MATH 4581, CLASSICAL MATHEMATICAL METHODS IN ENGINEERING
COURSE SYLLABUS
FALL 2006

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MATERIAL TO BE COVERED AND COURSE OBJECTIVES: The primary objective of the course is to introduce the student to certain analytic methods for solving partial differential equations. The main tools we will focus on are Fourier series and the Laplace transform. We plan to cover the following material:

1. Vector spaces, norms, inner products, orthogonal projections, the space $L^2(a,b)$, Fourier series.
2. The Stourm-Liouville theorem.
5. Laplace and Poisson equations: separation of variables in polar and cylindrical coordinates, method of eigenfunction expansion.
8. Fourier transform and applications.

As the course progresses I will be assigning homework problems. They will not be collected. I will assign enough problems so that you can determine what part of the material you have mastered and what you still need to work on. However, they will not constitute a complete set of exercises sufficient for getting an A in the course.

GRADING: There will be three tests (September 15, October 13, and November 15), one homework assignment (due on November 22) and the final exam. Each test and the homework assignment will count for 15% of the final grade, and the final exam will count for 40%. Your grade will be based on how well you can solve problems and compute using the theory. You will not be asked to reproduce proofs.
Please be aware of the Georgia Tech Honor Code and follow it carefully. In particular please make sure that all the work you submit is your own.