MA3042 (4-0) Linear Algebra
Objectives

Coordinator: Craig Rasmussen
Prerequisite: MA1042 or MA1114, or equivalent familiarity with elementary matrix algebra.
Text: *Linear Algebra with Applications*, 6th edition, Steven J. Leon, Prentice Hall 2002.

Hours	Topics	Sections
1-1	Vector Spaces	3.1
1-2	Subspaces	3.2
2-4	Linear Independence	3.3
1-5	Basis and Dimension	3.4
2-7	Change of Basis	3.5
1-8	Row and Column Spaces	3.6
2-10	Linear Transformations	4.1
2-12	Matrix Representations of Linear Transformations	4.2
1-13	Similarity	4.3
1-14	Scalar Product in $\mathbf{R}^n$	5.1
1-15	Orthogonal Subspaces	5.2
1-16	The Fundamental Subspaces Associated With a Matrix	5.2
2-18	Least Squares Problems	5.3
2-20	Inner Product Spaces	5.4
2-22	Orthonormal Sets	5.5
2-24	Gram-Schmidt Method, QR Factorization	5.6
2-26	Eigenvalues and Eigenvectors	6.1
1-27	Diagonalization	6.3
2-29	Hermitian Matrices	6.4
2-31	Singular Value Decomposition	6.5
1-32	Quadratic Forms	6.6
1-33	Positive Definite Matrices, the Cholesky Factorization	6.7
1-34	Floating-Point Numbers	7.1
1-35	Gaussian Elimination Revisited, PA=LU	7.2
1-36	Pivoting Strategies	7.3
2-38	Matrix Norms, Condition Numbers	7.4
2-40	Orthogonal Transformations	7.5
4-44	Exams and Holidays	

MA/Ra, September 10, 2003