Numerical Linear Algebra

Applied and Comp Math 920

Section: G100

Term: 2012 Fall

Instructor:
Manfred Trummer
Lectures are: Tues 14:30-16:20 & Fri 10:30-12:20
First Class: Friday, September 7, 10:30 am

Discussion Topics: Conditioning and stability of numerical methods
for the solution of linear systems, direct factorization
and iterative methods, least squares, and eigenvalue
problems. Application and mathematical software.

Syllabus:
1. Fundamentals
2. Solving Linear Equations: LU factorization
3. Conditioning and Stability
4. Linear Least Squares Problems: QR factorization
5. Eigenvalues
6. The SVD
7. Iterative Methods
8. Applications

Grading:
Homework: 50%
Participation: 10%
Class Presentation: 10%
Final Exam: 30%

Required Texts: James W. Demmel
Applied Numerical Linear Algebra
ISBN 0-89871-389-7

Recommended Texts:

Materials/Supplies:

Prerequisite/Corequisite: Prerequisite: Undergraduate courses in Linear Algebra
and Numerical Analysis. Programming experience.
Working knowledge of MATLAB recommended.

Notes: THE INSTRUCTOR RESERVES
THE RIGHT TO
CHANGE ANY OF THE ABOVE INFORMATION.

Students should be aware that they have certain rights
to
confidentiality concerning the return of course papers
and the
posting of marks. Please pay careful attention
to the options
discussed in class at the beginning of
the semester.

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