Instructor

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Class Web Page: There will be an ANGEL page soon with announcements, lecture notes, and material from class demos here. There will also be extensive MATLAB material there.

Prerequisites: Math 220; Math 230 or 231; 3 credits in computer science (at least CMPSC 121 or CMPSC 200 or CMPSC 201).

Honors option: Will be supported. Please see me if you are interested.

Course Summary: Numerical analysis is the science of understanding computer methods for solving mathematical problems. This course, CMPSC/Math 455, introduces some of these methods, explains how they work, and discusses how they can fail. CMPSC/Math 456 (offered again Spring 2012) introduces more and is intended to follow this course.

The following topics will be covered. Dates gives are approximate. We also list appropriate sections of the optional Kincaid–Cheney book. Lecture notes will be made available through ANGEL. The lecture numbers on Angel are based upon Monday–Wednesday–Friday 50 minute lectures. Since we are having Tuesday–Thursday 65 minutes lectures, notes for about three MWF lectures will be covered each week.

• January 10–20. Floating Point Arithmetic. Chapter Two. A tutorial on MATLAB and the use of the computer lab will be given.


• February 15 –24 Non-Linear Equations. Chapter Three.

• March 1–4, March 15–24 Approximation of Functions. Chapter Six.
• March 5–13 Spring Break.

• March 29–April 5 Numerical Integration. Chapter Seven.

• April 7–21 Differential Equations. Chapter Eight.

• April 26–28 Extra topics—as time permits.

• In week of May 2–6.

Grades

The grades will be based upon two midterms in class, homeworks, some MATLAB programs, and a final exam. These will comprise the following percentage of your grade.

- 25% Two MATLAB programs
- 40% Bi-Weekly Quizzes
- 35% Final

Policy on MATLAB programs

MATLAB programs are expected to be individual efforts (as in CSE Department guidelines). Programs will be due on the due date at the beginning of class time. After that, you may turn in the program by the next class with 25% penalty (before grading). Anything more than one class period late will not be accepted.