

Math 0290 Schedule and Practice Problems

August 27: Introduction to Differential Equations

1.1 Number 1-11.

August 30: First Order Initial Value Problems

2.1 Number 3-6, 10-15, 21-28.

September 1: Numerical Methods. Euler's Method

Computer tools including Matlab for DEs

6.1 Number 1-9, 11

September 3: Numerical Methods. Runge-Kutta Methods

6.2 Number 1-9

September 8: Numerical Methods. Numerical Error

6.3 Number 1-6, 11-13

September 10: Separable Equations

2.2 Number 1-22, 23-29, 33-35

September 13: Models of Motion

2.3 Number 1-10

September 15: First Order Linear Equations

2.4 Number 1-21, 29

September 17: Mixing Problems

2.5 Number 1-7, 9, 10

September 20: Electrical Circuits

3.4 Number 1-19

September 22: Second Order Equations

4.1 Number 1-20, 26-30

September 24: Linear Homogeneous Equations with Constant Coefficients

4.3 Number 1-36

September 27: Harmonic Motion

4.4 Number 1-12, 14-16, 18

September 29: Inhomogeneous Equations. Undetermined Coefficients

4.5 Number 1-29

October 1: Undetermined Coefficients (continued)

4.5 Number 1-29

October 4: Inhomogeneous Equations. Variation of Parameters

4.6 Number 1-10

October 6: Forced Harmonic Motion

4.7 Number 3-11

October 8: Review

October 11: Exam I

October 13: Laplace Transform

5.1 Number 1-29

October 18: Laplace Transform. Basic Properties

5.2 Number 1-41

October 20: The Inverse Laplace Transform

5.3 Number 1-36

October 22: Using the Laplace Transform to Solve DEs

5.4 Number 1-26

October 25: Discontinuous Forcing Term

5.5 Number 1-25

October 27: The Dirac Delta Function

5.6 Number 1-9

October 29: Convolutions

5.7 Number 4-24

November 1: Introduction to Systems

8.1 Number 1-16

November 3: Systems (cont)

8.2 Number 1-6, 13-16

November 5: Systems (cont)

8.3 Number 1-6

November 8: Linear Systems with Constant Coefficients

9.1 Number 1-8, 16-23

November 10: Planar Systems

9.2 Number 1-27, 58-61

November 12: Phase Plane Portraits

9.3 Number 20-23

November 15: Nonlinear Systems: Equilibria, Linearization

10.1 Number 1-16

November 17: Review

November 19: Exam 2

November 29: Fourier Series

12.1 Number 1-22

December 1: Fourier Cosine and Sine Series

12.3 Number 1-32

December 3: Heat Equation

13.1 Number 1-9

December 6: Separation of Variables

13.2 Number 1-9

December 8: Separation of Variables (continued)

13.2 Number 1-9

December 10: Review

TBA

Final Exam (all day sections)