Math 46

Textbook: Elementary Differential Equations (with Boundary Value Problems) by William F. Trench

https://digitalcommons.trinity.edu/mono/9/

Week 1:
        Day 1: (Introduction, 1.1 Applications Leading to Differential Equations)
            1.2 Basic Concepts
        Day 2: 1.3 Direction Fields for First Order Equation
Week 2:
        Day 1: 2.1 Linear Equations
        Day 2: 2.2 Separable Equations
Week 3:
        Day 1: 2.4 Transformation of Nonlinear Equations into Separable Equations
            (2.3 Existence and Uniqueness of Solutions of Nonlinear Equations)
        Day 2: 2.5 Exact Equations
            2.6 Integrating Factors
Week 4:
        Day 1: 3.1 Euler's Method
            (3.2 The Improved Euler Method and Related Methods)
            Lecturers please focus on the algorithm side of the methods, and show students how to use the methods to get approximations to differential equations. No coding problems using advanced coding software is recommended.
        Day 2: 4.1, 4.2, 4.3 Applications
            4.5 Applications to Curves
Week 5:
        Day 1: Review
        Day 2: Midterm
Week 6:
        Day 1: 5.1 Homogeneous Linear Equations (Webwork 8)
            5.2 Constant Coefficient Homogeneous Equations (Webwork 9)
        Day 2: 5.2 continue…
Week 7:
        Day 1: 5.3 Nonhomogeneous Linear Equations
        Day 2: 5.4 The Method of Undetermined Coefficients
Week 8:
        Day 1: 5.5 The Method of Undetermined Coefficients
        Day 2: 5.6 Reduction of Order
            5.7 Variation of Parameters
Week 9:
        Day 1: 9.1 Introduction to Linear Higher Order Equations
        Day 2: 9.2 Higher Order Constant Coefficient Homogeneous Equations

Week 10:

       Day 1: 9.3 Undetermined Coefficients for Higher Order Equations

             6.1 6.2, Application of Linear Second Order Equations

       Day 2: Final Review