Differential Equations Syllabus
Math 0290
Spring term 2021

University of Pittsburgh
January 2021
The following is an approximate schedule for lectures, exams and a full list of practice problems from the course textbook.

- **Tuesday January 19th - Friday January 29th**

**Introduction to differential equations**
1.1 Problems 1-11.
2.1 Problems 3-6, 10-15, 21-28.

**Numerics, modeling**
6.1 Problems 1-9, 11.
6.2 Problems 1-9.
6.3 Problems 1-6, 11-13.
February Schedule

Monday February 1st - Friday February 12th

First order equations
2.2 Problems 1-22, 23-29, 33-35.
2.3 Problems 1-10.
2.4 Problems 1-21, 29.
2.5 Problems 1-7, 9-10.
3.4 Problems 1-19.
February Schedule

Monday February 15th - Friday February 26th

Second order equations, harmonic motion
4.1 Problems 1-20, 26-30.
4.3 Problems 1-36.
4.4 Problems 1-12, 14-16, 18.

Inhomogeneous second order equations
4.5 Problems 1-29.
4.6 Problems 1-10.
4.7 Problems 3-11.
March Schedule

- Monday March 1st - Friday March 12th
- Review: Monday March 1st
- Exam 1: Wednesday March 3rd

Laplace Transform
5.1 Problems 1-29.
5.2 Problems 1-41.
5.3 Problems 1-36.
5.4 Problems 1-26.
5.5 Problems 1-25.
March Schedule

- Monday March 15th - Friday March 26th
- Self-care day Wednesday 24th March: no classes

Laplace Transform
5.6 Problems 1-9.
5.7 Problems 4-24.

Systems of differential equations
8.1 Problems 1-16.
8.2 Problems 1-6, 13-16.
8.3 Problems 1-6.
April Schedule

- Monday March 29th - Friday April 9th

Constant coefficient homogeneous systems
9.1 Problems 1-8, 16-23.
9.3 Problems 20-23.
9.4 Problems 1-12.

Linearization
10.1 Problems 1-16.

- Review: Wednesday April 7th
- Exam 2: Friday April 9th
Monday April 12th - Friday April 23rd

Fourier series
12.1 Problems 1-22.
12.3 Problems 1-32.
12.4 Problems 1-11.

Separation of variables for the heat equation
13.2 Problems 1-18.