Special Problems Course

Course Information

- **Instructor:** Sung-Ha Kang (kang@math.gatech.edu)
- **Course Prefix and Number:** MATH/CSE 6643
- **Term:** Fall 2026

Course Description

This course covers introduction to the numerical solution of the classic problems of linear algebra including linear systems, least squares, SVD, eigenvalue problems.

Course Learning Outcome

Students will gain knowledge about matrix factorization, perturbation theory, round-off error, matrix and vector norms, solving systems of linear equations, linear least squares problems, Eigenvalue problems, iterative methods, and singular value decomposition.

Required Course Materials

No textbooks or materials are required. Resources will be accessible by GT library on-line resources.

Grading Policy and Weighting

This course is graded on a letter grade basis.
The grade will follow the standard grading scheme: A>90; B>80; C>70; D>60.
Homework 25 %, Exams 70% (Two exams 20 % each and a final exam 30 %), and Attendance 5%.
The quiz and all exams are in class and closed book and notes.

Attendance Policy

Students are strongly encouraged to attend the lecture and participate. There will be random attendance check which is a part of the grade.

Academic and Research Honesty/Integrity Statement

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 the Student Code of Conduct and the Academic Honor Code, especially Appendix A: Graduate Addendum to the Academic Honor Code.

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.

Core IMPACTS

Not applicable

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services 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

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 articulates some basic expectations that you can have of me and that I have of you. Additional information for research-related work is given in The Expectations of Advisors and Advisees. 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.