

**BIOS 4590 A: RESEARCH PROJECT LAB
COURSE SYLLABUS**

Instructor: Prof. Jeffrey Skolnick
EBB, 950 Atlantic Drive, NW, RM 2151
skolnick@gatech.edu

TA: Courtney Astore
courtneyastore@gatech.edu

Course summary: Presentation of the drug discovery process with emphasis on emerging systems biology and personalized medicine. Each student will pick a disease of interest, and go through the entire drug discovery process (virtually) to find a treatment.

BIOS 4590 A is a 3-credit course that meets on Monday and Wednesday with Lab from 12:30 - 3:15 PM followed Lecture on Monday from 3:30 - 4:20 PM. Both Lecture and Lab will be held virtually through Canvas.

Required text: Supplied reading list – ~25 peer reviewed journal articles. All articles can be found on Canvas. Additional reading will be provided depending on the interest of the class.

Office hours: By appointment. Please email or consult with the instructor during class or via e-mail to set up a virtual meeting.

Evaluation:

Mini oral presentation of selected drug target	25%
Major oral presentation of Results	30%
Research Paper	45%

Mini Oral Presentation: Will consist of 25% of your grade. The presentation will consist of a PowerPoint presentation of what disease you are targeting and which molecular target you have selected. You are expected to prepare a 10-minute presentation with 5-minutes for questions. The presentation will be timed, and you will be held to the 10-minute time limit. The order of presentation will be assigned at random. Both the instructor and the TA will evaluate your performance using the Oral Presentation Rubric. Your grade will be the average of the two evaluations. Proposed presentation dates maybe adjusted based on the flow of the class and the number of students enrolled in the course.

Major Oral Presentation of the Results: Will consist of 30% of your grade. In this presentation, you will present the results from your computational analysis of the predicted structure of your target protein, results from your representative small molecule library ligand screening and a justification of the top 5 molecules you have selected to move to animal screening. You are expected to prepare a 20-minute presentation with 10-minutes for questions. The presentation will be timed, and you will be held to the 20-minute time limit. The order of presentation will be assigned at random. Both the instructor and the TA will evaluate your performance using the Oral Presentation Rubric. Your grade will be the average of the two evaluations. Proposed presentation dates maybe adjusted based on the flow of the class and the number of students enrolled in the course.

Research Paper: Will consist of 45% of your grade. You are expected to write up your results in a 5-page paper using the format of the Science Magazine. You should describe the protein target selected, the relationship of this target to the disease you wish to treat, describe your modeling procedure, virtual screening results and results from a literature analysis that justifies which 5 ligand you believe would be most likely to bind experimentally. Your conclusion should describe what you have done, what are the limitations and what you would do next.

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 <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.

Each student is expected to work separately on their drug discovery project as these are unique to each student in the class. Students are encouraged to collaborate about information regarding on-line resources and aspects of the general drug discovery process.

Covid-19 guidelines: Given the high number of new Covid-19 cases in Georgia, we will start the semester with remote (online) instruction and keep it that way for the foreseeable future. The situation is dynamic, and we may well change to incorporate more in person contact at a later date. Additional information on campus Covid-19 guidelines can be found here: <https://provost.gatech.edu/syllabus-insert-requirements-and-guidelines-specific-fall-2020>

Accommodations for Students with Disabilities: If you are a student with learning needs that require special accommodation, 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 special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

Attendance and participation: While your attendance in each class is strongly encouraged as essential material may be provided during the lectures of either the professor or the presentations of your classmates, it will not be required nor graded.

Extensions, Late Assignments, & Re-Scheduled/Missed Exams: Class assignments for oral presentations are made well in advance of the presentation and you are expected to present at the assigned time. If for some reason, you cannot do so, please contact me in advance so that your presentation can be rescheduled. The paper describing your project is due on the last day of class at midnight, with no extensions given.

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 me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

Collaboration & Group Work: 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 me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

Student Use of Mobile Devices during the class: Students are expected to refrain from using mobile devices in the classroom with the exception of using said devices to search for course related information.

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

Support Services and Resources: In your time at Georgia Tech, you may find yourself in need of support. Below you will find some resources to support you both as a student and as a person.

Academic support

- Center for Academic Success <http://success.gatech.edu>
 - 1-to-1 tutoring <http://success.gatech.edu/1-1-tutoring>
 - Peer-Led Undergraduate Study (PLUS) <http://success.gatech.edu/tutoring/plus>
 - Academic coaching <http://success.gatech.edu/coaching>
- Residence Life's Learning Assistance Program <https://housing.gatech.edu/learning-assistance-program>

- Drop-in tutoring for many 1000 level courses
- OMED: Educational Services (<http://omed.gatech.edu/programs/academic-support>)
 - Group study sessions and tutoring programs
- Communication Center (<http://www.communicationcenter.gatech.edu>)
 - Individualized help with writing and multimedia projects

Personal Support

Georgia Tech Resources

- The Office of the Dean of Students: <http://studentlife.gatech.edu/content/services>; **404-894-6367**; Smithgall Student Services Building 2nd floor
 - You also may request assistance at https://gatech-advocate.symplicity.com/care_report/index.php/pid383662?
- Counseling Center: <http://counseling.gatech.edu>; **404-894-2575**; Smithgall Student Services Building 2nd floor
 - Services include short-term individual counseling, group counseling, couples counseling, testing and assessment, referral services, and crisis intervention. Their website also includes links to state and national resources.
 - *Students in crisis may walk in during business hours (8am-5pm, Monday through Friday) or contact the counselor on call after hours at 404-894-2204.*
- Students' Temporary Assistance and Resources (STAR): <http://studentlife.gatech.edu/content/need-help>
 - Can assist with interview clothing, food, and housing needs.
- Stamps Health Services: <https://health.gatech.edu>; **404-894-1420**
 - Primary care, pharmacy, women's health, psychiatry, immunization and allergy, health promotion, and nutrition
- OMED: Educational Services: <http://www.omed.gatech.edu>
- Women's Resource Center: <http://www.womenscenter.gatech.edu>; **404-385-0230**
- LGBTQIA Resource Center: <http://lgbtqia.gatech.edu/>; **404-385-2679**
- Veteran's Resource Center: <http://veterans.gatech.edu/>; **404-385-2067**
- Georgia Tech Police: **404-894-2500**

National Resources

- The [National Suicide Prevention Lifeline](http://www.nationalsuicideline.org) provides free and confidential support to those in suicidal crisis or emotional distress at 1-800-273-8255.
- The Trevor Project provides telephone (24 hours per day, 365 days per year) support to members of the LGBTQ+ community and their allies: <https://www.thetrevorproject.org>
 - Phone support: **1-866-488-7386**
 - Chat support (3-10pm ET, 7 days a week): <http://www.thetrevorproject.org>
 - Text support (3-10pm, Monday through Friday; text "Trevor" to **1-202-304-1200**)