Ordinary Differential Equations
Fall 2012

Logistics

Course webpage

http://cims.nyu.edu/~donev/Teaching/ODE-Fall2012/
including links to textbook and software, assignments, and any lecture materials

Registration   4 units per semester, MATH-UA.0262-1

Instructor   **Aleksandar Donev**, http://cims.nyu.edu/~donev
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Lectures: Tuesdays and Thursdays, 11am - 12:15pm, 202 Warren Weaver Hall

Office Hours: 3 - 5 pm Tuesdays, or by appointment

Recitation: Fridays 3:30-4:45pm, 101 Warren Weaver Hall

Teaching Assistant

Travis Askham, *askham@cims.nyu.edu*, room 508
Office hours: Wednesdays 10-11am, Fridays 4:45-5:45pm

Communication   There is a message board on the course Blackboard page that will be used for messages related to the assignments and any scheduling changes.

Content

Introduction (classification, direction fields, applications in the sciences). First and second order equations (integrating factors, separable equations, existence and uniqueness). Series solutions (power series, singular points). Systems of linear equations (matrix-based methods). Numerical methods (including hands-on computing using Maple or MATLAB). Dynamical systems (phase space, stability, Liapunov functions). Laplace and Fourier transforms.

Required textbooks

Primary   **E. A. Coddington, "An Introduction to Ordinary Differential Equations", Dover 1989**

Secondary   R. K. K. Miller and A. N. Michel, "Ordinary Differential Equations", Dover 2007

Prerequisites

Students who wish to enroll must meet the following prerequisites with a grade of C or better or the equivalent in Calculus II, Calculus III and Linear Algebra.

Assignments and Grading

There will be regular (approximately weekly) assignments due the second class of each week, a midterm and a final. No late assignments will be accepted. The grade will be 40% based on assignments, 20% on midterm (**Thursday Oct. 11th**), and 40% on the final.