PDE-I MA 455/555-2D Fall 2023

The class meets on Tue/Thu from 12:30pm to 1:45pm in Room CH 205.

Instructor: Dr. Roman Shterenberg

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Office hours: TR 3:15 pm in office or by appointment

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Textbook: Applied Partial Differential Equations, Third Edition, by J. David Logan, Springer, New York 2015. Topics to be covered can be found in Chapters 1-6. Textbook is NOT required, but is recommended for self-learning at home.

Grading policy: No midterm or final tests will be given. The score will be based on homework assignments only. There will be 4 homework assignments. The worst one will be dropped. Three other assignments will contribute 33.3% of the score each.

Final grade will be calculated as follows

85+ - A; 70-84 – B; 55-69 – C.

Homework: You need to submit your homework on the due date in class (or put it under the door of the instructor’s office). No late homework is accepted.

To MA 555 students: You are taking this course at the graduate level! You will get special Graduate homework exercises. Unlike regular homework assignments, the graduate exercises are mandatory for MA 555 students. They will make 15% of your homework grade, the rest will be re-scaled to 85%.

**Syllabus**: PDE Models (Conservation Laws, Diffusion, Acoustics etc., Classification of PDE), PDE on Unbounded Domains (Heat Equation, Wave Equation, Semi-infinite domains, Laplace Transform, Fourier Transform), PDE on Bounded Domains (Separation of Variables, Orthogonal Expansions, Fourier Series), Some Applications,

The syllabus is tentative, some changes are possible.

Regular class attendance is important and strongly encouraged. If you have to miss a class, study at home thoroughly. This syllabus as well as homework assignments with due dates will be distributed to all enrolled students via UAB’s class Canvas system. Thus you should make sure to regularly check your UAB email/Canvas for notifications, or to keep the forwarding address up-to-date.

Another suggested resource: Partial Differential Equations, Second Edition, by Walter A. Strauss, John Wiley and Sons, Inc., New Jersey, 2008.