BIOS 2600: Genetics - Summer 2026

BIOS 2600 - ES (3 credit class)

May 18 – June 22, 2026

MTWR 12:30 – 2:40 PM Ford Environmental Science & Technology Room L1125

Instructor Information

Instructors	Email	Office Hours & Location
Hannah Smith, PhD (Inst)	hannah.smith@biosci.gatech.edu	Thursdays 10-11am, Boggs 1-90J
Lindsey Tucker (TA)	ltucker49@gatech.edu	By appointment, IBB 2B Wing

General Information

Course Description

This is a course that covers Mendelian and molecular genetics, principles of inheritance, gene structure and function, foundations of recombinant DNA technology, and the genetic basis of variation and evolution.

Course Goals and Learning Outcomes

By the end of this class, students will be able to: **(1)** understand fundamental and applied concepts in genetics, **(2)** apply biological principles to solving genetics problems, **(3)** interpret and analyze experiments in genetics, **(4)** explain methods and techniques use in genetic analyses, and **(5)** explain how biological information is stored and transmitted.

Prerequisites

Undergraduate Semester level BIOS 1107 (*Minimum Grade of D*) and Undergraduate Semester level BIOS 1107L (*Minimum Grade of D*) **OR** Undergraduate Semester level BIOS 1207L (*Minimum Grade of D*) **OR** Undergraduate Semester level BIOL 1510 (*Minimum Grade of D*) **OR** Undergraduate Semester level BIOL 1511 (*Minimum Grade of D*).

Course Structure

Class will generally be delivered by in-class lecture/discussion but will be supplemented with homework through Mastering as well as some in-class group work. **In-class lectures will not be recorded and in-person attendance is recommended.**

Course Requirements & Grading

Description of Graded Components

Homework: Will be posted via Mastering after class on Thursdays and is due by the following Thursday. Each homework will be graded for **accuracy**, but you will two attempts and will keep the higher score. Each student may drop up to two (2) homeworks with no excuse needed. There will be no additional drops beyond two without instructor approval under extreme circumstances.

In-class activities: Our classroom community is strengthened by your active participation in Q/A sessions, in-class assignments, and group activities. These are designed to increase your comprehension and capacity to speak intelligibly about important topics in genetics.

In-class quizzes: Will be held at the beginning of each class. Questions may be comprised of a variety of question types including: true or false statements, fill in the blank, multiple choice, definitions, short answer, and simple problems and will be graded for **participation only**. Each student may drop up to two (2) in-class quizzes with no excuse needed. There will be no additional drops beyond two without instructor approval under extreme circumstances.

Exams: Will cover lecture materials and assignments, and will include questions of various types (problems, definitions, true/false statements, list and describe questions, multiple choice questions, short answer). All exams will be timed to **80 minutes** (note this is 30 min shorter than a regular class period) and will be taken **in class on Canvas via LockDown Browser** in a closed book, closed internet format unless otherwise indicated. See course schedule below for exam dates. **We will offer exam corrections after each exam for +5 points back to your exam score.**

Your grade will be determined by a combination of quizzes, in-class activities, and online homework assignments combined with in-class exams. The relative value of these assessments are:

Assignment	Date	Weight (Percentage, points, etc)
HWs & In-class activities	Throughout the semester	20%
Quizzes	Start of class	8%
Exam I	May 26	18%
Exam II	Jun 3	18%
Exam III	Jun 11	18%
Exam IV	Jun 22	18%

Grading Scale

Your final grade will be assigned as a letter grade according to the following scale:

A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	0-59%

Course Materials

Course Text

9780135323465 Concepts of Genetics - With Access (Looseleaf) by Klug, William S. / Cummings, Michael R. / Spencer, Charlotte A. (If you can access digital text – that is easiest)

9780135313893 Concepts of Genetics - Modified Mastering Access by Klug, William S. (ELECTRONIC PRODUCT).

Course Website and Other Classroom Management Tools

All lectures and any outside materials will be posted on Canvas. It is **highly recommended** that students take notes to supplement their understanding of lecture content and outside materials.

Course Schedule *This schedule is subject to change!*

Week	Date	Topic	Chapter(s)
1	18-May	Introduction & Knowledge Assessment; Mitosis and Meiosis	1, 2
	19- May	Mendelian Genetics, Alleles and Allelic Interactions	3, 4
	20- May	Chromosome Mapping in Eukaryotes	5
	21- May	Genetic Analysis in Bacteria & Bacteriophages	6
2	25- May	**Memorial Day - NO CLASS**	
	26- May	**EXAM I**	
	27- May	Sex Determination and Sex Chromosomes, Chromosome Mutations	7, 8
	28- May	Extranuclear Inheritance	9
3	1-Jun	Recombinant DNA technology	20
	2-Jun	Population and Evolutionary Genetics	26
	3-Jun	**EXAM II**	
	4-Jun	DNA Structure and Analysis	10
4	8-Jun	DNA Replication and Recombination	11
	9-Jun	DNA Organization in Chromosomes	12
	10-Jun	Transcription/RNA modification	13
	11-Jun	**EXAM III**	
5	15-Jun	Translation and Proteins	14
	16-Jun	Gene Mutation & DNA Repair	15
	17-Jun	Gene Regulation in Bacteria	16
	18-Jun	Gene Regulation in Eukaryotes	17, 18
6	22-Jun	**EXAM IV**	

Course Expectations & Guidelines

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. For information on Georgia Tech's Academic Honor Code, please visit http://www.catalog.gatech.edu/policies/honor-code/ or visit http://www.catalog.gatech.edu/rules/18/.

Any student suspected of cheating or plagiarizing on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations. Please note that all quizzes must be taken in the classroom. Attempts to take the quizzes outside of the classroom, or facilitating other students taking the quizzes outside of the classroom, will be considered cheating.

Accommodations for Students

If you are a student with needs that require special accommodation, please contact the Office of Disability Services at (404)-894-2563 or http://disabilityservices.gatech.edu/ as soon as possible to make an

appointment to discuss your needs and to obtain an accommodations letter. Please also e-mail us as soon as possible in order to set up a time to discuss your learning needs.

Attendance and Participation Policy

Class time will be used for lectures, quizzes, group activities, and exams. If you miss a class, you are responsible for obtaining all notes, announcements, and assignments. **If an assessment is missed, written documentation of a legitimate excuse will be evaluated by the instructors.** Medical documentation should be submitted to the Dean of Students (https://studentlife.gatech.edu/request-assistance) and **not** to the instructional team. **The institute's excused absence policy will be enforced in this course (http://www.catalog.gatech.edu/rules/4/).**

Collaboration & Group Work

Our classroom community is strengthened by active participation from all students. We work hard to create an engaging and inclusive space, and we encourage you to contribute positively to our classroom community by participating in group activities and in-class discussions (see in-class activities).

Extensions, Late Assignments, & Re-Scheduled/Missed Exams

Each student has access to one (1) late token, which allows an assignment to be turned in up to three days late with no penalty. To use a late token for a heomwork assignment, please email us **at the time of the submission with the assignment in question** stating that you are using your late token**.** Any assignment turned in after the deadline (without use of a late token) will not be awarded credit. Students that need to miss any assignments/exams for approved Institute activities and religious observances should first discuss with the professor to be excused for any missed credit. See http://www.catalog.gatech.edu/rules/4/ for more information. **You are responsible for being present for all exams and quizzes and should plan ahead accordingly if you know you will miss an exam.** Please coordinate with Dr. Smith at least a week in advance to schedule a makeup exam.

Student-Faculty Expectations Agreement

At Georgia Tech we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. See http://www.catalog.gatech.edu/rules/22/ for an articulation of some basic expectation that you can have of us and that we have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, we encourage you to remain committed to the ideals of Georgia Tech while in this class.

Student Use of Mobile Devices in the Classroom

Lecture is a time when we all work together, so be courteous to your fellow students and do not disrupt class by entering and leaving the room, reading, talking, allowing cell phones to ring, etc. ***In addition, while in class, do not use your electronic devices (laptops, tablets, smartphones, etc.) for activities unrelated to class.***

AI Policy

AI may be used in any non-exam assignment for this course, but any use of AI must be acknowledged appropriately. You should include a Canvas comment with the following information: a) identify the AI you used; b) describe how you used it/what you used it for; c) state the reason you chose to use AI in this way; d) describe what steps you took to verify the accuracy of the AI output. A separate entry should be included for each AI platform that you used. Any indication that AI was used without proper acknowledgement may result in referral to OSI for investigation of academic misconduct. With any use of AI, you should always scrutinize any editing or response you get from the AI; although AI tools are becoming more sophisticated

and can generate answers to increasingly complex questions, this does not mean that they are the correct answers.

Campus Resources for Students

At Georgia Tech, we are concerned about your overall physical, social, and mental well-being. A comprehensive list of wellness related resources has been compiled and maintained by the Office of the Vice President for Student Engagement and Well-being and can be found here: https://students.gatech.edu/student-resource-guide

Statement of Intent for Inclusivity

As members of the Georgia Tech community, we are committed to creating a learning environment in which all of my students feel safe and included. Because we are individuals with varying needs, we are reliant on your feedback to achieve this goal. To that end, we invite you to enter into dialogue with us about the things we can stop, start, and continue doing to make my classroom an environment in which every student feels valued and can engage actively in our learning community.