

Math 112A Suggested Syllabus

Text: *A First Course in Partial Differential Equations*, H.F Weinberger

Lecture	Section	Topic
1		Review of ODEs, Classification, 2 nd Order ODEs with constant coefficients
2	1	The vibrating string problem
3	2	The one dimensional wave equation
4	2	Cont.
5	3	Discussion of the solutions, characteristics
6	4	Reflection and free boundary conditions
7	4	Cont.
8	5	The nonhomogeneous wave equation
9	6	Linearity and superposition
10	6	Cont.
11	7	Uniqueness of the vibrating string problem
12	8	Classification of 2 nd order eq. with constant coefficients
13	8	Cont.
14		Review
15		Midterm
16	9	Classification of general 2 nd order PDEs
17	10	Laplace's equation
18	11	Green's theorem and uniqueness for the Laplace equation
19	11	Cont.
20	12	The maximum principle
21	13	The heat equation
22	14	The method of separation of variables
23	14	Cont.
24	15	Orthogonality and least square approximation
25	16	Completeness and the Parseval equation
26	17	The Reimann-Lebesgue lemma
27	18	Convergence of trigonometric series
28	18	Cont.
29		Review