

## Math 105A Suggested Syllabus

**Text:** *Numerical Analysis*, R.L. Burden and J.D. Faires

Lecture	Section	Topic
1	1.1	Review of Calculus
2	1.2	Round-off Errors and Computer Arithmetic
3	1.2	Cont.
4	1.3	Algorithms and Convergence
5	2.1	Bisection Method
6	2.2	Fixed-Point Iteration
7	2.3	Newton's Method and its Extensions
8	2.4	Error Analysis for Iterative Methods
9	2.5	Accelerating Convergence
10	2.6	Zeros of Polynomials and Muller's Method
11	6.1	Linear Systems of Equations
12	6.1	Cont.
13	6.2	Pivoting Strategies
14		Review
15		<b>Midterm</b>
16	6.3	Linear Algebra and Matrix Inversion
17	6.3	Cont.
18	6.4	Determinant of a Matrix
19	6.5	Matrix Factorization
20	6.5	Cont.
21	7.1	Norms of Vectors and Matrices
22	7.2, 9.1	Eigenvalues and Eigenvectors
23	7.3	Jacobi and Gauss-Siedel Iterative Techniques
24	7.4	Relaxation Techniques for Solving Linear Systems
25	9.2	Orthogonal Matrices and Similarity Transformations
26	9.3	The Power Method
27	9.5	QR Algorithm
28	9.6	Singular Value Decomposition
29		Review