

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

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 21-25	1 2	Matrix-Vector Multiplication Orthogonal Vectors and Matrices Matlab Orientation
2	Aug 28-Sep 1	3 4 5	Norms Singular Value Decomposition More on the SVD

Friday, September 1, is the last day to withdraw from the course and not have it appear on your transcript.

3	Sep 4 Sep 5-8	6 7	Labor Day Projectors QR Factorization
4	Sep 11-15	8 9 10	Assignment 1 Due Gram-Schmidt Orthogonalization Mathematical Software Householder Triangularization
5	Sep 18-22	11 12 13	Least Squares Problems Conditioning and Condition Numbers Floating Point Arithmetic
6	Sep 25-29	14 15 16	Stability More on Stability Stability of Householder Triangularization
7	Oct 2-6	17 18	Assignment 2 Due Stability of Back Substitution Conditioning of Least Squares Problems
8	Oct 9-13	19 20 21	Stability of Least Squares Algorithms Gaussian Elimination Pivoting

Friday, October 13, is the last day to change your grade option to or from "Pass/No Pass".

9	Oct 16-17 Oct 18-20	(no class) 22 23	Fall Break Stability of Gaussian Elimination Cholesky Factorizations
10	Oct 23-27		Assignment 3 Due REVIEW MIDTERM

WEEK	DATES	SECTIONS	TOPICS
11	Oct 30-Nov 3	24	Eigenvalue Problems
		25	Overview of Eigenvalue Algorithms
		26	Reduction to Hessenberg or Tridiagonal Form
12	Nov 6-10	27	Rayleigh Quotient and Inverse Iteration
		28	QR Algorithm without Shifts
		29	QR Algorithm with Shifts

Friday, November 10, is the last day to withdraw from the course and receive a grade of W.

13	Nov 13-17		Assignment 4 Due
		31	Computing the SVD
		32	Overview of Iterative Methods
14	Nov 20-21	33	Arnoldi Iteration
	Nov 22-24		Thanksgiving Vacation
15	Nov 27-Dec 1	34	How Arnoldi Locates Eigenvalues
		35	GMRES
		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 Tuesday, December 12, 8:30 - 10:30 pm in AvH 12.

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