

Course Description:

You will use current methods in cell and molecular biology to explore fundamental aspects of cell biology with the mouse macrophage cell line, J774, as a model system. We will perform a series of experiments to examine changes in cell morphology, viability, and gene expression in these cells in response to treatment with an immunomodulatory compound.

Learning Objectives:

By the end of this course, you should be able to:

- Perform specific modern cell and molecular biological techniques
- Differentiate between scientific hypotheses and predictions
- Recognize and apply elements of experimental design
- Graphically and statistically analyze and represent data to support or reject a hypothesis
- Convincingly and accurately communicate your hypothesis, experimental tests of that hypothesis, and analysis and interpretations of results

Required Course Materials:

Students are required to provide their own spiral-bound or composition notebook, lab coat, and safety glasses or safety goggles. Regular eyeglasses are not sufficient protection. Lab coats and compliant safety glasses may be purchased from the GT bookstore. Note that this course requires that you print materials periodically for in-class assignments and activities. You can find access to campus printers for students here: <https://getonline.gatech.edu/printers> **Links to an external site.** (select "Find a Printer")

Grading Policy and Weighting:

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| • Attendance, participation, lab notebooks, and in-class activities | 10% |
| • Experimental design & analysis plans approximately 8% each; see #1 below) | 25% |
| • Pre-lab assignments | 5% |
| • Experimental methods | 5% |
| • Project updates (approximately 8% each; see #2 below) | 25% |
| • Annotated bibliography and Literature Review | 10% |
| • Final Research Paper | 20% |
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1. Experimental design plans will be weighted as 14%, 8%, 3%, where your highest score will count 14% and your lowest score will count 3% of your final grade
 2. Project updates will be weighted as 11%, 8%, 6%; where your highest score will count 11% and your lowest score will count 6% of your final grade

Final letter grades will be assigned according to the following scale:

A: $\geq 90.0\%$

B: $\geq 80.0\%$ and $< 90.0\%$

C: $\geq 70.0\%$ and $< 80.0\%$

D: $\geq 60.0\%$ and $< 70.0\%$

F: $< 60.0\%$

The above scale is the most stringent we will use, and you are not competing with anyone for your grade.

Course Policies**Lab Safety:**

Safety policies are mandated by federal, state, and institutional rules. For every wet (experimental) lab, you must wear your lab coat, long pants, close-toed shoes, and tie back long hair. At the beginning of each lab, your TA will alert you to any potential hazards. You will lose all participation points and may be given an unexcused absence if you violate any safety policies.

Failure to bring the required PPE for in-person labs will result in denial of admission to labs with grade penalties associated with an unexcused absence for missing lab. Refusal to comply with proper PPE usage or any direct safety-related instructions from the TAs will result in an unexcused absence and grade penalty.

The following safety policies are non-negotiable:

- You must wear shoes that cover your feet entirely (i.e., no flip flops, ballet slippers, or sandals). You will not be allowed to enter the lab without appropriate footwear.
- No food or drinks, including water bottles.
- No cell phone use, including texting (phones must be silenced and off the lab bench).
- Clean up your lab station at the end of lab and report any mess left behind from previous lab sections to your TA.
- Properly dispose of trash, glassware, and biohazard waste. Other people's safety may be compromised by your negligence.
- During "wet labs" (experimental labs) you must wear long pants to the ankle, your lab coat and safety glasses, and long hair should be tied back. Your TAs will indicate when gloves are necessary. **Students must provide their own lab coats and safety glasses.** Safety glasses or goggles must offer side splash protection in order to comply with lab safety requirements; regular eye-glasses are NOT sufficient, and safety glasses or goggles must be worn over regular prescription glasses. Compliant safety glasses or goggles can be purchased from the Georgia Tech Bookstore. Disposable nitrile gloves are provided in lab.
- Computers may NOT be open or used during experiments. All resources needed to conduct the experiment must be kept in a paper lab notebook.
- Follow additional safety procedures for specific lab activities as indicated by your TA.
- **Report all injuries or accidents to your TA immediately.**

Attendance and Participation:

This course meets in person and has required attendance; 100% attendance is expected for each lab for the entire lab period.

Participation includes three components:

- Participation in each laboratory session: Each lab session is worth 3 points, and full credit will be assigned to students who arrive on time and are fully prepared for class and to actively participate in bench-work and class/group discussions. Arriving late and/or failing to fully participate in class may result in a participation point penalty. *A safety violation or an unexcused absence will result in the loss of all participation points for that lab, and your final grade will be lowered by half a letter grade.*
- Completion of in-class activities: Some lab sessions will include participation-credit assignments which must be completed during the lab session. These in-class activities are typically worth 3 points.
- Complete lab notebooks: Lab notebooks will be maintained in spiral-bound or composition notebooks. Lab notebooks must contain your Experimental Design & Analysis Plans and the printed protocols should be taped into your notebook. Lab notebooks will be checked each experimental week, and each notebook checks is worth 3 points.

Absences:

Absences from lab may be considered excused or unexcused as outlined below. You should notify the instructor and your section TAs as soon as you are aware of any potential absence. If you miss a lab, you are still responsible for completing any associated assignments. Rather than missing an entire lab, it is always preferred that students request alternative options such as attending another lab, requesting to attend through virtual accommodation, or arriving late or leaving early; each of these alternatives will be considered on a case-by-case basis and are typically considered as one-time-only accommodations. Students are expected to be proactive in requests for any type of absence accommodation.

- **Excused absences:** Excused absence requests will be evaluated on a case-by-case basis and require appropriate documentation supporting the absence request. *Please note that any medical documentation should be submitted to the Dean of Students via the [Class Absence Verification Form](#) (select "Class Absence Verification") rather than to your course instructors.* Select "Class Absence Verification" for documentation of an absence, including missed exams. Examples of legitimate reasons to miss an exam include illness, illness or death in your immediate family, and participation in official university activities. Requests for makeup exams due to missed class for religious observances also require documentation and must be submitted to the Registrar's Office using the Instituted Approved Absence Form **within the first two weeks of the semester** as per the Registrar's Office guidelines: <https://registrar.gatech.edu/info/institute-approved-absence-form-for-students>. For excused absences, missed assignments and makeup lab assignments will typically be due within one week of the original due date.
- **Unexcused absences:** There are no make-up opportunities for unexcused absences. Vacation, work commitments, social events are not considered acceptable reasons to miss lab. Each unexcused absence will lower your final grade by half a letter grade.
- **What to do if you are ill** If you are ill to the degree that you are unable to attend class and/or at risk of transmitting severe illness to others, then do not come to class. Instead, email your assigned TAs and Dr. Kerr immediately to communicate that

you will not be in class, and request to participate remotely in a virtual. *Virtual sessions are intended only as a short-term solution for students who are ill or are otherwise unable to attend in person, and approval via email is required in order to attend virtually. Students attending virtually are expected to participate fully in the virtual session.*

Academic Integrity:

Academic dishonesty in any form will not be tolerated. Be aware of your obligations and expectations associated with the Georgia Tech Academic Honor Code and Student Code of Conduct (<http://www.honor.gatech.edu>). Academic dishonesty includes cheating, lying about course matters, plagiarism, submitting someone else's work as your own, stealing classroom materials, or helping others commit a violation of the Honor Code. Consistent with the), refusal to comply with any safety requirements, including wearing safety glasses, will be considered a violation of the Non-Academic Misconduct Policy. Plagiarism includes representing the words or ideas of others as your own. Written assignments in this class will be reviewed by Turnitin. Submission of someone else's WORK or IDEAS as your own is not permitted. This includes any form of student work. When in doubt, ask your instructors and TAs for help..

Student-Faculty Expectations:

The Georgia Tech Student-Faculty expectations may be viewed here: <https://catalog.gatech.edu/rules/22/>

Students with Accommodations:

We will make classroom accommodations for students with documented accommodation needs per the Office of Disability Services. These accommodations should be arranged in advance and in accordance with the Office of Disability Services (<http://www.disabilityservices.gatech.edu>).