Math 4335 - PDE

Syllabus

Instructor – Daniel Onofrei, Office: 632PGH

Class time: M, W, F: 11:am - 12 pm in SEC201

Office hours: M, W 1:30pm – 2:30pm or by appointment and e-mail.

Textbook: Partial Differential Equations, by Walter Strauss, John Wiley & Sons, Inc. Pub.

Class description:

Chapter 1: Where PDEs come from

1.1 What is a Partial Differential Equation?
1.2 First-Order Linear Equations
1.3 Flows, Vibrations, and Diffusions
1.4 Initial and Boundary Conditions
1.5 Well-Posed Problems

Chapter 2: Waves and Diffusions

2.1 The Wave Equation
2.2 Causality and Energy
2.3 The Diffusion Equation
2.4 Diffusion on the Whole Line
2.5 Comparison of Waves and Diffusions

Chapter 3: Reflections and Sources

3.1 Diffusion on the Half-Line
3.2 Reflections of Waves
3.3 Diffusion with a Source
3.4 Waves with a Source
3.5 Diffusion Revisited

Chapter 4: Boundary Problems

- **Grading:**

  There will be two take home projects midterms and a final project exam. The lowest midterm grade will be disregarded in the final course grade. This opportunity will be waived if you miss one midterm and thus a zero grade will be considered for the missed midterm exam unless prior strong motivation is given and the midterm is rescheduled accordingly for the respective student. Homework will be assigned weekly on Friday (for the material covered in the week) and collected every Friday at the end of the class. Late homework is not permitted unless strongly motivated. There will be no homework the week prior to the tests. The final exam will be scheduled by the university later in the semester and I will announce the class accordingly.

- **Final grade:**

  The final grade will be the weighted average of midterm final and homework grades as follows: 40% for the considered Midterm, 40% Final project, 20% Homework.