Math 110.201: Linear algebra (Summer 2013)

Basic course information

Lecture time and location

- May 28-Jun 28; MTWTh 9:00-11:30am
- Location: Krieger 300

Textbook and official syllabi

0. Bretscher, *Linear Algebra with Applications (4th ed.)*

We will also under the guideline of the official syllabi [here](#). Although the summer course takes only 5 weeks, it is as serious as the regular thirteen-week spring/fall Linear Algebra course. So enjoy!

Instructor

- Xuehua Chen
- Email: xchen@math.jhu.edu
- Office hours: Krieger 201, MTWTh 11:30-12:00am, or by appointment

Homework and reading assignments

Homework assignments are assigned daily and due at the *beginning* of the following lecture (thereafter it is considered late).

To see all homework assignments [click here](#) (in construction).

Course description

This is a basic course in linear algebra for students of science, applied science, and other quantitative fields (such as economics and computer science). In the sciences and engineering, linear algebra is arguably the most widely applied mathematical theory (even more so than calculus). Its wide applicability stems, in part, from its simplicity. In this course we will cover the core of linear algebra following the presentation in chapters 1-8 of the textbook:

- Solving systems of linear equations
- Matrices and matrix algebra
- Linear transformations and the basic theory of linear spaces (a.k.a. vector spaces)
- Orthogonality and the method of least squares
- Determinants
- The theory and use of eigenvalues and eigenvectors
- Symmetric matrices, quadratic forms, singular values
- Applications
Daily homework and reading assignments

To make the best use of limited lecture time, students are expected to have read the assigned textbook sections before coming to lecture. Short homework assignments (problems from the textbook) are given every lecture and are due at the very beginning of the following lecture: they are the most essential learning components of the course, and are further meant to encourage active reading and understanding.

The work you turn in must be your own, and you must understand what you hand in. (After all, if someone else does all the mental heavy lifting for you, how will you get stronger?)

To help students stay current, no homework extensions will be granted. Homework turned in after the start of class is considered late. So get to class on time (or get someone else to turn in your homework on time, if you have trouble being punctual). Only in case of physical illness or another university-recognized exception (such as observance of a recognized religious holiday) may a homework extension be granted, and then only when an official letter of (medical) excuse from Academic Advising is provided. However, to mitigate this strict policy:

- In determining the final homework score the lowest/missed THREE homework grades will be dropped from consideration;
- Any late homework may be submitted to be corrected and to get feedback (although no credit will be given for such submissions).

Homework assignments will be returned in class as soon as possible. If an error has been made in the grading of a homework assignment, it is the responsibility of the student to make this known to the grader.

Quiz

There are two 20-min quizzes every week. There will be 7 quizzes in total, and we will drop the TWO lowest/missed grades.

Tests

There will be 1 midterm, covering half of the course, and a 2-hour and a half comprehensive final exam. Students are expected to know all material covered in lecture and all material covered in the reading assignments (even when such material is not discussed explicitly in lecture). The purpose of the tests is to:

- Encourage review of course material;
- Gauge understanding of the theory, techniques, and applications presented in lecture and the textbook, and in particular, the ability to apply that understanding to the solution of computational and conceptual problems in linear algebra;
- Generate scores for use in determining a course grade.
As a matter of department policy, **No makeup tests will be given.** If a test date falls on a day on which official university policy allows you to miss a test (e.g., observance of a recognized religious holiday), then you must make this known to the instructor at least **two weeks** in advance, so that there is a reasonable chance to move the test date, and in order not get an automatic zero test score.

Midterm tests will be returned in class. If an error has been made in the grading of a test problem, it is the responsibility of the student to make this known to the grader.

**Test dates**

<table>
<thead>
<tr>
<th>Test</th>
<th>Date</th>
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<tbody>
<tr>
<td>Midterm</td>
<td>Thu, Jun. 13</td>
</tr>
<tr>
<td>Final exam</td>
<td>Thu, Jun 27</td>
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</tbody>
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**Grades**

The final score for the course is the number between 0 and 100 that is the **maximum** of the following two numbers, after rounding-up each one to the nearest whole number:

1. The score on the final exam (on a scale of 0 to 100).
2. \(20(H + Q + M) + 40F\), where: \(H\) is the total homework score (the homework assignments are equally weighted); \(Q\) is the total quiz score; \(M\) is the score of the midterm test; and \(F\) is the final exam score. Of course, \(H\), \(Q\), \(M\), and \(F\) are each measured on a scale from 0 to 1.

In other words, grades percentage is:

- homework 20%
- quizzes 20%
- midterm 20%
- final 40%

The **Overall letter grades will be assigned as follows:**

- 95+ A+
- 85~95 A
- 70~85 B
- 60~70 C
- 60– F

**JHU ethics statement**
The strength of the university depends on academic and personal integrity. In this course, you must be honest and truthful. Ethical violations include cheating on exams, plagiarism, reuse of assignments, improper use of the Internet and electronic devices, unauthorized collaboration, alteration of graded assignments, forgery and falsification, lying, facilitating academic dishonesty, and unfair competition.

Report any violations you witness to the instructor. You may consult the associate dean of students and/or the chairman of the Ethics Board beforehand. See the guide on "Academic Ethics for Undergraduates" and the Ethics Board web site for more information.

Students with disabilities

Students with documented disabilities or other special needs that require accommodation must register with the Office of Academic Advising. After that, remind me of your needs at least 5 days prior to each exam; we will need to have received confirmation from Academic Advising.