

# COURSE ANNOUNCEMENT: MTH 452-552 NUMERICAL METHODS FOR ORDINARY DIFFERENTIAL EQUATIONS

[www.math.oregonstate.edu/~mpesz/452-552.W13](http://www.math.oregonstate.edu/~mpesz/452-552.W13)

## Class content:

- Difference methods for ODEs: one- and multi-step methods, explicit and implicit methods, predictor-corrector methods, and more.
- Properties of numerical methods: stability, consistence, rate of convergence, and cost. Dilemma between accuracy and efficiency.
- Examples of ODEs from applications in mechanics, chemistry, biology, and geosciences: you will get computational experience and enjoy discovering their properties.

## Instructor:

Małgorzata Peszyńska  
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MWF 11:00-11:50

## Student preparation:

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

However, I will develop the basics 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



Numerical solution to Lorentz system