TEXT: *Numerical Linear Algebra*, Lloyd Trefethen and David Bau, SIAM, Philadelphia, 1997.

REFERENCES:

1. *Applied Numerical Linear Algebra*, James Demmel, SIAM, Philedelphia, 1997.
2. *Matrix Computations*, Gene Golub and Charles Van Loan, 3rd ed., Johns Hopkins University Press, Baltimore, Maryland, 1996.
3. *Matrix Perturbation Theory*, G. W. Stewart and Ji-guang Sun, Academic Press, San Diego, California, 1990.
4. *Introduction to Numerical Analysis*, Kendall Atkinson, John Wiley & Sons, New York, 1989.
5. Linear Algebra and Matrix Analysis, Thomas Shores, Springer, New York, 2007.

The times listed below are approximate, and may be adjusted as the semester progresses. Text sections are identified by lecture number. All assignments are due on Tuesday of the weeks specified below.

WEEK	DATES	LECTURE	TOPICS
1	Aug 25-29	1	Matrix-Vector Multiplication
		2	Orthogonal Vectors and Matrices
		3	Norms
2	Sep 1		Labor Day
	Sep 2-5		Matlab Orientation
		4	Singular Value Decomposition
		5	More on the SVD

Friday, September 5, is the last day to withdraw from the course and not have it appear on your transcript.

3	Sep 8-12	6	Projectors
		7	QR Factorization
		8	Gram-Schmidt Orthogonalization
			Assignment 1 Due
4	Sep 15-19	9	Mathematical Software
		10	Householder Triangularization
		11	Least Squares Problems
5	Sep 22-26	12	Conditioning and Condition Numbers
		13	Floating Point Arithmetic
		14	Stability
6	Sep 29-Oct 3	15	More on Stability
		16	Stability of Householder Triangularization
		17	Stability of Back Substitution
7	Oct 6-10		Assignment 2 Due
		18	Conditioning of Least Squares Problems
		19	Stability of Least Squares Algorithms
8	Oct 13-17	20	Gaussian Elimination
		21	Pivoting
		22	Stability of Gaussian Elimination

Friday, October 17, is the last day to change your grade option to or from "Pass/No Pass".

WEEK	DATES	SECTIONS	TOPICS
9	Oct 20-21	(no class)	Fall Break
	Oct 12-24	23	Cholesky Factorizations
		24	Eigenvalue Problems
10	Oct 27-31		Assignment 3 Due
			REVIEW
	Oct (28)29		MIDTERM
		25	Overview of Eigenvalue Algorithms
11	Nov 3-7	26	Reduction to Hessenberg or Tridiagonal Form
		27	Rayleigh Quotient and Inverse Iteration
		28	QR Algorithm without Shifts
12	Nov 10-14	29	QR Algorithm with Shifts
		31	Computing the SVD
		32	Overview of Iterative Methods

Friday, November 14, is the last day to withdraw from the course and receive a grade of W.

13	Nov 17-21		Assignment 4 Due
		33	Arnoldi Iteration
		34	How Arnoldi Locates Eigenvalues
14	Nov 24-25	35	GMRES
	Nov 26-28	(no class)	Thanksgiving Vacation
15	Nov 27-Dec 1	36	Lanczos Iteration
		37	From Lanczos to Gauss Quadrature
		38	Conjugate Gradients
16	Dec 4-8		Assignment 5 Due
		40	Preconditioning
			REVIEW

Final Exam: The final exam is a comprehensive exam to be given on Monday, December 15, 8:30 - 10:30 pm in AvH 12.

Department Grading Appeals Policy: The Department of Mathematics does not tolerate discrimination or harassment on the basis of race, gender, religion or sexual orientation. If you believe you have been subject to suchuesday discrimination or harassment, in this or any math course, please contact the department. If, for this or any other reason, you believe that your grade was assigned incorrectly or capriciously, appeals may be made to (in order) the instructor, the department chair, the departmental grading appeals committee, the college grading appeals committee and the university grading appeals committee.