Text   We will be using *A First Course in Linear Algebra*, version 0.30, as our primary textbook. This text is 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.

The text *Introduction to Linear Algebra* by Lee W. Johnson, R. Dean Riess, Jimmy T. Arnold (Fourth or Fifth Edition) will be used as a backup source of homework exercises. The Bookstore also has a *highly* recommended text: *The Nuts and Bolts of Proofs* by Antonella Cupillari. 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. Making appointments or simple, non-mathematical questions can be handled via electronic mail — my address is `beezer@ups.edu`. Office hours will be 1:00–1:50 on Monday, Tuesday, Wednesday and Friday. 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 3 P.M. – 4:30 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 highly recommend the Texas Instruments TI-86, which is what I will be using, since this is the model currently used in our calculus courses. These are available at the bookstore, though you must ask for them at the checkout counter. It is not required that you use this exact model, but whatever you use should have the capabilities listed above. If you no longer have a manual for the TI-86, check the course WWW page for a link to an electronic version (you will especially want Chapter 13, and possibly Chapter 12).

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. Additional exercises from Johnson/Riess/Arnold are posted on the course WWW page. 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 at on Friday, May 13 at 8 AM. 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, especially since this exam
is at the end of the final exam period.

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 and emphases will change slightly 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.

Writing   This course has been designated as part of the University's Writing in the Major re-
quirement. Thus, there will be an emphasis on the quality of the mathematical exposition in your
written work, and there will be two assignments that will be primarily graded on the basis of the
exposition. These assignments will not be accepted late.

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 I will announce in class. They 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 **exactly** like "Math 232 XXX," where XXX is the acronym for the section. So for example,
your first response will be titled: Math 232 WILA. In the first line of your response, please put
your real name, then answer the questions in order. Do your best with mathematical notation, but
do not fret if it is a bit sloppy or weird. Please send only 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 — 60%; Reading Questions —
5%, Writing — 15%; Final — 20%. Attendance and improvement will be considered for borderline
grades. Scores will be posted on the World Wide Web 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 *The Logger* 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
Jan 17 MLK Day	Jan 18 Chapter SLE Section WILA	Jan 19 Section SSSLE	Jan 21 Section RREF
Jan 24 Problem Session	Jan 25 Section TSS	Jan 26 Section HSE	Jan 28 Section NSM
Jan 31 Problem Session	Feb 1 Quiz SLE	Feb 2 Chapter V Section VO	Feb 4 Section LC
Feb 7 Section SS	Feb 8 Problem Session	Feb 9 Section LI	Feb 11 Section O
Feb 14 Problem Session Last day to drop	Feb 15 Quiz V	Feb 16 Chapter M Section MO	Feb 18 Section RM
Feb 21 Section RSM	Feb 22 Writing #1	Feb 23 Problem Session	Feb 25 Section MM
Feb 28 Section MISLE	Mar 1 Section MINSM	Mar 2 Problem Session	Mar 4 Quiz M
Mar 7 Chapter VS Section VS	Mar 8 Section S	Mar 9 Problem Session Writing #1 Due	Mar 11 Section B

Mid-Term

Monday	Tuesday	Wednesday	Friday
Mar 21 Section D	Mar 22 Section PD	Mar 23 Problem Session	Mar 25 Quiz VS
Mar 28 Chapter D Section DM	Mar 29 Chapter E Section EE	Mar 30 Section PEE	Apr 1 Devlin Lecture MAA Meeting
Apr 4 Section SD	Apr 5 Writing #2	Apr 6 Problem Session	Apr 8 Quiz D & E
Apr 11 Chapter LT Section LT	Apr 12 Section ILT	Apr 13 Problem Session	Apr 15 Section SLT
Apr 18 Section IVLT	Apr 19 Problem Session Writing #2 Due	Apr 20 Quiz LT	Apr 22 Chapter R Section VR
Apr 25 Section MR	Apr 26 Problem Session	Apr 27 Section CB	Apr 29 Problem Session
May 2 Quiz LT	May 3 Housekeeping	May 4 Snow Day	

Final Examinations
Friday, May 13 at 8 AM