There is no required text for the course. You may wish to consult:

**Electronic text:**  UT access to Shores: Applied Linear Algebra and Matrix Analysis


Obtain the cheapest copy you can find (earlier edition is fine!)

**COURSE GRADE**

Your course grade will be determined by

- **Quest Homework (15%)**:  Multiple Choice and Hand-graded Homework assignments will be set weekly via Quest, but only the highest 12 homework scores will be counted.

- **WebWork Homework (10%)**:  Free Response Homework assignments will be set weekly via WebWork, but only the highest 12 homework scores will be counted.

- **Exams (45%)**:  3 exams will be set as announced in the day-by-day timetable. These will be in Multiple Choice and Hand-graded format. They will be held in the same classroom as lectures. All three exam scores will be counted.

- **Final (30%)**: a 3 hour comprehensive Final in Multiple Choice and Hand-graded format will be held Friday, May 10, from 9:00-12:00noon. Room TBA.

All Homework, Exam and Final scores will be posted on Quest, not BlackBoard.

Your grade will be one of

A, B⁺, B, C⁺, C, D⁺, D, F.

GRADE CUT-OFFS WILL NOT BE ANNOUNCED UNTIL AFTER THE FINAL EXAM.
LECTURE SCHEDULE Spring 2013

Lecture 0:
Review: Lines, Planes, Complex Numbers

Lecture 1:
Linear Systems, Gauss Elimination

Lecture 2:
Matrices, Reduced Row Echelon Form

Lecture 3:
Solutions of Linear Systems, Matrix Algebra

Lecture 4:
Linear Transformations

Lecture 5:
Linear Transformations in Geometry

Lecture 6:
Matrix Products, Inverses

Lecture 7:
Matrix Decompositions

Lecture 8:
Subspaces of \( \mathbb{R}^n \)

Lecture 9:
Linear Independence, Bases, Dimension

Lecture 10:
Vector Spaces

Lecture 11:
Linear Transformations

Lecture 12:
Coordinate Systems, Mappings

Lecture 13:
Determinants, Eigenvalues

Lecture 14:
Eigenvectors, Diagonalization

Lecture 15:
Complex Eigenvalues

Lecture 16:
Differential Equations, Difference Equations

Lecture 17:
Orthogonality, Orthonormality

Lecture 18:
Orthogonal Projections, Gram-Schmidt

Lecture 19:
Least Squares Regression

Lecture 20:
Orthogonality on \( \mathbb{R}^{m\times n} \), \( \mathbb{C}^n \)

Lecture 21:
Symmetric matrices, Orthogonal Diagonalization

Lecture 22:
Quadratic Forms, Positive-definiteness

Lecture 23:
Unitary Diagonalizations

Lecture 24:
Singular Value Decomposition

Lecture 25:
Compression, Data & Rank Reduction

Lecture 26:
DFT, Fast Fourier Transform

Lecture 27:
Review
### January:

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OTHER INFORMATION

**Quest Charge:** this course makes use of the web-based Quest content delivery and homework server system maintained by the College of Natural Sciences. This homework service will require a $25 charge per student for its use, which goes towards the maintenance and operation of the resource. After the 12th day of class, when you log into Quest you will be asked to pay by credit card on a secure payment site. You have the option to wait up to 30 days to pay while still continuing to use Quest for your assignments. If you are taking more than one course using Quest, you will not have to pay more than $50 per semester. Quest provides mandatory instructional material for this course. For payment questions, email: questfees@cns.utexas.edu.

**Students with disabilities:** the University of Texas provides 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. If you plan on using such accommodations, you need to notify me early in the semester.

**Religious Holidays:** by UT Austin policy, you must notify me of your absence at least 14 days prior to the observance of a religious holiday. If you must miss a class, examination, or assignment in order to observe a religious holiday, you will be given an opportunity to complete the missed work within a reasonable time after the absence.

**Emergencies:** the following recommendations regarding emergency evacuation are from the Office of Campus...
Safety and Security:

- Occupants of buildings on The University of Texas at Austin campus are required to evacuate buildings when a fire alarm is activated. Alarm activation or announcement requires exiting and assembling outside.
- Familiarize yourself with all exit doors of each classroom and building you may occupy. Remember that the nearest exit door may not be the one you used when entering the building.
- Students requiring assistance in evacuation shall inform their instructor in writing during the first week of class.
- In the event of an evacuation, follow the instruction of faculty or class instructors.
- Do not re-enter a building unless given instructions by the following: Austin Fire Department, The University of Texas at Austin Police Department, or Fire Prevention Services office.
- Behavior Concerns Advice Line (BCAL): 512-232-5050
- For information on emergency evacuation routes and emergency procedures click on: www.utexas.edu/emergency.