

Differential Equations Syllabus
Math 0290
Spring term 2021

University of Pittsburgh
January 2021

January Schedule

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.

9.2 Problems 1-27, 58-61.

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**

April Schedule

- **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.