Text We will be using *A First Course in Linear Algebra*, version 0.80, as our primary textbook. This text is very nearly complete, and will be expanded and modified as the course progresses. I would suggest keeping your copy in a (big) 3-ring binder, especially as new pages become available. You may download copies of the text off the Internet, but I will be taking orders at the beginning of the course for a mass purchase of printed copies. The textbook will be updated weekly on the course WWW page, usually on Thursday evenings.

The Bookstore also has a *highly* recommended optional text: *The Nuts and Bolts of Proofs* by Antonella Cupillari (Third Edition). The course WWW page has some recommendations for similar books about proof techniques.

Home Page Start at `http://buzzard.ups.edu/courses.html` to locate the WWW page for this course.

Office Hours My office is Thompson 321G; the telephone number is 879–3564. (Location is subject to change in the coming weeks.) Making appointments or simple, non-mathematical questions can be handled via electronic mail — my address is `beezer@ups.edu`. Office hours will be 11:00–11:50 on Monday, Wednesday and Friday and 10:30–11:20 on Tuesday. I will always be available during these times on a first-come, first-served basis. If these times are not convenient, please do not hesitate to make an appointment with me for another time. You are also welcome to drop by my office without an appointment at any time that I am in (roughly 2 P.M. – 4 P.M. is a good time to try). Office hours are your opportunity to receive extra help or clarification on material from class, or to discuss any other aspect of the course.

Calculators This course requires the use of a calculator. It should be capable of doing matrix operations — specifically "reduced row echelon form," "determinants" and "eigenvalues and eigenvectors." I am most familar with the Texas Instruments series. If you no longer have a manual for your calculator, there is a good chance you can locate one on the Internet.

Being unfamiliar with your calculator, using an insufficient model, forgetting to install fresh batteries, or forgetting your calculator all together are not excuses for poor performance on examinations. In particular, I have seen students have trouble making the TI-83 perform all the functions required for this course.

Homework I will be expanding the collections of exercises in the text during the semester. It is expected that you will work all of these problems. Of course, you are not limited to working *just* these problems.

None of these problems will be collected, but instead they will form the basis for the classes where we will have problem sessions and for discussions in office hours. It is your responsibility to be certain that you are learning from these exercises. The best ways to do this are to work the problems diligently when assigned and to participate in the classroom discussions. If you are unsure about a problem, then a visit to my office is in order. Making a consistent effort outside of the classroom is the easiest way to do well in this course.

> Mathematics not only demands straight thinking, it grants the student the satisfaction of knowing when he [or she] is thinking straight.
> — D. Jackson

Mathematics is not a spectator sport.
— Anonymous

I hear, I forget.
I see, I remember.
I do, I understand.
— Chinese Proverb

An education is not received. It is achieved.
— Anonymous

Quizzes   There will be seven 50-minute timed quizzes — they are all listed on the *tentative* schedule. The lowest of your seven quiz scores will be dropped. The comprehensive final exam will be given on Wednesday, December 13 at Noon. The final exam cannot be given at any other time and also be aware that I will allow you to work longer on the final exam than just the two-hour scheduled block of time. In other words, plan your travel arrangements accordingly.

As a study aid, I have posted copies of old quizzes on the course web site. These are offered with no guarantees, since techniques, approaches, emphases and even notation will change slightly or radically from semester to semester. In other words, they are not officially part of this semester's course. In particular I do not advocate working old exams as a primary, or exclusive, technique for learning the material in this course. Use at your own risk, they have not been reviewed for inconsistencies with this semester's course.

Writing   This course has been designated as part of the University's Writing in the Major requirement. Thus, there will be an emphasis on the quality of the mathematical exposition in your written work.

Reading Questions   Each section of the textbook contains reading questions at the end. Once you have read the section *prior* to our in-class discussion, submit your responses to the reading questions via electronic mail as follows. Do **not** send your responses to my regular email address (`beezer@ups.edu`), but instead use the address `linear@beezer.privacyport.com`. Your responses are due at 9 PM of the day prior to the day we discuss the section in class, and will not be accepted late. Use a subject that is **only** the acronym for the section. So for example, your first response will be simply titled: WILA. Do not include anything else in the subject line. In the first line of your response, please put your real name, then answer the questions in order.

If a question asks for a computation, you can just give the numerical answer, no need to show your work in the email. If the question is a yes/no answer, or asks "Why?" then give an explanation. Do your best with mathematical notation, but do not fret if it is a bit sloppy or weird, I can usually decipher any reasonable attempt. Please send *only straight text* — no attachments, no Word files, no graphics, no HTML if you can help it. Please pay careful attention to these procedures and deadlines.

Grades   Grades will be based on the following breakdown: Quizzes — 65%; Reading Questions — 10%; Final — 25%. Attendance and improvement will be considered for borderline grades. Scores will be posted on the Internet at `http://buzzard.ups.edu/courses.html`. A reminder about withdrawals — a Withdrawal Passing grade (W) can only be given during the third or fourth weeks of the semester, after that time (barring unusual circumstances), the appropriate grade is a Withdrawal Failing (WF), *even if your work has been of passing quality.* See the attached

schedule for the last day to drop with an automatic 'W' and please read *Academic Handbook* at `http://www.ups.edu/x4727.xml#withdrawal` about these often misunderstood grades.

Attendance   Daily attendance is required, expected, and overall a pretty good idea.

Purpose   This course is much different from most any mathematics course you have had recently, in particular it is much different than calculus courses. We will begin with a simple idea — a linear function — and build up an impressive, beautiful, abstract theory. We will begin computationally, but soon shift to concentrating on theorems and their proofs. By the end of the course you will be at ease reading and understanding complicated proofs. You will also be very good at writing routine proofs and will have begun the process of learning how to create complicated proofs yourself.

   You will see this material applied in subsequent courses in mathematics, computer science, chemistry, physics, economics and other disciplines (though we will not have much time for applications this semester). You will gain a "mathematical maturity" that will be helpful as you pursue upper-division coursework and in any logical, rational, or argumentative activity you might engage in throughout your lifetime. It is not easy material, but your attention and hard work will be amply repaid with an in-depth knowledge of some very interesting and fundamental ideas, in addition to beginning to learn to think like a mathematician.

Tentative Daily Schedule

Monday	Tuesday	Wednesday	Friday
Aug 28 Section WILA	Aug 29 Section SSLE	Aug 30 Section RREF	Sep 1 Problem Session
Sep 4 Labor Day No class	Sep 5 Section TSS	Sep 6 Section HSE	Sep 8 Section NSM
Sep 11 Problem Session	Sep 12 Quiz SLE	Sep 13 Section VO	Sep 15 Section LC
Sep 18 Section SS	Sep 19 Problem Session	Sep 20 Section LI	Sep 22 Section LDS
Sep 25 Section O	Sep 26 Problem Session	Sep 27 Quiz V	Sep 29 Section MO
Oct 2 Section MM	Oct 3 Section MISLE	Oct 4 Section MINSM	Oct 6 Problem Session
Oct 9 Section CRS Last day to drop with automatic W	Oct 10 Section FS	Oct 11 Problem Session	Oct 13 Quiz M

Mid-Term

Monday	Tuesday	Wednesday	Friday
Oct 16 Fall Break	Oct 17 Fall Break	Oct 18 Section VS	Oct 20 Section S
Oct 23 Section LISS	Oct 24 Problem Session	Oct 25 Section B	Oct 27 Section D
Oct 30 Section PD	Oct 31 Problem Session	Nov 1 Quiz VS	Nov 3 Section DM
Nov 6 Section EE	Nov 7 Section PEE	Nov 8 Section SD	Nov 10 Problem Session
Nov 13 Quiz D & E	Nov 14 Section LT	Nov 15 Section ILT	Nov 17 Problem Session
Nov 20 Section SLT	Nov 21 Section IVLT	Nov 22 Thanksgiving	Nov 24 Thanksgiving
Nov 27 Problem Session	Nov 28 Quiz LT	Nov 29 Section VR	Dec 1 Section MR
Dec 4 Section CB	Dec 5 Problem Session	Dec 6 Quiz R	

Final Examination
Wednesday, December 13, Noon