Math 352, Elementary Numerical Analysis II, Winter 2008

Class Time: MWF 2-2:50p.m. in 306 Deady Hall

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Office Hours: 11-12 Mon. Fri, 12-1 Wed., or by appointment

Textbook: W. Cheney, D. Kincaid, *Numerical Mathematics and Computing*, 5th edition

1. **Background and Goals.** This course introduces students to the subject of numerical analysis. Numerical analysis is the study of methods and algorithms for mathematical computation, with an emphasis on techniques for approximating solutions to numerical problems and managing the error. Topics include: Gauss elimination method, matrix factorization, interpolation and approximation by spline functions, numerical methods for solving differential equations, and method of least squares. The course, which is the second of two in the sequence, covers most of chapters 7–12 of the textbook.

2. **Mathematica.** For the in-class computer demonstrations we will use Mathematica, a powerful computer program for symbolic and numerical mathematical computations. You may also want to use it for your homework and project. Mathematica is installed in most of the computer labs on campus. You can also purchase Student Edition of Mathematica at the UO Bookstore.

3. **Exams.** There will be an in-class midterm exam on Feb. 13 and a final exam on Wed. March 19, 3:15-5:15p.m.

4. **Homework.** Homework problems will be assigned every week and be due in class on Wednesday on the material of the previous week. No late homework will be accepted. You may work work with your classmates under the following conditions:
   - you must individually write your assignment,
   - you must acknowledge the cooperation by including the name of the person(s).

5. **Project** Part of your grade will be based on a programming or research project due on the last day of class. Possible projects include implementing the algorithms discussed in class in your favorite programming language, or researching a numerical analysis topic. A list of suggested projects will be posted after the midterm.

6. **Grading.** The grading distribution will be as follows:

Homework:	20%
Midterm Exam:	20%
Project:	20%
Final Exam:	40%