Numerical Analysis I

Course: Numerical Analysis I
Instructor: Young Ju Lee
Office Hour: T 5:00 pm - 6:00 pm and Th 2:00 pm - 3:00 pm at Hill 238.
Class: TTH 3:20 pm - 4:40 pm at ARC-205 Busch Campus
E-mail address: leeyoung@math.rutgers.edu
URL: http://www.math.rutgers.edu/courses/373/373-f07
Grader: To be announced


Course Goals:
This course will provide you with techniques for numerical solutions to various mathematical problems. The main topic to be discussed includes finding roots of nonlinear equations, approximating functions by polynomials, integrating and differentiating functions, and their applications. We shall cover the following parts of the textbook.

Chapter 2: Solution of Equations in One variable.
Chapter 3: Interpolation and Polynomial Approximation.
Chapter 4: Numerical Differentiation and Integration.
Chapter 5: Initial Value Problems for Ordinary Differential Equations.
Parts of Chapter 10: Solution of Nonlinear Systems of Equations (time permitting).

Prerequisites:
Calculus, multivariable calculus, infinite series, linear algebra, programming.
Basic internet skills (e-mail, Web browsing, etc.).

Online component:
As an enhancement to the course, I will make many materials available on the course web site, at

http://www.math.rutgers.edu/courses/373/373-f07/

The webpage will contain course announcements, lecture notes, homework assignments, and other resources. Homework assignment will not be distributed on paper in class but will be available as a pdf file on the aforementioned web site and announced when it is ready to be downloaded.
Programming component:
Part of your work in this course will involve implementing numerical algorithms by using computer code. I will oftentimes make the code available to you in matlab programming language, and you will be able to use it with little modification. If you prefer a different programming language, you may write the code from scratch yourself.

Exams and Test Dates:

- Midterm: October 16, 2007 (30%)
- Final: TBA (40%)

No Makeup Exams!

Homeworks and Quizes:
The Homeworks (20%) will be assigned every two weeks and collected in class. One lowest score will be dropped. Two quizzes (10%) will be given in class.

Grading Policy:
Average grade will be C-, C, C+, B-, B, or B+ depending on whether the average is low or high. Your grade will depend on how far and in which direction your score is from the average. I try to give about 30% A.

Academic integrity statement: Academic dishonesty will not be tolerated in any form. Cheating includes (but is not limited to) copying somebody else’s homework, copying somebody else’s quiz, copying somebody else’s quiz corrections, copying somebody else’s web posting, and stealing any materials related to this course. The definition of copying is more broad than verbatim duplicate. In other words, taking someone else’s work or ideas and in any way passing them off as your own, even if you change the wording, is cheating.

Calculators: Scientific and Graphing Calculators may not be used on the exams.