

Class Meetings: TR 11:00–12:15 in DU 428

Web Page: <http://www.math.niu.edu/~ammar/m662/>

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<http://www.math.niu.edu/~ammar/> Office hours: TR 2:00–3:00, W 1:30–3:00
and by appointment.

Text: D. Kincaid and W. Cheney, *Numerical Analysis: Mathematics of Scientific Computing*, third edition, American Mathematical Society, 2002. (Previously published by Brooks/Cole.)

This course provides an introduction to some fundamental techniques of computational mathematics and the analysis of these techniques. Topics to be covered include:

- Computer arithmetic (Text: Chapter 2)
- Solving nonlinear equations (Chapter 3)
- Linear systems of equations and matrix factorizations (Chapter 4)
- Polynomial interpolation and Approximation of Functions (Chapter 6)
- Numerical integration (Chapter 7)
- Numerical solution of ordinary differential equations (Chapter 8) if time permits.

We will generally not cover all of the chapters of the text mentioned above. We will also deviate from the text's content at times, so if you must miss a class you should get a copy of the class notes from another student.

The student is assumed to have knowledge of advanced calculus, linear algebra, and programming in FORTRAN, C, or another high-level scientific programming language. We will use the interactive software package MATLAB for much, if not all, of our programming work in this class.

The final grade in the course will be based on written and computer-related homework assignments (50%), a midterm exam (20%), and a final exam (30%).