

COURSE ANNOUNCEMENT

Methods of Applied Math I

MATH 761

Fall Semester 2008
MW 1:00–2:15pm
AB 634

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Math 761 is the first course in a year long sequence dedicated to studying basic methods of Applied Mathematics. In this sequence we consider a variety of analytical techniques that solve various problems appearing in applications. The emphasis is on the interdependence of mathematics and the applied and natural sciences. To succeed in the course students need to have basic knowledge of differential equations and linear algebra beforehand.

In the first semester we will study how to use dimensional analysis, perturbation methods for the solution. Learn about eigenvalue problems and integral equations and we may cover basics of calculus of variations. The second semester would be dedicated to analytical techniques for the analysis of partial differential equations and we may cover some discrete models too. Courses would be fairly independent from each other, but it would be easier in the second semester with the knowledge of the first one.

Consideration of many topics of applied mathematics require a lot of auxiliary information from different areas of analysis, differential equations, linear algebra, etc. Such information will be compactly presented during the course as needed.

Grade in the course will be based on exams and homework assignments that would include theoretical and maybe computational problems. The main computing language will be MATLAB due to the large number of in-built subroutines with various algorithms.

Main Text: J. David Logan, *Applied Mathematics*, 3rd edition, Wiley-Interscience 2006.