

# SYLLABUS

Linear Algebra, Fall, 2002

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**I. COURSE DESCRIPTION:** Linear Algebra is the bridge course to much of higher mathematics. Many of the courses in the mathematics major rely heavily on the material in this course, and all of the upper level courses make at least some reference back to linear algebra. There is a theory part of this course and there is an application part, and we will try to go back and forth between many different perspectives. Always, we will take the “hands-on approach”, which means that we will try to give examples of everything that we work on. By the end of the course, you should have a working knowledge of vectors, matrices, vector spaces, bases, linear independence, row spaces, column spaces, how to solve systems of linear equations, and the fundamental linear algebra theorem.

We will use the text entitled Introduction to Linear Algebra by Gilbert Strang. This course is useful to people studying math (obviously), physics, chemistry, economics, engineering, and others. One suggestion is to actually read the book. This may be obvious, but I think that a lot of people get through calculus and differential equations without reading the book to try to find out what is going on. This course will introduce unfamiliar material, and the book does a decent job of explaining the hard parts.

**II. GRADING** Homework assignments will account for 33% of the final grade. I will assign weekly homework, typically due on Thursday, consisting of 10 problems worth 10 points apiece. You are to work on these problems independently. In addition, there will be homework assignments after each section; these will not be collected for a grade. Some parts of each of these homework problems will involve the computer program Mathematica.

The second part of the grading involves in-class tests. There will be 3 tests worth 11% apiece; thus, the total of the tests is 1/3 of the final grade. These tests will be take home, and are similar to the homework: some will be purely computational while others will involve a paragraph explanation to demonstrate understanding of important theoretical results. There will also be a final, which is worth 33% of the final grade. The final will be cumulative, and it will be similar to the tests.

In addition to these regular grades, there is an extra credit opportunity on Monday, November 11, when the author of our book will visit the University of Richmond and give a talk. More details later.

**III. ACADEMIC HONESTY:** Tests will be closed book, closed notes: you cannot receive help on the tests from anyone except me. Homeworks are a little fuzzier. I want to strongly encourage you to study together and to work on the homework problems that are not going to be graded. However, for the homework that is going to be graded, I want you to work alone. Do your best to keep those separated.