

Math611-600: Ordinary and Partial Differential Equations, Fall 2006

Professor Emil J. Straube

MWF 10:20 - 11:10, BLOC 112

Office, Office Hours: Milner 215, phone 845 3721, straube@math.tamu.edu, hours are MWF 1:00-2:00, but feel free to check any time.

Course Content: This course (sequence) constitutes an introduction to differential equations. Topics covered are as follows (Math611 covers topics 1, 2, and the first part of 3, the rest of 3 and 4 and 5 will be covered in Math612):

- basic theory of ODEs and vector fields
- the Laplace equation and the wave equation
- Fourier analysis, distributions, and constant coefficient linear PDEs
- Sobolev spaces
- linear elliptic equations

This outline follows the first five chapters in Taylor's book (see below). However, we cannot cover these five chapters completely, and I will omit (and/or add) material as needed.

Prerequisites: This is a mid-level graduate course. The prerequisites are a solid background in real and functional analysis, and very basic complex analysis.

Student Evaluation: Students will be evaluated on the basis of three *take-home* exams/problem sets/projects.

Book: M.Taylor: Partial Differential Equations, *Basic Theory*, Springer Texts in Applied Mathematics 23. (This is volume 1 of a 3-volume set.)