

Syllabus
Math 411 – Numerical Linear Algebra
Spring 2006

Instructor:

Dr. Rakhim Aitbayev, Weir 236, x5463, aitbayev@nmt.edu

Office hours:

TR 9:30–10:30 A.M., 1:30–2:30 P.M.

Class time and place:

TR 11:00–12:15 A.M., Weir 129

Textbook and references:

- *Fundamentals of Matrix Computations*, by David S. Watkins, second edition, John Wiley & Sons (required)
- *Matrix Computations*, by G. Golub and C. Van Loan, 3rd edition, The John Hopkins University Press (recommended as an advanced level reference)
- *Matlab Guide* by D.J. Higham and N.J. Higham, SIAM, (recommended as a Matlab reference).

Course webpage:

<http://www.nmt.edu/~aitbayev/math411/>

Homework:

- Homework problems involve proofs, computer programming with MATLAB, and numerical computations.
- Homeworks are due in class.
- Late homeworks are accepted one day after the due date with 20 % score reduction.
- If the assignment involves composing a program, submit its text and formatted output. If the output is long, present its summary.
- An individual work is required.

Tests:

- There are three take-home tests and no final exam. The following are preliminary test dates:
 - Test 1 – week of February 20

- Test 2 – week of March 27
- Test 3 – week of May 1
- An individual work is required.

Final score composition:

Homeworks: 50%
 Tests: 50%

Final grade scale:

Score (%)	0–60	60–66	66–69	69–72	72–76	76–79	79–82	82–86	86–89	89–92	92–100
Grade	<i>F</i>	<i>D</i>	<i>D+</i>	<i>C–</i>	<i>C</i>	<i>C+</i>	<i>B–</i>	<i>B</i>	<i>B+</i>	<i>A–</i>	<i>A</i>

Academic honesty policy:

Students must follow NMT’s *Academic Honesty Policy*:

<http://externalweb/aaffairs/new/policies/policies.htm>

Course outline:

- Chapter 1. Gaussian elimination and its variants.
- Chapter 2. Sensitivity of linear systems.
- Chapter 3. The least squares problem.
- Chapter 4. The singular value decomposition.
- Chapter 5. Eigenvalues and eigenvectors I.
- Chapter 6. Eigenvalues and eigenvectors II.
- Chapter 7. Iterative methods for linear systems.