

Course Syllabus
Math 3280---Spring 2012

Instructor: Dr. Neal Smith

Phone: 729-2283

Office: Allgood N329

Office Hours: How 8:00-10:30 MW, and by appointment. It is the responsibility of each student to seek help when necessary.

Text: Elementary Linear Algebra (9th ed.) by Kolman and Hill. We will cover most of the material in chapters 1-7 of this text, plus possibly some supplemental topics here and there.

Grading: Your grade will be determined by your performance on 2 'mid-term' exams, homework* and a final exam; each mid-term will count for 30% of your grade, the final 30%, and homework will count for the other 10%.

<u>If your final percentage is in the interval...</u>	<u>Your course grade is...</u>
[80%, 100%]	A
[70%, 80%)	B
[60%, 70%)	C
[50%, 60%)	D
[0%, 50%)	F

Other Policies:

Attendance: I'm not the attendance police, but you need to be here every day. In the world of upper-division courses, frivolous absence shows a grave lack of seriousness. Also, you never know if you might want someone to write you a recommendation letter someday. If you know you will be absent on a given day for a legitimate purpose, you should notify me in advance.

Make-ups: Dates of exams will be announced substantially in advance, and thus I can't really envision a scenario where I'd consider giving one.

Objectives: Students will learn basic concepts of Linear Algebra (including properties of matrices, determinants, properties of vector spaces, properties of eigenvalues and eigenvectors, and applications).

Grading philosophy: On homework and exams, problems will typically be evaluated with the following rubric in mind.

4---The problem is completely correct, the solution is clearly written, and proper notation and terminology is used.

3---Either the problem is correct, but is either not as well-written as expected for a 4 point solution, improper notation/terminology is used, or there is a very minor (typically computational) error.

2---Significant (correct) progress is made, but there is not a complete solution present, or a major error has been made.

1---Shows some awareness of correct methods, but little to no work towards an actual solution is present.

0---Speaks for itself.

Honor Statement: Each student is responsible for maintaining academic honesty as specified in the ASU catalog. You are free to work with others on homework assignments, but homework handed in should be your own; simply copying the work of another verbatim constitutes academic dishonesty.

Etiquette: Please be punctual and make sure your cell phone is turned off before coming to class. If the lid of your laptop is open, then you will not mind subsequently being asked to produce your beautifully typeset and formatted notes of everything I've said to share with your classmates.

Miscellany: If you decide, for whatever reason, to drop the course you have the responsibility of making sure you have filled out the necessary forms and collected the necessary signatures by the withdrawal deadline. Extended non-attendance will not necessarily cause me to drop you from the class roll.

Course Outline:

A brief, tentative, and rough course outline:

I. Basic concepts and motivation for Linear Algebra

- a. Systems of equations
- b. Matrices and matrix operations
- c. Systems of equations and echelon matrix forms

II. Determinants

- a. Definition via permutations
- b. Cofactor expansion
- c. Inverse matrices, Cramer's rule, and other applications.

*****Exam 1 should happen around this point*****

III. More general concepts of Linear Algebra

- a. Vectors, vector spaces, and subspaces
- b. Spanning sets
- c. Linear independence
- d. Bases and dimension
- e. Inner product spaces
- f. The Gram-Schmidt process

*****Exam 2 should happen around this point*****

IV. Other topics

- a. Linear Transformations
- b. Kernel and range of a linear transformation
- c. Eigenvalues and Eigenvectors of a matrix
- d. More generally, eigenvalues and eigenvectors of a linear transformation.
- d. The Cayley-Hamilton Theorem
- e. Applications of eigenvalues and eigenvectors.