

# MATHEMATICS 135B

## NUMERICAL ANALYSIS II

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

Topics covered include numerical integration, numerical solution of ordinary differential equations, computation of eigenvectors and eigenvalues and computer applications.

TOPICS	SUGGESTED NO. OF 50 MIN. CLASSES
Numerical Integration.....8 (§§ 7.1-7.5)	
Simple and composite quadrature rules, recursive rules, Romberg integration, Adaptive quadrature, Gauss-Legendre integration.	
Numerical solutions of differential equations.....11 (§§ 9.1-9.9)	
Basic theory, Euler's and Heun's methods, Taylor series methods, Runge-Kutta methods, systems of differential equations, boundary values, finite difference methods.	
Computing eigenvectors and eigenvalues.....5 (§§ 11.1-11.4)	
Preliminary estimates, power method, Jacobi's method, symmetric Matrices.	