Texas Tech University, Department of Mathematics and Statistics
MATH 5334, NUMERICAL ANALYSIS I
COURSE SYLLABUS, Fall 2014
Section #001 (CRN: 17148)

Instructor

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Office hours: M 11:00am-noon, W 2:00pm-3:50pm, or by appointment.
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Weekly meeting

MWF 10:00am-10:50am, room Math 010

Textbook

Numerical Analysis: Mathematics of Scientific Computing, by D. Kincaid and W. Cheney, American Mathematical Society.

Expected Student Learning Outcomes

Upon completion of the two-semester series Math 5334-5335, students should become proficient in the theoretical, analytical, and computational study of numerical analysis. Students should master concepts in computer arithmetic, rounding error analysis, numerical solution of nonlinear equations in one variable, interpolation theory, numerical differentiation, numerical quadrature, numerical linear algebra, approximation theory, direct and iterative methods for solution of linear systems, computational solution of eigenvalues-eigenvectors problems, numerical solution of initial-value differential equation systems, computational solution of systems of nonlinear equations, numerical optimization, and computational solution of boundary-value problems.

Course outline

Mathematical preliminaries (Chap. 1)
Computer Arithmetic (Chap. 2)
Solution of Nonlinear Equations (Chap. 3)
Solving Systems of Linear Equations (Chap. 4)
Selected topics in Numerical Linear Algebra (Chap. 5)

Assessment of Learning Outcomes

Homework

It will be assigned on a regular basis. It must be completed before the given deadline. Many of the homework problems will be discussed in class at a later time. Homework is worth **25%** of the final grade.

Examinations

- Exam #1: **Monday, October 6**, worth **25%** of the final grade
- Exam #2: **Friday, November 21**, worth **25%** of the final grade
- Final Exam: **Tuesday, December 9, 7:30am-10:00am, room Math 010**, worth **25%** of the final grade

Use of calculators in all the exams is not permitted. Electronic devices which can store formulas, including cell phones, must be turned off and stored during the exams. The instructor will specify what sections must be studied for each exam.

Grading Policy

Let g be the grade in percent: $g < 39$ F, $40 \leq g < 59$ C, $60 \leq g < 79$ B, $80 \leq g \leq 100$ A

The grading policy may be subject to slight adjustments depending on the achievements of the students.

Make-ups

There are usually no make-ups for the examinations, except for reasons of illness, stated in writing by a medical doctor, or observance of a religious holiday, or other very reasonable motivations.

Attendance and Class Policies

Attendance is mandatory. If students miss a class, it is their responsibility to find out what they missed (announcements, assignments, notes ...). Also, it is their responsibility to frequently check their e-mail for announcements made by the instructor. Students are encouraged to read each section of the textbook in advance of the lecture.

Classes start and end always on time. Students are not allowed to leave the class before the end of the hour without authorization. During class time it is not allowed to text, chat and sleep. All electronic devices must be put in silent mode.

TTU Operating Policies

Americans with Disabilities Act (TTU OP 34.22)

Any student who, because of a disability, may require some special arrangements in order to meet course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services, during the instructor's office hours. Please note instructors are not allowed to provide classroom accommodations to student until appropriate verification from Student Disability Services has been provided. For additional information, you may contact the Student Disability Services office at 335 West Hall or 806-742-2405.

Absence for observance of a religious holy day (TTU OP 34.19)

1. "Religious holy day" means a holy day observed by a religion whose places of worship are exempt from property taxation under Texas Tax Code 11.20. 2. A student who intends to observe a religious holy day should make that intention known to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence. 3. A student who is excused under Section 2 may not be penalized for the absence; however, the instructor may respond appropriately if the student fails to complete the assignment satisfactorily.