MATH 4500/6500 Numerical Analysis

Instructor: Caner Kazancı

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Course website: `http://www.math.uga.edu/~caner/4500-6500`

Schedule: 9:30am-10:45am Tuesdays and Thursdays, 302 Boyd Graduate Studies

Office Hours: 10:45am-11:30am Tuesdays and Thursdays, and anytime by appointment.

Text: Numerical Mathematics and Computing, *by D. Kincaid and W. Cheney*, ITP

Objective: Many of the mathematical equations and problems that arise in modern sciences are generally very complicated and/or high dimensional. Therefore it is very hard to come up with exact analytical solutions. In this course, we will learn how to interpret a wide range of mathematical problems into numerical algorithms. These numerical schemes can be coded into a computer program using appropriate languages. We will use Matlab for this purpose.

Prerequisites: MATH 2700, and MATH 2500 or MATH 3510. We will use Matlab for computer work, however no prior knowledge or experience is necessary.

Topics: Here's tentative schedule of topics to be covered:

Topics	Dates
Introduction	**Aug 17-Aug 31**
Number representations and associated errors	**Sep 5-Sep14**
Methods for finding Roots of Equations	**Sep 18-Sep 28**
Interpolation and Numerical Differentiation	**Oct 3-Oct 12**
Numerical Integration	**Oct 17-Oct 31**
Adaptive schemes, Gaussian Quadrature, Legendre Polynomials	**Nov 2- Nov 14**
Systems of Linear Equations, Matrix Factorizations	**Nov 16-Nov 30**

Grading: The course grade will be based on homework assignments (20%), two in-class exams (20% each), and an in-class final (40%). Homework's will be posted on the course website each week. It is your responsibility to check the website to get the HW assignments. All academic work must meet the standards contained in "A Culture of Honesty". Students are responsible for informing themselves about those standards before performing any academic work.

Attendance: Attendance is required. If you miss any classes, it is your responsibility to get notes from your classmates and make up for the class you missed.

The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.