

Syllabus for Mathematics 3150 Spring 2009
Partial Differential Equations for Engineers

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Course Webpage: www.spencerstirling.com/teaching/M3150/M3150.html

Office Hours: MW 11:35am-12:30pm

Text: Nakhle Asmar (2005), *Partial Differential Equations with Fourier Series and Boundary Value Problems*, Second Edition

Description: This class is meant to provide a brief introduction to some of the basic ideas surrounding partial differential equations. These equations (which are usually difficult to solve in general) are found ubiquitously in physics and engineering. We will study several examples (e.g. the heat equation, wave equation, Laplace equation, Poisson equation, etc). These equations are examples of much broader families of PDEs, and the main solution technique will be via *separation of variables* and *Fourier series* (and other series-type solutions).

We will cover (at LEAST) sections 1.1-1.2, 2.1-2.4, 2.6, 3.1-3.9, 4.1-4.4, and 7.1-7.5

Prerequisites: You should have a solid background in multivariable calculus, and you should have taken at least a course or two in ordinary differential equations and linear algebra.

Exams: There will be two 50-minute midterms (each worth 20 percent) and a final worth 30 percent. Dates will be announced on the course webpage shortly. The problems will be similar to what you will encounter on the homeworks. Calculators and books/notes are NOT allowed during the exams.

Homework: I will assign homework weekly (posted on the webpage and announced in class). The homeworks will be worth 30 percent of your grade. LATE HOMEWORK WILL NOT BE ACCEPTED except in extreme situations. Please do NOT slip homeworks under my office door since I will disregard them. You are also expected to read in depth each section of the book that I cover. Note that my policy is: I DO NOT alter how homeworks have been marked by the grader except in the case where the score has been misadded.

The University of Utah provides upon request appropriate academic accommodations for qualified students with disabilities. For more information please discuss with me at the beginning of the course.