Math 3200/5200-101
Applied Linear Algebra

(Class Number 13108/4220)
Spring 2015-2016

Class homepage: http://www.ohio.edu/people/shenx/class/math3200/math3200.html
Time & Location: MWF 16:10-17:05, 218 Morton Hall
Instructor: Annie X. Shen, http://www.ohio.edu/people/shenx/
Office: 571 Morton Hall
Office Hours: 15:05-16:00 WF, or by appointments
Email: shenx@ohio.edu
Phone: 740-593-1288

1. Catalog Description. A course on linear algebra with an emphasis on applications and computations. Solutions to linear systems, matrices and matrix algebra, determinants, n-dimensional real vector spaces and subspaces, bases and dimension, eigenvalues and eigenvectors, diagonalization, norms, inner product spaces, orthogonality and least squares problems.


4. Homework
Homework will be assigned during every lecture. Unless otherwise specified, homework assignments are not collected neither graded.

5. Attendance and Exam information.
Attendance at the scheduled examinations and final exam is required. There is no provision for absences due to vacations, family outings and other social activities, other special plans and appointments, etc. There will be no make-up tests. For absences due to medical reason, missed work will be replaced by the corresponding percentage earned on the final exam. In such a case, a medical excuse on physician's letterhead, signed by the physician must be submitted before the scheduled exam.

6. Grading Policy
   All exams should be done independently; otherwise you will be guilty of plagiarism. A student who is caught cheating will get an F for the course and will be referred to student judiciaries for further action.

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Extra credit problems will not be assigned. Letter grades will be assigned at the end of the academic term and are based on:

- 3 Midterm exams 20% each, Wednesday, week 4, week 9 and week 12
- Final Exam 40%, Monday, April 25, at 4:40 p.m.
- Class discussion and participation 5 points

7. Accommodation for disability. Any student who suspects s/he may need an accommodation based on the impact of a disability should contact the class instructor privately to discuss the student’s specific needs within the first week of class and must provide written documentation from the Office of Student Accessibility Services. If the student is not yet registered as a student with a disability, s/he should contact the Office of Student Accessibility Services.
Read the final comments of each chapter for additional

**Chapter 1. Matrices**
Section 1.1, problems 4, 8, 12, 13, 14, 16, 17, 18.
Section 1.2, problems 2, 9, 14, 18, 21, 24, 27, 33.
Section 1.3, problems 1, 2, 3, 4, 8, 11, 19, 20, 21, 25, 26, 33, 35, 37, 38.
Section 1.4, problems 2, 3(a, b), 7, 8, 9, 10, 11, 20, 21, 23, 26, 27, 28, 29, 33, 34, 37, 38, 40, 41, 42.
Section 1.5, problems 1, 4, 7.
Section 1.6, problems 1, 6, 7, 13.
Section 1.7, problems 1, 5, 13, 17, 19.

**Chapter 2. Simultaneous linear equations**
Section 2.1, problems 1, 7, 11-16.
Section 2.2, problems 1, 4.
Section 2.5, problems 2, 5, 7, 9, 13, 21, 24, 25, 26, 32, 34.
Section 2.6, problems 1, 3, 5, 10, 12, 14, 23, 29, 31, 32.
Section 2.7, problems 1, 4, 6, 9.

**Chapter 3. The inverse**
Section 3.1, problems 2, 6, 7, 11-17, 43, 44, 46, 48, 51, 53, 55, 57, 58.
Section 3.2, problems 1, 2, 8, 12, 14, 23-28.
Section 3.3, problems 1, 3, 5, 7, 12, 13, 14.
Section 3.4, problems 2, 5, 7, 10, 11, 16.

**Chapter 4. An introduction to optimization**
Section 4.2, problems 1, 3, 6.
Section 4.3, problems 1, 3, 6, 9.
Section 4.4, problems 3, 4, 5, 6.

**Chapter 5. Determinants**
Section 5.1, problems 1, 5, 17, 22, 26, 27, 31.
Section 5.2, problems 2, 8, 15, 17, 22, 24, 25
Section 5.3, problems 3-11, 13.

**Chapter 6. Eigenvalues and eigenvectors**
Section 6.1, problems 1, 5, 7.
Section 6.2, problems 2, 8, 15, 17, 22, 24, 25, 36-39
Section 6.3, problems 3, 7, 18, 26.
Section 6.4, problems 3, 4, 5, 7 9, 12-14, 17, 18, 19, 20, 21
Section 6.5, problems 1, 2, 3, 4, 5, 11.
Section 6.6, problems 2, 4.

**Chapter 10**
Section 10.1, problems 1, 7, 18, 20.
Section 10.2, problems 2, 3, 11, 12, 15, 16.
Section 10.3, problems 2, 4, 6, 12, 15, 17, 19, 20, 23.
Section 10.5, problems 1, 2, 3, 4, 5, 6, 10, 11, 12.