Math 107 Suggested Syllabus

Text: *Numerical Analysis, 9th edition*, R.L. Burden and J.D. Faires

Lecture	Section	Topic
1	4.1	Numerical Differentiation (Review)
2	5.1	The Elementary Theory of Initial-Value Problems
3	5.2	Euler's Method
4	5.3	Higher-Order Taylor Methods
5	5.4	Runge-Kutta Methods
6	5.5	Error control and the Runge-Kutta-Fehlberg Method
7	5.6	Multistep Methods
8	5.7	Variable Step-Size Multistep Methoss
9	5.8	Extrapolation Methods
10	5.9	Higher-Order Equations and Systems of Differential Equations
11	5.1	Stability
12	5.11	Stiff Differential Equations
13		Review
14		**Midterm**
15	11.1	The Linear Shooting Method
16	11.1, 11.2	Cont.
17	11.2	The Shooting Method for Nonlinear Problems
18	11.3	Finite-Difference Methods for Linear Problems
19	11.4	Finite Difference Methods for Nonlinear Problems
20	11.5	Rayleigh-Ritz Method
21	12.1	Elliptic Partial Differential Equations
22	12.1	Cont.
23	12.2	Parabolic Partial Differential Equations
24	12.2, 12.3	Cont.
25	12.3	Hyperbolic Partial Differential Equations
26	12.4	Introduction to Finite-Element Method
27	12.4	Cont.
28	12.4	Cont.
29		Review