MATH 4347, PARTIAL DIFFERENTIAL EQUATIONS I
COURSE SYLLABUS
FALL 2006

INSTRUCTOR: ANDRZEJ SWIECH
LECTURES: MWF 3:05-3:55 pm, SKILES 246
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TEXTBOOK: E. C. Zachmanoglou and D. W. Thoe, Introduction to Partial Differential Equations with Applications

MATERIAL TO BE COVERED AND COURSE OBJECTIVES: The course introduces the students to the basic theory of first and second order partial differential equations. Its main objective is to develop the students’ skills in solving certain partial differential equations and build their intuition about the nature of solutions. The main themes of the course are the following:

(1) First order equations: the method of characteristics and the concept of solutions with shocks, conservation laws.
(2) Introduction to the general theory of second order equations.
(3) Wave equation and hyperbolic equations in dimensions one, two, and three.
(4) Systems of first order equations.
(5) Methods of exact solutions: separation of variables, series solutions.

As the course progresses you should work on problems given in the textbook. They will not be collected. A separate homework assignment will be given. The textbook contains enough problems so that you can determine what part of the material you have mastered and what you still need to work on.

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. To get an A, respectively B,C, and D, your final score will have to be greater than 85%, respectively 70%, 55%, and 40%.

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.