CS3XX Intro. to MATLAB for Science/Engineering (3)
(This course will be taught as a section of CS494 in Fall04.)

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Description: This course is an introduction to computing with MATLAB for physical sciences and engineering. It covers basic ideas of algorithm design and data structures using MATLAB as the tool for implementations. Examples and labs illustrate computation in scientific and engineering problems, although obviously not in depth. There are two lectures and one lab each week. The lab is required. This course cannot be taken for graduate credit.

Prereq: Math 142 Calculus of single variable (for math maturity).


Topics:

- Generic ideas of algorithm and code design (modularity, documentation, efficiency).
- Basics of MATLAB (I/O, file types, matrices and vectors). Illustrations linked to lab and homework assignments.
- MATLAB M-files (scripts and functions, more data structures).
- MATLAB graphics (plot, bar, plot3, contour, surface).
- Intermediate MATLAB (the profiler; strings, cells; mex-files, compiling).
- Labs beginning with MATLAB tutorials, then covering applications like data analysis and visualization, curve fitting, FFTs as time permits.

Tentative grading:

- Two in-class quizzes for 30% each.
- Graded homework for 20%.
- Labs for 20%.