

**Spring 2012**  
**Information Sheet for**  
**Math 272: Linear Algebra with Applications**  
*MWThF 9, SM 206, with Thursdays of even weeks in SM 014*

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### **Textbook**

We will use the book *Applied Linear Algebra and Matrix Analysis* by Thomas Shores (Springer, 2007, ISBN 978-0-387-33195-9). The book is available at Amherst Books.

### **Goals and Content of the Course**

Math 272 has several goals:

- Learn about matrices and systems of linear equations
- Learn the underlying theory
- Learn some interesting mathematics that is very different from calculus
- Learn how to do simple proofs
- Learn some cool applications
- Learn how to use the powerful computer program *Mathematica*

We will cover the following topics: systems of linear equations, matrices, vector spaces, linear maps, determinants, inner products, eigenvalues and eigenvectors, and diagonalization. In the book, this corresponds to

- Chapter 1: Linear System of Equations (Sections 1.1–1.4)
- Chapter 2: Matrix Algebra (Sections 2.1–2.6)
- Chapter 3: Vector Spaces (Sections 3.1–3.6)
- Chapter 4: Geometrical Aspects of Standard Spaces (Sections 4.1–4.4)
- Chapter 5: The Eigenvalue Problem (Sections 5.1–5.4)

The sections of each chapter to be covered are indicated in parentheses. The pace of the course will be roughly two lectures per section.

Every other week there will be a *Mathematica* lab on Thursday in SM 014. Thus, for odd-numbered weeks, Thursdays will be lectures or exams (see below) in SM 206, while for even-numbered weeks, Thursdays will be computer labs in SM 014. The first computer lab will be Thursday, February 2.

### **Exams and Grading**

There will be three in-class exams. I will start the exams at 8:00 am to give you more time. These will take place on Thursday of the 5th, 9th and 13th weeks of class. The dates are February 23, March 29 and April 26. There will also be a three hour final. Of the three in-class exams, your top two are each worth 20% of your grade and the third is worth 12%. This way you can blow one exam without killing your average. Homework is worth 8% of your grade, and the final is 40%.

### **Asking Questions and Coming to Office Hours**

Math 21 works best when it is a conversation between you and me. My part of the conversation begins during the lecture, but it also continues after class and in my office hours.

*Your part of the conversation is equally important.* This can happen during class (when you ask a question about an unclear point), after class (when you ask a question to clarify your understanding, in my office or via email. I like talking to students—please come by!

## **Office Hours**

Initially, my office hours will be

MTW 1:30–4 pm

Th 10 am – noon

F 1–2 pm

This may change as the semester unfolds. Also, there are usually other times when I am free, so if none of my posted times work for you, email me and we will try to work something out.

I also encourage people to email questions to me. In many cases, it is easy for me to answer your question via email, though sometimes, especially for more complicated questions, coming to office hours is necessary.

## **Using Your Notes**

I encourage you to take careful notes and *read them over daily*. This is important because not everything of importance gets written on the board. If you have any questions about what I did during the class, please come by my office hours.

## **Missing a Class or Test**

If you miss a class, you need to get the notes, read them over, and also read the corresponding section of the book. If anything is unclear after doing this, come see me during office hours and we can talk over what's bothering you.

Missing tests: If you are ill, notify me *as soon as possible*. If you have a conflict, you need to inform me well in advance, *preferably at least a week*. Note that the exam dates are listed above.