

MATHEMATICS 135A

NUMERICAL ANALYSIS I

Text: *Numerical Methods Using Matlab, Third Edition*, by J.H. Mathews and K.D. Fink

Topics covered include floating point computation and error analysis, numerical methods, for the determination of solutions to nonlinear equations, triangular factorizations of matrices, interpolation, and computer applications.

TOPICS	SUGGESTED NO. OF 50 MIN. CLASSES
Computational generalities.....3 (§§ 1.1-1.3) Familiar algorithms, floating point computations, error analysis, propagation of errors.	
Root finding.....6 (§§ 2.1-2.4) Iterative methods (Newton-Raphson method, Secant method), bisection and other bracketing methods.	
Linear Systems.....4 (§§ 3.3-3.6) Triangular factorizations, iterative methods.	
Interpolation.....10 (§§ 4.1-4.5) Taylor series, Lagrange form, Newton polynomials, Chebyshev polynomials.	