

Department of Mathematics
Mat 341: Applied Real Analysis
Fall 2001

Course instructor: Santiago R. Simanca. **Phone:** 2-7308. **Office:** Math Tower 5D-148. **Office hours:** MWF 12:00-1:00, or by appointment.

Classroom: Melville Library N4000. **Time:** TTh 9:50-11:10.

Text: *Boundary Value Problems*, by David L. Powers, Harcourt Brace.

Description: This course is an introduction to linear partial differential equations, based on the three main examples arising from Mathematical Physics. We follow a pragmatic approach, introducing Fourier series and using them to solve a number of boundary value problems associated with the heat, wave and Laplace equations. Thus, we begin by studying the concept of an orthogonal set of functions, and the representation of arbitrary functions in series of functions from such sets. We then use the method of separation of variables in combination with these representations to obtain solutions to boundary value problems for the operators mentioned above.

Homework: Assignments will be given per week (except for Thanksgiving), and collected on the first class of following week. *No late homework will be accepted.*

Examinations: There will be two midterms and a final examination, as indicated below:

Test	Date	Time
Midterm 1	October 9	09:50-11:10
Midterm 2	November 13	09:50-11:10
Final	December 18	8:00-10:30

Grading: The homework assignments, each midterm, and the final examination will count for 30%, 20%, and 30% of your final grade, respectively.

Schedule: The following is the basic syllabus. If necessary, adjustments will be made as the semester progresses. Please read the relevant parts of the book **before** class.

Week of	Sections Covered	Exercise assignments
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Aug. 27	1.1, 1.2	1abc,2,3; 1,2,4,5,10,11
Sept. 3	1.3, 1.4	1,2,3; 1abcd,2,4
Sept. 10	1.5, 2.1	1,2,3,8,9; 1,2,8
Sept. 17	2.2, 2.3	1,3,6; 1,2,6,8
Sept. 24	2.4, 2.5	1,2,3,6; 1,2,7,11
Oct. 1	3.1, 3.2	2,3; 1,2,5,6
Oct. 8	Midterm 1, 3.3	1,2,12 (Last day to drop down)
Oct. 15	3.4, 3.5	1,4,8; 3,4,5
Oct. 22	3.6, 4.1	3,5,7; 1,2,6,7
Oct. 29	4.2, 4.3	1,2,5,7a; 7
Nov. 5	4.4, 4.5	1,3,9; 1abc,3,5ab
Nov. 12	Midterm2, 5.1	1,2 (optional)
Nov. 19	Thanksgiving	
Nov. 26	5.2, 5.3	1,4; 5,7,9
Dec. 3	5.4, 5.5	3,4,7; 4,6,7
Dec. 10	5.7	7
Dec. 18	Final Exam	

If you have a physical, psychological, medical or learning disability that may impact on your ability to carry out assigned course work, please contact the staff in the Disabled Student Service Office, Room 133, Humanities, 632-6784/TDD. DSS will review your concerns and determine with you what accommodations are necessary and appropriate. All information and documentation of disability is confidential.



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