

Applied Analytical Methods I

Syllabus

Dr. R.L. Herman

Fall 2005

Instructor: Dr. R. Herman
Office Hours: MWF 9-10:30 AM
TR 4-5 PM
Office: Bear Hall 132
Phone: 962-3722 (Home: 458-8710)
Email: hermanr@uncw.edu

Course Content:

Required Texts: *Applied Partial Differential Equations with Fourier Series and Boundary Value Problems*, by Richard Haberman, Prentice-Hall, 2004.

Optional Texts: *A First Course in Partial Differential Equations with Complex Variables and Transform Methods*, by H.F. Weinberger, Dover Publications, 1995. *Partial Differential Equations for Scientists and Engineers*, by Stanley J. Farlow, Dover, 1993.

This is the first half of a two-semester course on the application of analytical methods to partial differential equations, which is the arena where many of these applications were developed. This will be a thorough treatment of the solution of initial and boundary value problems of partial differential equations. Topics for the full year will include classification of partial differential equations, the method of characteristics, separation of variables, Fourier analysis, integral equations and integral transforms, generalized functions, Green's functions, Sturm–Liouville theory, and numerical methods. We will cover the first seven chapters of the main text.

Materials on the Web

More information will be posted on the web related to the topics we are studying. Links can be found with summaries to the material, study suggestions, homework assignments, etc. These will be accessible through the instructor's homepage at <http://people.uncw.edu/hermanr/pde1>.

Course Requirements:

Homework: Homework problems will be assigned periodically and you will be told when the work is due. As doing homework is important in understanding the material, it will count 50% of your grade.

Exams and Grades: There will be a midterm and a final. The exams will cover the basic material up to the date of the exam. The tentative dates for the exams are below.

Midterm	October 4th		Final	Dec 9, 3:00 PM
---------	-------------	--	-------	----------------

Your final grade will be based on the following

Homework	50%
Project	10%
Midterm	20%
Final	20%

89.5-100	A
79.5-89.5	B
69.5-79.5	C
59.5-69.5	D

In some cases borderline grades may be modified by a plus, or a minus, if the instructor determines that such grades are earned.

First Homework Assignments

You are required to turn in all of the assigned problems for grading on the due date. All work is expected to be neat, in order and with all work provided. Remaining homework assignments are listed at the course website.

#	Sec	Problems	Due
1	1.2	3 5 7	8/25
	1.3	1	
	1.4	2 7 10 12	
2	1.5	3 8 11 18 19 20 22 23	9/1
3	2.2	1 3 4	9/10
	2.3	3 5 7 8	
	2.4	1 2 7	
4	2.5	2 3 4 6 10 16	9/15
	3.2	2abce	

THIS SYLLABUS IS SUBJECT TO CHANGE!

Academic Honor Code: "The University of North Carolina at Wilmington is committed to the proposition that the pursuit of truth requires the presence of honesty among all involved. It is therefore the institution's stated policy that no form of dishonesty among its faculty or students will be tolerated. Although all members of the university community are encouraged to report occurrences of dishonesty, each individual is principally responsible for his or her own honesty." Student Handbook. (*This includes plagiarism, bribery and cheating.*)

Student Disabilities: UNCW Disability Services supplies information about disability law, documentation procedures and accommodations that can be found at <http://www.uncwil.edu/stuaff/disability>. To obtain accommodations the student should first contact Disability Services and present their documentation to the coordinator for review and verification.