

MA 305 - Elementary Linear Algebra

Spring 2005 - HA 201 - TH 2:35-3:50pm

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Course Description and Goals

Students will receive an elementary introduction to the essentials of linear algebra, matrices and systems of linear equations, determinants, euclidean spaces as vector spaces, linear transformations of euclidean spaces, and an elementary treatment of eigenvalues and eigenvectors, with applications to numerical solutions of equations and information retrieval. Students will also learn the basics of the MATLAB software package.

Texts

- Richard Hill. *Elementary Linear Algebra with Applications*. Third edition. Saunders Company Publishing, 1996.
- Steven J. Leon, Eugene Herman, and Richard Faulkenberry. *ATLAST Computer Exercises for Linear Algebra*. 2nd edition. Prentice-Hall, 2003.

Academic Integrity and Disability Services

Don't cheat! NCSU and its employees accommodate students with disabilities.

Attendance

The lowest three quiz grades will be dropped for students missing 4 or fewer classes.

Evaluation

- **Homework Quiz (25%).** There will be an announced quiz on the homework every few days.
- **Exams (15% each).** There will be three exams.
- **Final (25%).** The final exam is cumulative and will be held on Tuesday, 5/3, from 1-4pm.
- **Projects (5%).** There will be several opportunities to do group projects. Only the first project is mandatory, the rest are for extra credit. Each successful project reduces the weight of the final exam by 5%.

Course Outline

- **Week 1** (TH 1/11, 1/13) — 1.1, 1.2, 1.3
- **Week 2** (TH 1/18, 1/20) — 1.4, 1.5, Matlab Intro
- **Week 3** (TH 1/25, 1/27) — 1.6, Application: Markov Chains
- **Week 4** (TH 2/1, 2/3) — Review, Exam #1 (1.1-1.6)
- **Week 5** (TH 2/8, 2/10) — 3.1, 3.2
- **Week 6** (TH 2/15, 2/17) — 3.4, 3.5
- **Week 7** (TH 2/22, 2/24) — Application: VSM in IR, 3.6
- **Week 8** (TH 3/1, 3/3) — 3.7, Review, Exam #2 (3.1-3.7, not 3.3)
- **Week 9** (TH 3/8, 3/10) — Spring Break
- **Week 10** (TH 3/15, 3/17) — 4.1, 4.2
- **Week 11** (T 3/22) — 4.3
- **Week 12** (TH 3/29, 3/31) — 4.4, 4.5
- **Week 13** (TH 4/5, 4/7) — Application: QR for LSI, Review, Exam #3 (4.1-4.5)
- **Week 14** (TH 4/12, 4/14) — 5.1, 5.2
- **Week 15** (TH 4/19, 4/21) — 5.3, 5.4
- **Week 16** (TH 4/26, 4/28) — Dead Week, 5.5, Application: Google
- **FINAL** (T 5/3) 1-4pm, HA 201