

**Syllabus for Math 110  
Introduction to PDE  
Fall 2006**

**Course:**

Lecture: MWF 4:00 - 4:50p, WLH 2114  
Recitation: M 6:00p - 6:50p, WLH 2114

**Recitation Leader:** Daniel McAllaster

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Office Hours: MW 2-3p, or by appointment (email me).

**Brief Description:** This is a first course in partial differential equations (PDE). The motivation for the subject comes primarily from physics, although for the most part we will focus on the purely mathematical aspects of the theory. However, it will help to have something of a background in either physics or engineering. We will spend most of our time studying the “big three” PDEs which are the heat, wave, and Laplace equation. We’ll try to emphasize both the computational and qualitative aspects of these equations. The former includes concrete applications of Fourier series to boundary value problems, while the latter includes things such as maximum principles and the difference between diffusion and dispersion.

**Prerequisites:** Math 20D (or 21D) and 20F, or consent of instructor.

**Text:** *Partial Differential Equations: An Introduction*, by Walter Strauss.

## Grading:

Total Points:	100
Homework:	40 pts.
Two One-Hour Exams:	15 pts. each
Final Exam:	30 pts.

**Notes on the grading:** The grading system for this class puts a lot of weight on HW assignments. There will be roughly seven (7) of these. Thus, one or two homework assignments could easily mean the difference between a letter grade. The overall course grade will be subject to a curve, but this cannot be determined until all the points are added. I will also supply an “approximate” curve after each exam so students can get a sense of where they stand at different points during the semester. Note that the first exam is scheduled before the “W” drop date, and will be graded before then (Oct. 20th).

**Lateness and Makeup Policy:** Homework must be turned in no later than the due date, *in class*. All homeworks are due by Wednesday’s lecture. Early homeworks are, of course, not a problem (e.g. if you will not make a lecture). Makeup tests must be scheduled beforehand, except in extreme circumstances.

**Homeworks:** Each weeks homework assignment will be posted on the course website. Students are encouraged to work together on homeworks and discuss problems. However, each student must turn in their own individual assignment. All homeworks are due by Wednesday’s lecture. There will be assigned homework each week, but those due on exam days are not graded. Answers to all homeworks will be posted on the course website.

**One-Hour Exams:** Two one hour exams will be held on Wednesday, October 18th, and on Wednesday, November 15th.

**Final Exam:** Monday, December 4, 3:00p - 5:59p. Room to be announced.

**Tentative Outline of the Course:** The following is an *approximate* outline of the material that will be covered in the course and the dates for exams.

September		
18th	20th	22nd
N/A	N/A	First Class Ch 1.1 and Ch 1.2
25th	27th	29th
Ch 1.3	Ch 1.3	Ch. 1.4

October		
2nd	4th	6th
Ch 2.1	HW Due Ch 2.2	Ch 2.3
9th	11th	13th
Ch 2.4	HW Due Ch 2.5	Review
16th	18th	20th
Ch 4.1	<b>Test 1</b>	Last day to drop w/o "W" Ch 4.1
23d	25th	27th
Ch 4.2	HW Due Ch 4.2	Ch 4.3
30th		
Ch 5.1		

November		
	1st	3d
	HW Due Ch 5.2	Ch 5.3
6th	8th	10th
Ch 5.3	HW Due Ch 5.4	Veteran's Day holiday
13th	15th	17th
Review	<b>Test 2</b>	finish Ch 5.4
20th	22nd	24th
Ch 6.1	HW Due Ch 6.2	Thanksgiving holiday
27th	29th	
Ch 6.3	HW Due Ch 6.3	

December		
		1st
		Last Class
		Review
4th	6th	8th
Final Exam 3:00p, room TBA		