Syllabus for Math 400

Fall Term 2017 12:30-1:40 MWF Mr. Gregg

Course Description and Objectives

Math 400 is an introductory course in Partial Differential Equations. In this course we will be studying core material covering important linear partial differential equations. Among the major solution method we will study are Fourier Series, Green's Functions, and the Finite Element method.

Part of this course will involve implementing mathematical algorithms in Mathematica. I will be providing supplementary materials covering Mathematica for those of you who have not had experience with Mathematica.

How this Course is Structured

We will meet two times a week for lectures. I will assign weekly homework sets.

We will have two midterm exams and a final exam.

Grading Policy and Late Policy

Assignments and exams have the following weights:

Problem sets - 40% Midterm exams - 15% each Final exam - 30%

Late policy for problem sets is that problem sets may be turned in one class meeting after the initial due date for a 10% penalty. If you turn in a portion of a problem set on time and the remainder late, the 10% penalty will only apply to those problems you submitted late. I will waive the 10% penalty if you have a valid excuse such as illness; however, you must contact me before the initial due date to ask for an extension.

Textbook

Our text is *Partial Differential Equations: Analytical and Numerical Methods, Second Edition* by Mark S. Gockenbach.

Office Hours

My office hours this term are 1:00-3:00 TTh and 9:00-11:00 MWF. You are welcome to stop in at other times as well, but please call or email first to make sure that I will be in. My office is Briggs 413. My extension is 6736 and my email address is greggj@lawrence.edu.

Course Web Site

The course web site is at http://www.lawrence.edu/fast/greggj/math400.html.

Schedule of Topics

Week	Topic	Chapter
1	Introduction, Essential Linear Algebra	3
1,2	Boundary Value Problems	5
3	Heat Flow and Diffusion	6
4	Waves	7
5	Method of Characteristics	8
6,7	Green's Functions	9
7	Sturm-Liouville Boundary Value Problems	10
8,9	Problems in Multiple Spatial Dimensions	11
10	Convergence of Fourier Series	12