Math/CS 467/667 Numerical Methods II — Spring 2009

The development of computers in the late 1940's and their great advances in power over the last fifty years has lead to a revolution in the field of numerical analysis. The goal of this course sequence is to provide the student with the numerical tools and methodology necessary to treat their own problems. The student will learn how to use standard numerical software such as MATLAB, Octave and Maple as part of this course. No prior programming experience is needed. Familiarity with a traditional programming language such as C or FORTRAN may be helpful.

Note that Math/CS 466/666 Numerical Methods I is not a prerequisite.

Course Information
Section 467.001, 11:00–11:50pm, MWF, AB634.

Instructor
Dr Eric Olson, Ansari Business Building AB614, ejolson at unr.edu

Office Hours
MW 2–3pm and by appointment. If I'm in my office and you don't have an appointment, I can almost always take 15 minutes to answer a question.

Text
Elementary Numerical Analysis, Atkinson and Han, Wiley, 2004.

Supplemental Texts
A First Course in the Numerical Analysis of Differential Equations, Arieh Iserles, Cambridge Texts in Applied Mathematics, 1996.

Numerical Analaysis for Applied Mathematics, Science and Eng., Donald Greenspan, Vicenzo Casulli, Addison Wesley, 1988.

Topics Covered
Chapters 7–9 from Atkinson and Han; chapters 1,3, 10–12 from Iserles; and chapters 4–8 from Greenspan and Casulli. We will cover iterative methods in computational linear algebra, the numerical solution of ordinary differential equations, initial value problems, boundard value problems and elliptic, parabolic and hyperbolic partial differential equations. Additional topics may include finite and upwind difference methods, explicit and implicit methods, the fast Fourier transform, multigrid and the fast multipole method.

Academic Conduct
Bring identification to all exams. Work independently on all exams and quizzes. Behaviors inappropriate to test taking may disturb other students and will be considered cheating. Don't talk or pass notes with other students during an exam. Homework may be discussed freely. Homework turned in for grading must be written by each individual student. If you are unclear as to what constitutes cheating, please consult with me.

Equal Opportunity Statement
The Mathematics and Statistics Department supports providing equal access for students with disabilities. I am available to discuss appropriate academic accommodations that students may require. Please meet with me at your earliest convenience. For more information see `http://www.unr.edu/stsv/slservices/drc/` or contact the Disability Resource Center at Thompson Building, Suite 101, Phone (775) 784–6000.

Final Exam
Monday, May 11 from 9:45 to 11:45am in AB634.