

# COURSE ANNOUNCEMENT: MTH 453-553 NUMERICAL METHODS FOR PARTIAL DIFFERENTIAL EQUATIONS

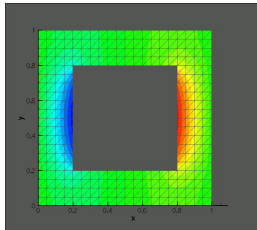
[www.math.oregonstate.edu/~mpesz/453-553\\_S13](http://www.math.oregonstate.edu/~mpesz/453-553_S13)

## Class content:

- Difference methods for PDEs of elliptic (stationary diffusion), parabolic (heat conduction), and hyperbolic (wave and transport) equations types.
- Properties of numerical methods: stability, consistency, rate of convergence, and cost. Dilemma between accuracy and efficiency.
- Examples of PDEs from applications: you will get computational experience and enjoy discovering their properties.
- Other topics and PDEs as time allows.

## Instructor:

Małgorzata Pezzyńska  
Department of Mathematics  
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MWF 10:00-10:50



Solution to stationary heat equation

## Student preparation:

- Solid background and interest in differential equations.
- Familiarity with (some) numerical methods, and with MATLAB is a plus.

I will develop the basics: in particular of PDEs, or MATLAB, as necessary.

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**Text:** *Finite Difference Methods for Ordinary and Partial Differential Equations, Steady State and Time Dependent Problems*, by Randall J. LeVeque, SIAM, 2007