This is an introductory course to quantitative analysis using fundamental concepts in statistics and scientific computation. Main theoretical topics covered include: interpolation of functions, numerical integration, iterative methods for root-finding, system of linear equations, probability and distributions, and Monte Carlo methods. The use of MATLAB to implement some fundamental algorithms will be emphasized. The class consists of three integrated components: regular lectures, computing labs and individual research projects.

Warning: This course carries the Quantitative Reasoning flag. Quantitative Reasoning courses are designed to equip you with skills that are necessary for understanding the types of quantitative arguments you will regularly encounter in your adult and professional life. You should therefore expect a substantial portion of your grade to come from your use of quantitative skills to analyze real-world problems.

Prerequisite. In general, there is no prerequisite for this class. However, some knowledge in functions (input and output arguments), matrices (definition and basic operations, including addition, subtraction and product of matrices), calculus (definition of derivatives and integrals, Taylor series) and probability (random variables and distribution) will be very helpful.

Class Time and Location. The class will meet T TH 8:00 AM - 9:30 AM @ RLM 5.114.

Problem Session. The problem session (i.e., the computer practice session) will meet @ RLM 7.122 W: 10:00 AM - 11:00 AM.

Instructor and Teaching Assistant.
Kui Ren (Instructor)
Office: RLM 10.170
Phone: 512-471-3152 Email: ren@math.utexas.edu
Office Hours: T TH 9:30 AM-10:30 AM + Appointments.

Haizhao Yang (TA)
Office: RLM 10.146
Phone: 512-475-9149 Email: hyang@math.utexas.edu
Office Hours: Monday 2:00 PM-3:00 PM + Appointments.

**Homework, Class Project, and Exams.** 1) There will be ten homework sets. The lowest score among the ten homework scores will be dropped when calculating the final homework score. In principle, no late homework will be accepted. 2) There will be two in-class exams and a final exam. No makeup exam will be arranged. 3) Each student will be assigned a small research project at the beginning of November. The project has to be completed and turned in by the time of the final exam.

**Grading Policy.** The final grade will be weighted roughly as follows:

Homework 18%, Project 20%, Exam I 20%, Exam II 20%, Final Exam 22%.

The numerical grades for all three exams will be linearly scaled so that the highest point in the class is 100. The same scaling factor applies to all the students. The final grade will also be scaled so that the highest point in class is 100. The letter grades are roughly distributed as follows:

- 90% - 100% : Grade A
- 87% - 89% : Grade A-
- 84% - 86% : Grade B+
- 81% - 83% : Grade B
- 78% - 80% : Grade B-
- 75% - 77% : Grade C+
- 72% - 74% : Grade C
- 69% - 71% : Grade C-
- 66% - 68% : Grade D+
- 63% - 65% : Grade D
- 60% - 62% : Grade D-
- 0% - 59% : Grade F

**Course Webpage.** All the homework will be posted on the university teaching tool, the blackboard system:
Textbooks.

Numerical Computing with MATLAB (required)
Cleve Moler
Society for Industrial and Applied Mathematics

Elementary Statistics, 10th edition (recommended)
Mario F. Triola
Addison-Wesley

Computing Resources. The mathematics undergraduate computer lab in RLM 7.122 is open to all students enrolled in a math course. The lab is open whenever the RLM building is open. You will need an account to use the lab. Bring your EID with you when you visit the lab to sign up for an account.

Important Dates.

• 08/29/2011, Last day of official add/drop period
• 09/09/2011, Last day to drop a class for possible refund
• 09/29/2011, In-class Exam I for M310T (SSC 318)
• 11/01/2011, Last day to drop with dean’s approval
• 11/08/2011, In-class Exam II for M310T (SSC 318)
• 12/10/2011, Final exam for M310T (SSC 318)

Miscellaneous.

• The University of Austin provides upon request appropriate academic accommodations for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471-6259, 471-6441 TTY.

• It is the policy of The University of Texas at Austin that you must notify the instructor at least fourteen days prior to the classes scheduled on dates you will be absent to observe a religious holy day.