Syllabus, Spring 2026

MA 660-1F-Numerical Linear Algebra
(UH 4002, MWF 01:25 pm-02:15 pm)

Instructor Information:

Instructor Name: Dr. Muhammad "Jaman" Mohebujjaman

Email: mmohebuj@uab.edu **Office:** UH 4045 **Office Phone:** 205-934-2195
Office Hours: Monday: 12:20 pm-1:20 pm, Tuesdays and Thursdays: 1:00 pm-2:00 pm or by appointment.

Preferred Methods of Contact: Email is the preferred method of contact if you have questions. Please expect a response within 24 hours on weekdays and a slower response on weekends (or emails received after 5 pm on Friday will be returned Monday morning). Include the course name and number in the subject line of your email for a faster response.

Course Material:

Required Textbook: (1) Numerical Linear Algebra Notes (`http://people.cas.uab.edu/~mosya/teaching/660new3.pdf`)

Recommended Textbook:

1. Numerical Linear Algebra by LLoyd N. Trefethen and David Bau, III.
2. Matrix Computations by Gene H. Golub and Charles F. Van Loan, Johns Hopkins University Press, 2013 (or earlier editions).
3. Matrix Analysis by Roger A. Horn and Charles R. Johnson, Cambridge University Press, 2013.

Course Description, Objectives and Prerequisite:

Vector and matrix norms. Singular Value Decomposition (SVD). Stability, condition numbers, and error analysis. QR factorization. Least squares problems; Computation of eigenvalues and eigenvectors: Power method and variants. Iterative methods for linear systems: Stationary iteration and relaxation methods, Convergence of stationary methods, Conjugate gradient method, Krylov subspace methods, and Multigrid methods. Prerequisites: MA 631 (Min Grade: B)

Grading:

The final grade will be a weighted average and will be calculated as below:

Homework: 10% **Quiz:** 15% **Mid-Exam:** 30% **Project:** 15% **Final Exam:** 30%

Homework and Project Policy:

It is expected that the source code used to generate outcomes will be attached to the typed homework and project on or before the due date.

Grading Scale:

A: [90,100]; B: [80,90); C:[70,80); D:[60,70), F:[0,60)

Tentative Exam Dates:

Mid-Exam: Friday, February 27, 2026, **Final Exam:** Friday, May 1, 2026.

Make-Up Exams:

There will be NO make-up exams except for the observance of a religious holiday or for an official university absence.

General Course Policies

- No cell phones or other electronic devices will be allowed on your person during quizzes or exams.
- Be respectful of yourself, and others in the course.
- While explaining, you should not talk to anyone in class except me.
- Feel free to ask me any questions in class or outside of class.

Classroom Attendance Rule

Students are expected to attend all the classes unless they have a valid acceptable excuse.