linear algebra

Course prefix: math

Course number: 1554

Section: QHS

CRN (you may add up to five):
86869

Instructor First Name: greg

Instructor Last Name: mayer

Semester: Fall

Academic year: 2025

Course description:

Linear algebra eigenvalues, eigenvectors, applications to linear systems, least squares, diagonalization, quadratic forms.

Course learning outcomes:

1. Construct, or give examples of, mathematical expressions that involve vectors, matrices, and linear systems of linear equations. For example: construct an invertible matrix with four columns that is not diagonalizable.
2. Evaluate mathematical expressions to compute quantities that deal with linear systems and eigenvalue problems. Examples: compute the singular value decomposition of a given matrix, or construct the LU decomposition of a rectangular matrix.
3. Analyze mathematical statements and expressions. For example: assess whether a given statement is accurate, or describe solutions of systems in terms of existence and uniqueness.
4. Write logical progressions of abstract mathematical arguments. For example, to explain why a square matrix with linearly independent columns is invertible.
5. Apply linear algebra concepts to model, solve, and analyze real-world situations.
6. Refine learning and study strategies for college level courses.

Required course materials:

Students are not expected to purchase any course materials.

Grading policy:

2% Participation

3% Written Assignments

5% Module Tests

15% Homework

45% Exams

30% Final Exam

Attendance policy:

THIS SECTION IS RESERVED FOR HIGH SCHOOL STUDENTS ENROLLED IN THE DISTANCE MATH PROGRAM.

Lectures

- All lectures are pre-recorded and are available for the duration of the semester.
- There are no live lectures for this section.
- Additional lecture video, if added, will be announced through Canvas so that students are aware of them.
- If your high school administrators have placed a block on the website where the lecture videos are hosted, they may need a URL to unblock the website. In that situation you can ask that the administrators unblock **kaltura.com**, as per https://knowledge.kaltura.com/help/what-urls-does-the-kes-accessLinks to an external site.. If that does not resolve the issue, your administrator can also add **canvasgatechtest.kaf.kaltura.com** to the list of exceptions. If these methods do not work then please contact your instructor.

Studio

- Studio sessions are facilitated by the instructor and TAs and are held Mondays and Wednesdays, 8:25 am to 9:15 am.
- All sessions are recorded and links to recordings typically appear in Canvas within 48 hours after the session is held.
- Studio session attendance is not mandatory.
- We expect all students to either attend the sessions or view their recordings.

Academic honesty/integrity statement:

Students are expected to maintain the highest standards of academic integrity. All work submitted must be original and properly cited. Plagiarism, cheating, or any form of academic dishonesty will result in immediate consequences as outlined in the university's academic integrity policy.

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 https://policylibrary.gatech.edu/student-life/academic-honor-codeLinks to an external site..

Any student suspected of cheating or plagiarizing on any course activity will be either

- reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations if any, and/or
- addressed in a Faculty Conference Resolution between the course instructor and the student.

In either case, evidence of cheating or other violations of the Georgia Tech Honor Code may be submitted directly to the Office of Student Integrity (OSI) and to the student's designated facilitator at their high school.

Details on the Faculty Conference Resolution process are here: https://osi.gatech.edu/content/faculty-conference-resolutionLinks to an external site.

Cheating includes, but is not limited to the following.

- Copying directly from **any** source during a closed-book exam, including friends, classmates, or a solutions manual.
- Allowing another person to format the work that you submitted for course credit.
- Taking a test using someone else's name, or having someone else take a test in your name.

Core IMPACTS statement(s) (if applicable):

This is a Core IMPACTS course that is part of the Technology, Mathematics, and Sciences area.

Core IMPACTS refers to the core curriculum, which provides students with essential knowledge in foundational academic areas. This course will help master course content, and support students' broad academic and career goals.

This course should direct students toward a broad Orienting Question:

- How do I ask scientific questions or use data, mathematics, or technology to understand the universe?

Completion of this course should enable students to meet the following Learning Outcome:

- Students will use the scientific method and laboratory procedures or mathematical and computational methods to analyze data, solve problems, and explain natural phenomena.

Course content, activities and exercises in this course should help students develop the following Career-Ready Competencies:

- Inquiry and Analysis
- Problem-Solving
- Teamwork