be used, so taking the cumulative final cannot lower your grade. It also cannot be used to replace a test that was not taken.
5. If you believe there is a problem with a grade posted in D2L, please contact me within 7 days of the grade being posted.

## FREQUENTLY ASKED QUESTIONS:

### What is the best way to get an A in this course?

- Read the labs ahead of time (as required). *Paraphrase the material in your own words* as you go along. If terms are unfamiliar, be sure to learn them. If this were a true investigation, you wouldn't conduct it on the fly, would you? Reading ahead of time enhances your learning during lab--you know what to look for, what the overall purpose is, and where you are going. This prevents mistakes and ultimately saves you time, during the activity itself and again at test prep time.
- *Be proactive about your own learning; don't let your lab partner do all the lab activity.* If you are passive during lab, you are missing out on that time. It is better to learn when you are in lab with your peers and instructor rather than at home the night before the test.
- *Don't count on the optional cumulative final to replace a lower grade!* It is FAR easier to do well on the regular midterm (covers 4-5 labs) than to do well on the cumulative final exam. Only 10% of students who take the optional cumulative final improve their grade by taking it.
- Although pre-lab quizzes and post-lab practices only account for 20% of the course grade, be sure to complete these! Earn the full 20% for this component of your grade.

### Can I do extra credit or substitute work?

No substitute work can be submitted in lieu of a missed lab or lab test, and there are no extra credit opportunities.

### KSU Writing Center

The KSU Writing Center is a free service offered to all KSU students. Experienced, friendly writing assistants work with you throughout the writing process on topic development, revision, research, documentation, grammar, and more. For more information or to make an appointment, visit <https://writingcenter.kennesaw.edu/index.php> or stop by Room 242 in the English Building.

## **POLICY CONCERNING CHANGES TO THE SYLLABUS**

Any changes in the syllabus will be announced in lab and posted as an announcement at the course website in D2L. An updated syllabus will also be posted on the course website.

## **COURSE WITHDRAWAL POLICY**

Students are solely responsible for managing their enrollment status in a class; nonattendance does not constitute a withdrawal.

Students who withdraw from courses before the withdrawal deadline **Oct. 25th**, as specified by the academic calendar will receive a grade of W. A student who officially withdraws from a course will receive a grade of “W” and receive no credit.

Students may drop one, some, or all of their classes during the drop/add period. Courses dropped in this manner do not appear on a student’s transcript and are not considered as hours attempted for financial aid purposes. No grade is assigned for such courses. However, a student who wishes to withdraw from a course after the last day of the drop period for a term must withdraw through Owl Express. Students with an active registration hold on their record must clear that hold before being able to withdraw from their coursework.

If a student experiences significant personal hardship (e.g., medical or family emergency, prolonged illness), the Dean of Students can approve a hardship withdrawal from all courses in the term for which the student is currently registered. In the case of an approved hardship withdrawal from all courses, the Registrar will assign grades of “W” for those classes. The deadline for final approval of a hardship withdrawal by Dean of Students is the last day of class for which the hardship withdrawal is sought. If the hardship withdrawal process is not complete by the last day of class for which the hardship withdrawal is sought, a student must appeal for a retroactive hardship withdrawal from the Academic Appeals Committee.

Appeals for retroactive hardship withdrawals must be directed to the Academic Standing Committee. Retroactive hardship withdrawals are rarely granted if it has been more than one year since the last day of class for which the withdrawal is sought. Extraordinary justification must be shown. In the case of approved retroactive hardship withdrawals, the Registrar will assign a grade of “W.”

If a student is suspended by the Office of Student Conduct following a violation of the University’s Code of Conduct not related to academic dishonesty, the Office of Student Conduct may facilitate a University-initiated withdrawal from courses for which a student is registered for the term. The Registrar will assign grades of “W” for those classes.

A student will receive a refund only when the student withdraws from ALL courses for the applicable semester and only by the schedule outlined in the University refund policy.

Students should be aware that a reduction in their hours might result in the loss of full-time student status and thus affect their financial aid, scholarships, athletic and ticket eligibility, University housing accommodations, use of University resources and access to University facilities, immigration status for international students, and Veterans Educational Benefits. Students should contact the appropriate office and their academic advisor with questions about the impact of their withdrawal from a course before initiating a withdrawal. Veterans and dependents of veterans who receive educational benefits must notify the Veterans Education Benefits Area in the Office of the Registrar of any course load reductions.

### **Military Withdrawals**

A student will receive a “WM” symbol for all courses and a full refund of tuition and mandatory fees and a pro rata refund of other fees for military and other service, as defined by BOR Policy Manual, Section 7.3.5.3. To request a military withdrawal, the student must submit a copy of official orders to the Office of the Registrar.

### **INCLEMENT WEATHER POLICY**

If the University is CLOSED, there will be no lab. Otherwise lab will meet as scheduled. For the official status of the university check the KSU website: <http://www.kennesaw.edu/> and click on “Campus Advisories” under the Quick Links tab of Online Resources.

The University will announce campus closures and delayed schedules in several ways. The cell phone number on file with the university will automatically receive KSU Alerts, so make sure your information in OwlExpress is accurate at all times. An email will also be sent to your university account.



## **ACCOMMODATION FOR STUDENTS WITH DISABILITIES:**

Students with qualifying disabilities under the Americans with Disabilities Act (ADA) and/or Section 504 of the Rehabilitation Act who require “reasonable accommodation(s)” to complete the course may request those from Office of Student Disability Services. Students requiring such accommodations are required to work with the University’s Office of Student Disability Services rather than engaging in this discussion with individual faculty members or academic departments. If, after reviewing the course syllabus, a student anticipates or should have anticipated a need for accommodation, he or she must submit documentation requesting an accommodation and permitting time for a determination prior to submitting assignments or taking course quizzes or exams. Students may not request retroactive accommodation for needs that were or should have been foreseeable. Students should contact the office as soon as possible in the term for which they are seeking accommodations. Please visit the [Student Disability Services \(SDS\) website](#) for more information, or call the office at 470-578-2666 (Kennesaw campus) or 470-578-7361 (Marietta campus). Please present documentation from SDS to your instructor.

## **KSU’s ACADEMIC INTEGRITY POLICY**

Every KSU student is responsible for upholding the provisions of the Student Code of Conduct, as published in the Undergraduate and Graduate Catalogs. Section II of the Student Code of Conduct addresses the university’s policy on academic honesty, including provisions regarding plagiarism and cheating, unauthorized access to university materials, misrepresentation/falsification of University records or academic work, malicious removal, retention, or destruction of library materials, malicious/intentional misuse of computer facilities and/or services, and misuse of student identification cards. Incidents of alleged academic misconduct will be handled through the established procedures of the Department of Student Conduct and Academic Integrity (SCAI), which includes either an “informal” resolution by a faculty member, resulting in a grade adjustment, or a formal hearing procedure, which may subject a student to the Code of Conduct’s minimum one semester suspension requirement. See also <https://scai.kennesaw.edu/codes.php>

The College of Science and Mathematics encourages our students to use technology to help them learn. However, it is important for students to understand the difference between appropriate collaboration and inappropriate uses of technology for plagiarism and cheating. Students who participate in group texts or other group conversations through mobile apps such as GroupMe or WhatsApp are subject to consequences if any member of that group is found to plagiarize material or facilitate cheating. By virtue of membership in the conversation or participation in the group, any student who is part of a group conversation where cheating or plagiarism occurs may receive the same penalty as students who actively cheat within the group. Additionally, any students who are found to purchase, sell, or otherwise distribute or collect existing course material are also subject to academic dishonesty hearings. This includes the use of Quizlet, Hero, and individual or student organization files (e.g. test, quiz, assignment, or other).

Using AI (ChatGPT or other) is NOT allowed unless specific permission is given by the instructor. Use of AI may result in a grade of ZERO for the assignment and a report to SCAI. Be advised that AI tools frequently provide irrelevant or incorrect information. Additionally, the information provided is based on published materials and must be cited to avoid plagiarism. To avoid these issues, you should submit your own work.

Additional KSU policies for all courses can be found at the [KSU Syllabus Information](#) website.



**Fall 2024 Genetics Lab Schedule.** This is a tentative schedule, and changes may be announced in lab, on D2L, or by your KSU email.

Note that the date indicated in “Week of” only refers to the Monday of each week. Lab is organized on a weekly schedule. Our lab will meet at its scheduled day (not necessarily a Monday) and time for which you registered

Week	Week of	Lab activity	Notes
1	Aug 12	Introduction and orientation	Bring your computer or tablet; Obtain a lab notebook for week 2
2	Aug 19	Lab 1A: Model Organism Genetics	Bring a copy of Lab 1A and your lab notebook to lab
3	Aug 26	Lab 1B: Model Organism Genetics	Bring a copy of Lab 1B to lab
4	<b>Sept 2</b>	No Lab (Labor day)	
5	Sept 9	Lab 2: Molecular Lab Practices	Bring a copy of Lab 2 to lab
6	Sept 16	Lab 3: Hemoglobin Analysis	Bring a copy of Lab 3 to lab and your computer or tablet
7	Sept 23	Lab 4: Plasmid Digestion	Bring a copy of Lab 4 to lab and your computer or tablet
8	Sept 30	Lab Practical 1; Test 1	Bring your computer or tablet; Bring your lab notebook to lab
9	Oct 7	Lab 5A: Genetics of Taste 1	Bring a copy of Lab 5 to lab
10	Oct 14	Lab 5B: Genetics of Taste 2	Bring a copy of Lab 5 to lab; collect a water bottle for next week’s lab
11	Oct 21	Lab 6A: Environmental DNA 1	Bring a copy of Lab 6 to lab and your water sample; <i>Last day to withdraw Oct 25</i>
12	Oct 28	Lab 6B: Environmental DNA 2	Bring a copy of Lab 6 to lab and your computer or tablet
13	Nov 4	Poster preparation and Genetics of Taste (PTC tasting)	Bring a copies of Labs 5 and 6 to lab; Bring your computer or tablet; <i>Completed poster draft due in 1 week</i>
14	Nov 11	Lab 5C: Genetics of Taste 3	Bring a copy of Lab 5 to lab; Turn in completed poster draft on D2L
15	Nov 18	Poster presentations	Turn in revised poster on D2L; bring computer or tablet
	<b>Nov 25</b>	No lab (fall break)	
Finals begin	Dec 3-9	Optional cumulative test	

to perform the activity scheduled for that week.