

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