Honors Linear Algebra - MA 442A1  
Spring 2005

Instructor: Timothy Kohl  
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Office Hours: Wednesday 3-5 and by appointment.  
Lecture: CAS 233 - MWF 11:00 AM - 12:00 PM  
Discussion: CAS 221 - M 1:00 PM - 2:00 PM


Remarks: Linear algebra is the study of the mathematical structures known as vector spaces. These arise in wide variety of algebraic, geometric and analytic contexts. The determination of the solutions of a system of linear equations, the properties of vectors in the plane or in space, as well as many of the rules of differentiation and integration can all be phrased in the language of vector spaces and studied using the techniques of linear algebra.

Outline of topics to be covered:  
(Note: Not all sections in a given chapter are covered.)

Vector Spaces - Chapter 1  
Linear Transformations and Matrices - Chapter 2  
Elementary Matrix Operations and Systems of Linear Equations - Chapter 3  
Determinants - Chapter 4  
Diagonalization - Chapter 5  
Inner Product Spaces - Chapter 6  
Canonical Forms - Chapter 7

Discussion: You must be registered for the discussion portion of the class (442 A2) in addition to the lecture (442 A1). The discussion period will be used for going over homework, and is an excellent opportunity for you to see certain questions worked out in more detail than you would in class, or in the textbook. This is a resource you are strongly encouraged to take advantage of.

Exams: During the semester, there will be two exams worth 100 points each, as well as a final exam worth 200 points. The schedule for these exams is given on the next page.
**Homework:** During the semester, I will generally assign homework on a daily basis. This homework is your primary means of learning the material, even more so than the lectures. Indeed, it is only by actually working out the solutions to problems that one really learns this material. Not doing homework is a bad idea and will result in a poor performance in the course.

Additionally, there will be, throughout the course of the semester, 10 turn-in homework assignments, each worth 10 points, for a total possible maximum of 100 points if you complete each perfectly. Each turn-in assignment will be due by the next class meeting after it was assigned, unless otherwise indicated.

**Grading:** Your grade in the course will be based on the combined sum of the two exams, the 10 turn-ins, and the final exam, out of a maximum possible total of 500 points.

**Makeup Exams:** Except in cases of illness, and then, only with a signed doctor’s note, exams will be given only at scheduled times.

**Cheating:** I consider cheating and plagiarism to be very serious offenses, and any cases of it will merit action by the University Academic Standards Committee.

**Important Dates:**

**Holidays:** Monday February 21  
Monday April 18  
Spring Break: Monday March 7 – Friday March 11

**Exam 1** – Friday February 18  
**Exam 2** – Friday April 8  
**Final** - Wednesday May 11, 2:00-4:00 PM

Due to the day off on February 21, there will be substitute Monday schedule on Tuesday February 22 that is, the class we would have had on the 21st will be held on the 22nd. Additionally, due to the holiday on Monday April 18th, there will be also be a substitute Monday schedule on Wednesday April 20th, which means that Monday’s discussion will be on the 20th.

The last lecture will be Wednesday, May 4.

**Web Page:** There is a web page for the course where you can find the homework assignments listed, as well as the syllabus and other materials that will be made available during the course.

The URL is:

[http://math.bu.edu/people/tkohl/teaching/current/](http://math.bu.edu/people/tkohl/teaching/current/)