

Math 0290 Schedule and Practice Problems

January 10: Introduction to Differential Equations

1.1 Number 1-11.

January 12: First Order Initial Value Problems

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

January 14: Numerical Methods. Euler's Method Computer tools including Matlab for DEs

6.1 Number 1-9, 11

January 19: Numerical Methods. Runge-Kutta Methods

6.2 Number 1-9

January 21: Numerical Methods. Numerical Error

6.3 Number 1-6, 11-13

January 24: Separable Equations

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

January 26: Models of Motion

2.3 Number 1-10

January 28: First Order Linear Equations

2.4 Number 1-21, 29

January 31: Mixing Problems

2.5 Number 1-7, 9, 10

February 2: Electrical Circuits

3.4 Number 1-19

February 4: Second Order Equations

4.1 Number 1-20, 26-30

February 7: Linear Homogeneous Equations with Constant Coefficients

4.3 Number 1-36

February 9: Harmonic Motion

4.4 Number 1-12, 14-16, 18

February 11: Inhomogeneous Equations. Undetermined Coefficients

4.5 Number 1-29

February 14: Undetermined Coefficients (continued)

4.5 Number 1-29

February 16: Inhomogeneous Equations. Variation of Parameters

4.6 Number 1-10

February 18: Forced Harmonic Motion

4.7 Number 3-11

February 21: Review

February 23: Exam I

February 25: Laplace Transform

5.1 Number 1-29

February 28: Laplace Transform. Basic Properties

5.2 Number 1-41

March 2: The Inverse Laplace Transform

5.3 Number 1-36

March 4: Using the Laplace Transform to Solve DEs

5.4 Number 1-26

March 14: Discontinuous Forcing Term

5.5 Number 1-25

March 16: The Dirac Delta Function

5.6 Number 1-9

March 18: Convolutions

5.7 Number 4-24

March 21: Introduction to Systems

8.1 Number 1-16

March 23: Systems (cont)

8.2 Number 1-6, 13-16

March 25: Systems (cont)

8.3 Number 1-6

March 28: Linear Systems with Constant Coefficients

9.1 Number 1-8, 16-23

March 30: Planar Systems

9.2 Number 1-27, 58-61

April 1: Phase Plane Portraits

9.3 Number 20-23

April 4: Nonlinear Systems: Equilibria, Linearization

10.1 Number 1-16

April 6: Review

April 8: Exam 2

April 11: Fourier Series

12.1 Number 1-22

April 13: Fourier Cosine and Sine Series

12.3 Number 1-32

April 15: Heat Equation

13.1 Number 1-9

April 18: Separation of Variables

13.2 Number 1-9

April 20: Separation of Variables (continued)

13.2 Number 1-9

April 22: Review

TBA

Final Exam (all day sections)