Lectures: MWF 11:00AM - 11:50AM, Thomas Poe Cooper Building Room 101

Web Site: http://www.as.uky.edu/~rlca238/ma321

Instructor: Russell Carden (russell.l.carden@uky.edu)
Patterson Office Tower 827, (859) 257–5746

Office Hours: MWF 2:00PM - 3:00PM, or by appointment

Prerequisites: MA 114. You should be familiar with calculus and elementary matrix manipulations (matrix addition and multiplication, Gaussian elimination), and be able to program.

Grading: 50% problem sets, 50% exams. (Class participation and improving performance on the exams will be considered when assigning borderline grades.)

Problem Sets: There will be approximately eight problem sets, each will involve both written work and computational exercises. You may collaborate on the problems, but your write-up and your programs must be your own independent work. Transcribed solutions are unacceptable. A problem sets grade may be based on all or a subset of the assigned problems. Problem sets may be turned in during class, to my office POT827, or to my mailbox in POT 715.

Exams: Two timed, closed-book exams will each account for 25% of the final grade. The first will take place in mid October, and the second during the final exam period.

Textbook: Numerical Mathematics and Computing by Ward Cheney and David Kincaid

Suggested Reading: Cleve Moler, Numerical Computing with MATLAB
D. J. Higham & N. J. Higham, MATLAB Guide
Check the course web site for additional suggestions throughout the semester.

Programming: Most homework assignments will require some programming. Your solutions should adhere to good programming standards, and must not be copied from other students.

Outline: The goal of this course is to introduce participants to some of the most basic and important methods for numerically solving problems of continuous mathematics. The course notes are divided into 6 modules:

• Preliminaries: Calculus review and computer arithmetic
• Solution of systems of linear equations.
• Approximation by polynomials and splines
• Numerical integration and differentiation
• Numerical solution of ODEs
• Solution of nonlinear equations

Classroom Decorum: Students are expected to be attentive and courteous during class. During class, please put away newspapers, turn off cell phones, and refrain from using laptops or other electronic devices except for note-taking purposes.

Any student with a disability requiring accommodation in this course is encouraged to contact the Disability Resource Center during the first week of class.