BMED 3600 Cell and Molecular Physiology Syllabus – Spring 2027

Section A lectures (all students): M/W 2-2:50pm, MoSE G011
Section A01 PSS: Thursday 3:30-5:25pm, Whitaker 1232
Section A02 PSS: Friday 8:10-10:05am, Whitaker 1214
Section A03 PSS: Friday 12:30-2:25pm, Whitaker 1214

Instructor Information

Instructors	Email
Dr. Laura Christian, course coordinator	laura.christian@gatech.edu
Dr. Leslie Chan	leslie.chan@gatech.edu
Dr. Alex Vlahos	alexander.vlahos@bme.gatech.edu

Teaching assistant contact info and all office hours will be provided on Canvas once finalized.

General Course Information

Description

Our goal is to prepare you to understand current cell and molecular biological technologies and apply them to current, real-world problems. In order to do this, you will need to understand the basics of cell biology, for both single cells and groups of cells. More specifically, we will be discussing the building blocks of cells, gene expression and genetic engineering, the organization and function of organelles, cell signaling, the cytoskeleton, the cell life cycle, the extracellular matrix, and how diseases such as cancer come from disruptions of the typical functions of these systems. We really love teaching this class!

Pre- &/or Co-Requisites

CHEM 1315 OR CHEM 2311, or BMED 3100 if taken prior to Summer 2026.

Learning Outcomes

Upon successful completion of this course, you will be able to:

- Demonstrate knowledge of cellular systems including gene expression, organelles, cell signaling, the cytoskeleton, the cell life cycle, and the extracellular matrix.
- Apply knowledge gained in the course to interrogate or solve cell biological problems.
- Read and analyze relevant scientific literature.
- Design rational experimental approaches toward treating a disease.
- Communicate clearly about cell biology in written and oral formats.

Course Requirements & Grading

Assignment	Weight %
3 exams + Final	15% each, 45% total - lowest score dropped
PSS participation	10%
Homework	15%
Group project	25%
Lecture participation	5%

Your final grade will be assigned as a letter grade according to the following scale. No extra credit will be given on an individual basis.

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

BMED 3600 is designated as High-Impact Practice (HIPs) course. HIPs courses are intentionally designed to provide significant educational benefits to students, including deeper learning, personal development, and greater academic engagement. Often these courses include active or experiential learning components and integrate opportunities for collaboration and reflection. For additional information about High-Impact Practices please visit Transformative Teaching and Learning

Description of Graded Components

Exams 1-3 and the final exam are each worth 15% of your grade, and the lowest score among these 4 exams will be dropped. Makeup exams will only be given if discussed at least one week in advance and with an Institute Approved Absence. If you are unable to take an exam with less than one week's notice, that exam becomes your dropped score. If you miss more than one exam you must speak with the faculty. The format for each exam will be an even mix of multiple choice and written answer. They are taken on paper, in person in the lecture classroom. You will take a picture of your exam and upload the picture to Gradescope, through Canvas, for grading, as well as turning in the paper. The final exam will be cumulative, but unlike the other exams it will be open note/book. When you study, we highly recommend that you handwrite an outline or concept map of all the relevant information for the exam, combining many resources into your own set of notes in your own words. This takes a long time, but the process of figuring out what to write and writing it is a valuable learning tool. This is how Dr. Christian studied for her biology exams.

PSS participation will be measured by your attendance at the PSS section you are registered for and by your engaged participation during PSS. During PSS, you will use your knowledge from the coursework to solve complex or open-ended problems with a small group. Your work will not be graded for accuracy. Feedback from your peers will be considered as part of this grade. Each week, you will rotate roles for your group. With 4 students, one will take the role of writer, one illustrator, one researcher (they may look up information using class materials), and one questioner. PSS work must be submitted on Canvas. If you have an excused absence (through an Institute Approved Absence or the Dean of Students), you can receive participation credit by making up the PSS by attending another section with permission, or by meeting with an instructor or TA to explain your answers to the PSS questions within one week.

Homework – this course requires you to prepare for PSS as well as exams. There will be a homework due each week and each section will have the due date prior to their meeting time. In some weeks, you'll watch a short video outside of class time to prepare for the activities you will do during PSS. These videos have "quizzes" associated to help you check your understanding. Other weeks, you'll be assigned more "traditional" style homework questions. For any multiple choice questions on these types of assignments, you will have two attempts to answer them correctly. For any short answer, calculation, or drawing questions, your last submission will be graded. All homework will be accessed through Canvas.

Group project – the topic for this semester's group project will be gene and/or stem cell therapy. You will be assigned to a group (taking into account your preferences where possible). Your group will receive feedback on at least one draft. You will also submit a final paper and create a poster to present your work during a PSS session.

Course Materials

Required Course Materials

Essential Cell Biology, 6th Edition, Alberts et al. If you choose to use an older edition of this book, you are responsible for determining the corresponding sections.

We will use PointSolutions during lectures to monitor your understanding of course material, and to take attendance.

All other course materials will be available on Canvas.

Course Policies, Expectations, & Guidelines

Attendance and Participation

Attendance and participation in lecture is expected. Many studies have shown that class attendance is critical for student learning. Students who participate in class will receive additional learning opportunities beyond listening to lecture. During lectures, your responses to in-class questions will be recorded using PointSolutions. The in-class questions are a record of your participation and are not graded for accuracy.

Attendance and participation in PSS is expected. The PSS sessions are designed to help you apply basic knowledge from the course to solve complex and interesting problems.

You can miss up to 2 lectures and 1 PSS for any reason with no penalty. An institute-approved excuse note for any additional absences can be requested here: https://new.iaa.gatech.edu/info/ or through the Dean of Students Office.

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. Review Georgia Tech's Honor Code and the student Code of Conduct.

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.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services (404-894-2563) as soon as possible to make an appointment to discuss your special 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.

Collaboration, Group Work, and Use of Generative AI

Course problems may be discussed amongst classmates, but any written work turned in must be a student's own ideas and writing - **do not copy long phrases or sentences from other resources, including generative AI resources such as Copilot, ChatGPT, etc**. We treat generative AI tools essentially as classmates. You are responsible for the relevance, accuracy, and integrity of all content that you turn in. For each assignment, we require you to disclose any use of AI. Failure to do so will be considered Academic Dishonesty and will be reported to the Office of Student Integrity. Please do not use any of these tools to answer PSS questions – this short circuits your learning. Learning is hard work!

Exams 1-3 are closed note, closed book, closed internet, and closed "friend"; the final exam is open note and open book only. Group projects and PSS sessions are meant to be collaborative. Students choosing not to meaningfully and effectively collaborate on these assignments will not receive credit for the work of their teammates. Cheating or plagiarism on any assignments or exams will be handled by the Office of Student Integrity.

Extensions, Late Assignments, and Regrades

Please contact your instructor AS SOON AS POSSIBLE if you cannot complete an assignment on time. We are willing to make reasonable accommodations, especially for things such as approved institute activities, emergencies, or religious observances. The key here is that you need to communicate! Without any communication and/or approval, assignments will be accepted up to 48 hours after their due date, but 25% of the points will be deducted each day. Assignments more than 48 hours late without communication get a 0. Extensions can only be granted for up to one week. No makeup exams will be given - see the policy above.

Any assignment that you think has been graded in error must be brought to the attention of your instructor no later than 7 days after you have received your grade. We reserve the right to lower the overall assignment score if we find that assignment parts have been given credit and are in fact incorrectly answered.

Inclement Weather and Digital Learning Days

In case of inclement weather, Georgia Tech may declare a Digital Learning Day. Any lectures on these days would move online during class time. We would also move PSS to be virtual on these days.

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. The Student-Faculty Expectations articulate some basic expectations 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

The use of laptops is permitted in lecture. We will be using laptops/phones to participate in class surveys/PointSolutions questions during regular lecture times. Please do not use your laptop or phone to play games or otherwise take your mind off lecture. It is truly distracting to other students and is not respectful to a learning environment. Students who are disruptive with their devices will be asked to put them down or turn them off. The use of laptops and phones will only be permitted in PSS on specific occasions.

Additional Course Policies

Campus Resources for Students

Student mental (and physical) health is very important to us. If you find yourself in a situation and are not sure how you might get some help, our door (or virtual door) is open. Asking for help is a strength, not a weakness. Georgia Tech has many resources that may be useful, so please ask if you'd like to know more. We know firsthand the pressures of succeeding at Georgia Tech (Dr. Christian and Dr. Chan having graduated from here) and even seemingly small problems can take their toll on your ability to do your best. At least one of our faculty members is SafeZone trained to support LGBTQIA+ students and we are happy to use a name for you other than the one displayed on Canvas. If you are reading this in detail, email Dr. Christian a picture of a dog for an extra credit point.

Undergraduate Student Academic Success Resources:

A list of resources for undergraduate students' academic success and information about advising can be found at Success at Tech. This includes supplemental review (PLUS) sessions, and one-on-one appointments.

Student Wellness Resources

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 (student-resource-guide)

Course Schedule

The final course schedule will be published on Canvas.