Introduction to Linear Algebra
MA 142
Fall 2009

Meetings: MCS 149, MW 11:00am–12:00pm – Lectures
F 11:00am–12:00pm – Discussion/Lecture

Instructor: Robert Harron

Email	rharron@
Office	MCS 230
Office Hours	TBD

Course website: http://math.bu.edu/people/rharron/MA142/

Textbook: *Linear Algebra and its Applications,* 3^{rd} *edition, David C. Lay*, Chapters 1–7

Official description: Coreq: MA 122 or 124 or 127 or 129. Systems of linear equations; matrices. Vector spaces and linear transformations. Determinants. Eigenvalues and eigenvectors. Applications. (Cannot be taken for credit in addition to CAS MA 242, MA 442, or ENG EK 102.) 2 credits.

Assignments: There will be weekly assignments taken mostly from the book.

Exams: There will be two midterms—one at the beginning of October, the other at the beginning of November—and a final during the usual exam period.

Grading scheme:

Homework	15%
Midterm I	20%
Midterm II	20%
Final	45%

Informal description: This course is an introduction to linear algebra focussing on techniques and applications. Linear algebra represents a very important tool in the bag of any scientist, engineer, or mathematician, applying to problems from the more mundane to the very advanced. The power of linear algebra stems from its melding of feasible algebraic computations with geometric/physical interpretations. Basically, one side is the algebraic theory of vectors and matrices, which is full of algorithms one can apply by hand to compute solutions to problems; the other side, is the geometric theory of "linear" things—straight lines,

flat planes, etc.—which provides extra meaning to many computations. In fact, linear things can be considered as small scale approximations to most anything else (like how the curvature of the Earth's surface is hardly something you ever think of), so that the geometric side has far-ranging applications, including as a basis for multivariable calculus. The interplay between the algebraic and the geometric will be both useful and fruitful. Let me emphasize that the ability to do computations will be important and thus doing the homework will be a valuable enterprise.

Academic conduct: Your academic conduct will, of course, be governed by the CAS Academic Conduct Code.