MATH 417: Numerical Analysis

Lecturer:	Prof. Wolfgang Bangerth
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Office hours:	Wednesdays, 9:00–11:30am
Lecture:	Tuesdays + Thursdays, 12:45–2:00pm
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Lab:	Wednesdays, 12:40–1:30pm
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Textbook

R. D. Burden, J. D. Faires: Numerical Analysis, 8th ed.; Brooks & Cole, 2004.

Prerequisites

Prerequisites: MATH 222, 304 or 311; MATH 308 or equivalent; ability to program in C/C++ (preferred) or Matlab or Fortran.

Course Outline and Schedule

Here is a rough outline and schedule of the course. Actual allocation of weeks may differ slightly:

Chapter 1 (Mathematical Preliminaries and Error Analysis)	1 week
Chapter 2 (Solutions of Equations in One Variable)	2 1/2 weeks
Chapter 6 (Direct Methods for Solving Linear Systems)	3 weeks
Chapter 3 (Interpolation and Polynomial Appoximation)	2 1/2 weeks
Chapter 4 (Numerical Differentiation and Integration)	2 1/2 weeks
Chapter 5 (Initial-Value Problems for Ordinary Diff. Eq.)	3 weeks

Programming Assignments

Programs should be written either in C/C++, Fortran or Matlab; users of other languages should discuss this with the instructor before handing in assignments. Matlab users are restricted to the basic arithmetic operations and standard mathematical functions like sine, exponential, logarithm and to standard programming constructs such as conditionals and loops. For example, if programming a matrix inversion is requested, you should not simply call the `invert()` function. Deviations from this rule may be stated on the assignment.

Program text must be structured in a way that it is clear and well readable.

Webpage

Assignments and other course information will be posted at the course webpage

`http://www.math.tamu.edu/~bangerth/teaching.html`

Exams + Grading

Final course grades will be computed from homework and programming assignments (50%) and exams (50%): One midterm exam (tentatively 10/17/2006, 20%) and one comprehensive final exam (12/13/2006, 30%).

Make-up exams: Students must make arrangements in advance if they will not be handing in homework on time or will miss an exam. Absences due to recognized University-related activities, religious holidays, verifiable illness, and family/medical emergencies will be dealt with on an individual basis, but require a written excuse. Please let your instructor know about this as soon as possible, and preferably in advance.

Incompletes: I will consider giving an incomplete if you have successfully completed all but a small portion of the work of the course, and are prevented from completing the course by a severe, unexpected event. Simply being behind work is not a reason for an Incomplete, though; in that case you should consider dropping the course.

S/U grades: If you are registered S/U your grade will be 'S' if your letter grade is C or above, and 'U' otherwise.

Policies

Academic integrity: The usual rules of academic intregrity apply. In particular, the Aggie Honor Code "An Aggie does not lie, cheat or steal, or tolerate those who do" should be selfevident, see

`http://www.tamu.edu/aggiehonor.html`

Students may, and are encouraged to, work together and discuss homework problems with each other. However, copying work done by others is an act of scholastic dishonesty and will be persecuted to the full extent allowed by University policy.

Absences: Let your instructor know if you have to miss a class in the future. If you missed a class without telling, let him know as soon as possible afterwards. In general, Rule 7 of the Texas A&M University Student Rules applies, as do the other rules.

Disabilities: If you have a disability and need special assistance, please contact me so we can make accomodations. The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accomodation of their disabilities. If you believe you have a disability requiring an accomodation, please also contact Services for Students with Disabilities, Koldus 126, 845-1637.

For other policies and other information, please read

`http://www.math.tamu.edu/teaching/operationspg.html`