MATH 436/536
Numerical Analysis II (3 units)

Course Outline

Topics	# of Weeks
Numerical Solution of Ordinary Differential Equations: 1. Taylor-Series method 2. Runge-Kutta Methods 3. Multi-Step Methods 4. Systems and Higher Order Ordinary Differential equations 5. Boundary-Value Problems: Shooting Methods 6. Boundary-Value Problems: Finite-Difference Methods	4.0
Numerical Solutions of Partial Differential Equations: 1. Parabolic Equations: Explicit Methods 2. Parabolic Equations: Implicit Methods 3. Finite-Difference Methods 4. Galerkin and Ritz Methods 5. Other Methods for Hyperbolic Problems 6. Multigrid method	5.0
Approximating Functions: 1. Taylor Series 2. The B-splines: Basic Theory 3. The B-splines: Applications 4. Best Approximation; Least-Squares Theory 5. Best Approximation: Chebyshev Theory	4.0
Exams and Projects	1.0

Textbook: Numerical Analysis, by Burden and Faires

Adopted: Spring 2007