Hunter College of The City University of New York

Math 254 Ordinary Differential Equations 3 hrs, 3 cr.

Textbook: Differential Equations with Boundary Value Problems by Polking, Boggess, and Arnold, 2nd edition, Pearson/Prentice Hall.

Chapter 2 First-Order Equations

2.1 Differential Equations and Solutions
2.2 Solutions to Separable Equations
2.3 Models of Motions
2.4 Linear Equations
2.6 Exact Differential Equations
2.7 Existence and Uniqueness of Solutions

Chapter 3 Modeling and Applications

3.1 Modeling Population Growth

Chapter 4 Second-Order Equations

4.1 Definitions and Examples
4.3 Linear, Homogeneous Equations with Constant Coefficients
4.5 Inhomogeneous Equations; the Method of Undetermined Coefficients
4.6 Variation of Parameters

Chapter 5 The Laplace Transform

5.1 The Definition of the Laplace Transform
5.2 Basic Properties of the Laplace Transform
5.3 The Inverse Laplace Transform
5.4 Using the Laplace Transform to Solve Differential Equations

Chapter 11 Series Solutions to Differential Equations

11.1 Review of Power Series
11.2 Series Solutions Near Ordinary Points
11.3 Legendre's equations
11.4 Types of Singular Points-Euler's Equation
11.5 Series Solutions Near Regular Singular Points