

Math 341 Syllabus - Fall 2000

Text: Boyce and DiPrima 7th edition.

Instructor: Bronski

- Introduction (1 Lecture)
- First Order Equations (7 Lectures)
 - **Basic Techniques for First Order ODEs**
 - * Linear Equations Sec 2.1
 - * Separable Equations Sec 2.2
 - * Exact Equations Sec. 2.6
 - * Homogeneous Equations Sec. 2.9
 - * Existence and Uniqueness Sec. 2.8
 - **General Theory of First Order Equations**
 - * Linear vs. Nonlinear Equations Sec. 2.4
 - * Applications - Population Dynamics Sec. 2.5
- n^{th} Order Linear Differential Equations (14 Lectures)
 - **General Theory of n^{th} order equations (5 Lectures)**
 - * Second Order Constant Coefficient Sec. 3.1
 - * Fundamental Solutions Sec 3.2, 4.1
 - * Linear Independence, Wronskian Sec. 3.3,4.1
 - **Linear Constant Coefficient (2 Lectures)**
 - * Complex Roots of the Characteristic Equation Sec. 3.4,4.2
 - * Repeated Roots and Reduction of Order 3.5,4.2
 - **Non-homogeneous Equations (4 Lectures)**
 - * Undetermined Coefficients 3.6, 4.3
 - * Variation of Parameters 3.7, 4.4
 - **Euler Equations - Sec. 5.5 (1 Lecture)**
 - **Applications (2 Lectures)**
 - * Mechanical and Electrical Vibrations 3.8

* Forced Vibrations 3.9

- Power Series Methods (3 Lectures)
 - Review of Power Series Sec. 5.1
 - Series Solutions near and Ordinary Point 5.2,5.3
- The Picard Existence Theorem (5 Lectures)
- Instructors Choice (Material from Chapter 9)

Lectures: 37

Exams: 3

Leeway: 4

If there are any topics in the text (or otherwise) which you would particularly like to see covered I would be happy to do so, especially near the end of the semester when the material is somewhat flexible.

Math 341 Schedule

Fall 2000

Monday	Wednesday	Friday
Aug 26	28 First Class	30 Sec 2.1
Sept. 2 Sec. 2.2	4 2.6	6 2.9 HW#1 Due
9 2.8	11 2.4	13 2.5 HW#2 Due
16 3.1	18 3.2	20 Exam #1 HW# 3 Due
23 3.3	25 4.1	27 3.4,4.2 HW# 4 Due
30 3.5/4.2	Oct. 2 3.6	4 3.7 HW# 5 Due
7 3.8	9 3.9	11 5.5 HW# 6 Due
14 5.1	16 5.2	18 Exam #2
21	23	25 HW# 7 Due
28 Picard 1	30 Picard 2	Nov. 1 Picard 3 HW #8 Due
4 Picard 4	6 Picard 5	8 9.1 HW# 9 Due
11 9.2	13 9.2	15 Exam #3
18 9.4	20 9.5	22 9.5 HW #10 Due
25 Thanksgiving	27 Break	29 Thanksgiving
Dec. 2 9.6	4 9.7	6 9.8 HW# 11 Due
9	11	13 HW# 12 Due