

Syllabus for Math 132A
Partial Differential Equations II
Spring 2009

Course:

Lecture: MWF 5:00-5:50p, CENTR 205
Recitation: Th 11:00-11:50a, 201

Recitation Leader: Alex Bilik

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Office Hours: W 3:00-3:50p, or by appointment (email me).

Brief Description: This is a second 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. As opposed to the previous course, Math 110, we will focus this quarter on the multidimensional aspects of these equations. In particular, we will develop the theory of the Laplace equation on general compact domains Ω in \mathbb{R}^2 and \mathbb{R}^3 , as well as properties of multidimensional dispersion and diffusion. We will end the course with an introduction to special functions and spherical harmonics in the context of classical boundary value problems on symmetric domains.

Prerequisites: Math 20E, 20D, 20F, and 110, 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 (Apr. 25th).

Lateness and Makeup Policy: Homework must be turned in no later than the due date, *to the TA’s APM 6th floor drop-box*. All homeworks are due by Friday’s lecture. Early homeworks are, of course, not a problem (e.g. if you will not make a lecture). You may also turn them in to me during class. 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 Friday’s lecture.

One-Hour Exams: Two one hour exams will be held on Monday, April 20th, and on Wednesday, May 20th.

Final Exam: Friday, June 12th, 7:00-10:00p. 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.

April		
30th	1st	3th
Review of Math 110	Review of Ch 6.1-6.3	Ch 7.1
6th	8th	10th
Ch 7.1-7.2	Ch 7.2	Ch 7.3
13th	15th	17th
Ch 7.4	Ch 7.4	Review
20th	22nd	24th
Exam 1	Review of Ch 2.1-2.2	Last day to drop w/o "W" Ch 3.2
27th	29st	1st
Ch 9.1	Ch 9.1	Ch 9.2

May		
4th	6th	8th
Ch 9.2	Ch 9.3	Ch 9.3
11th	13th	15th
Review of Ch 2.4	Ch 9.4	Ch 9.5
18th	20th	22th
Review	Exam 2	Ch 10.1
25th	27th	29th
Holiday	Ch 10.2	Last day to drop w/o "F" Ch 10.2

June		
1st	3d	5th
Ch 10.2	Ch 10.3	Ch 10.3
8th	10th	12th
		Final Exam 7:00-10:00p Room TBA