

## MATH 4242, APPLIED LINEAR ALGEBRA, SPRING 2009

**Location:** MWF 12:20 to 1:10, VH 6; VH364

**Lecturer:** Professor Al Marden, am@math.umn.edu, www.math.umn.edu/~am

*Office hours: MW 1:10-2:00, and by appt.* VH 326, 625-5879(voicemail)

**Grader:** to be assigned

**Text:** Olver/Shakiban, Applied Linear Algebra

**Prerequisites.** Some knowledge of linear algebra is expected. We will go deeper into the subject in this course, yet we will only scratch the surface of a vast subject. Our goal is that you will gain sufficient knowledge to enable you to read the literature concerning any advanced application you need to make.

Linear algebra forms part of the foundation of modern mathematics. One cannot go far either in technical applications, or in mathematics itself, without a basic knowledge of the subject.

**Overview.** The course is oriented to the users of linear algebra, not its theoretical development. Of course we will seek to understand what we are doing and why we are doing it. But we will not engage in heavy theoretical explanations.

Our approach does not necessarily make the course easier! As for all mathematics, one learns by doing it, not by listening to a pundit talk about it. So we will systematically assign homework problems.

**Sections to be covered.** (We may not cover all topics within a given section.)

Chapter 1: §§1-6, 8,9.

Chapter 2: §§1-5.

Chapter 3: §§1-5.

Chapter 4: §§1,2.

Chapter 5: §§1,2,3,5,6.

Chapter 8: §§1-4.

Time permitting, additional topics will be studied, but we will be happy if we manage to cover all the ones listed. The text is intended for a full year course so there is far more stuff than we can study.

**Coursework.** Homework will be due each Friday. If you cannot attend class you can leave it in my mailbox in VH127. Late homework cannot be accepted. The grader may grade a certain subset of the assigned problems. Students who want to form a group to study and/or to do homework together are encouraged to do so. However each student must write up the solutions in his own way, since working out problems yourself is the only way you will gain understanding of the material.

The homework will count 20% of the final grade. If you miss some homeworks or midterms with a good excuse, the final exam will be counted proportionally more.

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**Exams:** There will be two 50 minute midterm exams each counting 20% of the final grade, and a two hour final counting 40%. Some midterm and final exam problems may be taken from the assigned homework, and/or from the prior exams.

The exams will be:

- \* MIDTERM I: Wednesday, February 25.
- \* MIDTERM II: Wednesday, April 8.
- \*\* **FINAL EXAM:** Scheduled for Thursday, May 14, 1:30-3:30.

**Assigned homework problems:**

Since I do not know how fast we will go, or how much practice we will need, I will post each week's homework about a week before it is due on the homework file for Math 4242 on my web site:

( [www.math.umn.edu/~ am/Math4242-AppLinAlg/homework](http://www.math.umn.edu/~am/Math4242-AppLinAlg/homework) ).