MATH462-0101: Partial Differential Equations Spring 2020

MATH 462, PARTIAL DIFFERENTIAL EQUATIONS

SPRING, 2020

Instructor: [Konstantina Trivisa: (Links to an external site.)](#)

Office: 3307 Mathematics Bldg

Phone: (301) 405-6865

Office Hours: Tuesday, Thursday 9:30-10:40am.

Email: trivisa@umd.edu

Introduction to the subject of partial differential equations: first order equations (linear and nonlinear), heat equation, wave equation, and Laplace equation. Examples of nonlinear equations of each type. Qualitative properties of solutions. Method of characteristics for hyperbolic problems. Solution of initial boundary value problems using separation of variables and eigenfunction expansions. Some numerical methods.

Prerequisites:
MATH 241 and MATH 246

Main Text:

*   Rustum Choksi *Partial Differential Equations – A First Course (Lecture Notes)*

Class Times: Tuesday and Thursday: 11:00am - 12:15pm.

Location: MTH 0303

Final Exam: Thursday May 14, 2020: 8-10am

Midterm 1: Tuesday, March 10, 2020 (in class)

Miderm 2: Thursday, April 30, 2020 (in class)

COURSE OUTLINE (Tentative):

- First order equations
- The wave equation in one space dimension
- Diffusion (heat equation) in one space variable
- Heat and wave equations in higher dimensions
- Laplace equation
- Epilogue: classification of second order linear equations

Homework and Quizzes: Homework will be assigned once a week. There will be given approximately ten homeworks during the semester from which only the best eight homeworks will count towards your grade.

- **Homework**

Grading (approximate):

- Homework: 20%
- Midterms I & II: 40%
- Final: 40%