Math/CS 571, Numerical Mathematics I

Aconda Court 113, TR 12:40p-1:55p
Fall Semester, 2009

Instructor: Dr. Steven M. Wise
Office Hours: Tu, Th 2 – 3p, W 1 – 2p.
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Website
The course website is found at http://www.math.utk.edu/~swise/classes/fall09/math571.

Texts

We will spend the first 10-12 weeks of the course working through Trefethen's book. You may wish to delay your purchase of Dennis and Schnabel's book, which will be used only at the end of this course, that is, Math/CS 571. We will rely on Dennis and Schnabel's book more heavily in the second part of the course sequence, Math/CS 572.

Objectives
The successful student will be able to derive, apply, and analyze elementary numerical algorithms.

A good portion of this course (Math/CS 571) will be concerned with the standard theorems of numerical algebra, linear and nonlinear. To prove these results we will employ basic tools from linear algebra and differential and integral calculus, including matrix factorizations (LU, SVD, QR, et cetera), the Mean Value theorem, Taylor's theorem, the Intermediate Value theorem, et cetera. Familiarity with these tools will be largely assumed.

Homework Policy
Homework sets will be assigned each week and can be downloaded below as pdf files. While completed homework generally won't be collected, doing homework will help with the quizzes and exams. I encourage group participation in the solution of exercises.

Programming Exercises
There may be one or two Matlab programming exercises assigned during the semester. Familiarity with Matlab will be assumed.
Quizzes
There will be about 6 announced quizzes during the semester, administered at the beginning of the specified lecture. Quizzes will be comprised of two to four short questions based on the homework exercises that you have attempted. Refer to the calendar on the class website for a tentative schedule of the quizzes.

Examinations
There will be one midterm exam and a comprehensive final exam. Refer to the calendar on the class website for the tentative midterm date.

Grades
Grades for all assignments will be available on Online@UT. The final grade (as a percentage of the total points) will be computed using the following weights: quizzes 40%, midterm exam 30%, and final exam 30%. Letter grades will be assigned according to the following scale:

\[
\begin{align*}
100 & >= A >= 93 > A- >= 90; \\
90 & > B+ >= 87 > B >= 83 > B- >= 80; \\
80 & > C+ >= 77 > C >= 73 > C- >= 70; \\
70 & > D+ >= 67 > D >= 63 > D- >= 60; \\
60 & > F.
\end{align*}
\]

I reserve the right to change this scale, provided the change benefits all students. Note, for graduate students enrolled in this course A- = A, B- = B, C- = C, D- = D, and D+ = D.

Academic Honesty
Student's must be familiar with the ACADEMIC STANDARDS OF CONDUCT section of the Hilltopics student handbook.

Accommodation of Disabilities
Students who require a course accommodation due to a documented disability should contact the instructor and the Office of Disability Services (ODS). ODS is located in 2227 Dunford Hall and may be reached by telephone at (865) 974-6087.