MTH-3406-G-L Syllabus

Second Course in Linear Algebra, Section G and L

Fall 2026

Instructor Information

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General Course Information

Description

The main objective of the course is to develop higher-level understanding of linear algebra. Linear Algebra concepts and methods are fundamental in many STEM fields, where the first linear algebra course often suffices. The second course, such as Math 3406, becomes especially relevant in subjects like math and data science. We will begin by reviewing MTH1553/1554 materials, and further dive into the theoretical aspects that were overlooked. We will then tackle advance topics that will be the foundation for higher level mathematics and data science.

Course Learning Outcomes

- Extend the understanding of linear algebra from matrix to linear maps.
- Become familiar with writing proofs
- Understand the theoretical foundation, and connect it to the computational framework that was taught in MTH1553/1554
- Develop the skills to read mathematics. That is, develop the skills to understand concepts from different angles, and understand the core ideas of theorems.

Required Course Materials

All materials will be available on Canvas. No external textbook will be needed. MATLAB will be used in some homework, and will be available to all Georgia Tech students.

Grading Policy:

Category	Percent Breakdown	Total Points
Homework	20%	80
Attendance	5%	20
Midterm 1	25%	100
Midterm 2	25%	100
Final Exam	25%	100
Total	100%	400

Description of Graded Components

- Homework
    - There will be a weekly homework. The total sum of your homework will be your homework grade.
    - Any extra point you earn above 80 points will be converted to extra credit point with a conversion of 2:1. For example, if you have a total of 90 points, then the 10 extra points will be converted to 5 extra credit points
    - Some homework assignments will require MATLAB.
- Midterm 1 and 2
    - There will be 2 midterms, each worth 100 points during class
- Final exam
    - Final exam consists of 2 parts. The first portion is midterm 3, where contents after midterm 2 will be tested (100points)
    - The second portion is optional. It will be a cumulative exam, consisting of primarily midterm 1 and 2 content. If you score higher on this portion than your midterm, your lowest midterm grade will be replaced by the average of this exam and your lowest midterm grade.
- Attendance
    - There will be a 'pop quiz' to check for attendance. Full credit will be given for being present, and 2 extra credit point will be given for answering the problem correctly
- Grade breakdown:
    - D: 50%, C: 70%, B: 80%, A: 90%

Course Policies

Attendance and/or Participation

There will be a 'pop quiz' to check for attendance. Full credit will be given for being present, and 2 extra credit point will be given for answering the problem correctly.

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 plagiarism 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.

Core IMPACTS

Core IMPACTS is the University System of Georgia's General Education curriculum. If you are teaching a course that counts towards Core IMPACTS, you should include a syllabus statement about the Core area and associated career competencies. This resource developed by the Center for Excellence in Teaching and Learning and Online Education at Georgia State University includes template syllabus statements for each of the Core IMPACTS areas that you may adapt for your course.

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 me as soon as possible in order to set up a time to discuss your learning needs.

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 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.

Pre- &/or Co-Requisites

Math 1553 or Math 1554 or Math 1564 or Math 1502 or Math 1512 or Math 1522. If you either have taken Math 1553 or have transferred linear algebra credit from another university, you may have harder time following Math 3406 (because Math 1554/1564 are more rigorous and focused on more conceptual understanding). If this is your situation, be proactive, namely, ask questions, seek help as needed, review previous course material, etc.

Extra Credit Opportunities

Please take a look at the attendance and homework section for extra credit opportunities. No other form of extra credit will be given.

Collaboration, Group Work, and Use of Generative AI

I encourage everyone to work together on the homework. Section G and L will be taught by me, and will have the same homework. If you do work with others, please write down the name of the students you have worked with.

If you use external resources (such as textbook, tutor, etc), please indicate on the homework.

Generative AI can solve most of the homework problems assigned in this class. If you do use it, clearly indicate it. If you do use it, I strongly suggest you speak with me, so that we can develop good study habits, or work on strategies to improve your mathematics skills.

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

No extension will be granted after the due date, unless there is a reasonable excuse. Please reach out ASAP if you need an extension. No late assignment will be accepted otherwise.

If a student miss an exam for a valid reason (University approved excuse, or reasonable excuse), the second portion of the final exam will replace the missed exam's grade. Unexcused missed exam will result in a 0. You can still take the second portion to replace the score with the average but in this case, you would only be able to get 50.

Attendance quiz will not have any make-ups.

Inclement Weather and Digital Learning Days

If there is an inclement weather, which results in the campus shutting down, I will pre-record the lecture, in case I lose power. There may be additional digital learning days. In this case, I will also pre-record the lecture, so that you can watch the recording before the next class.

Student Use of Mobile Devices in the Classroom

Please do not disturb other students. Disturbing the class will lead to deduction of points, forfeiture of extra-credit and ineligibility for the grade-replacement on the final exam.

Additional Course Policies

Communication is key. If you have any questions or concerns, please contact me ASAP via an email, with the subject line containing [MTH3406]. I do not want to get into the situation of 'he said she said'.

Campus Resources for Students

Undergraduate Student Academic Success Resources:

Academic Support: Academic Success and Advising (a unit in the Office of Undergraduate Education & Student Success) provides free support for your courses. Students can attend scheduled supplemental review (PLUS) sessions, stop by Drop-In Tutoring, or schedule a one-on-one appointment through Knack. To explore what options work best for you, please visit us online at success.gatech.edu/tutoring, email us at tutoring@gatech.edu, or come see us at Clough Undergraduate Learning Commons, Suite 283.

A list of resources for graduate students is given on the Office of Graduate and Postdoctoral Education website. Specific information for current graduate students includes

- Academic Resources such as the Communications Center, Language Institute, Library, Catalog, Registrar, resources for conducting research, Advocacy and Conflict Resolution resources, and how to manage unexpected situations that may impact your academic performance;
- Student Resources such as Campus Services, Child Care/Family programs, Health & Wellness, Career Services, and the Student Resource Guide; and
- Professional Development such as the programming from the Career Center and other professional development resources and events"

Student Well-Being:

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 (student-resource-guide (gatech.edu)