Bronx Community College, CUNY
Department of Mathematics and Computer Science

SYLLABUS:	MTH 42 - Linear Algebra
PREREQUISITE:	MTH 32 (Calculus II) or the equivalent
TEXT:	*Elementary Linear Algebra (Applications Version), 11th edition* H. Anton, C. Rorres, Wiley 2014

SECTION	TOPIC	SUGGESTED EXERCISES (10th)	SUGGESTED EXERCISES (11th)
1.1	Introduction to systems of linear equations	2, 4, 6, 7, 9, 11-13	2, 3, 5, 8, 9, 13, 15, 20
1.2	Gaussian elimination	1-7, 13-15, 21, 25, 37	1-7, 15-19, 21, 25, 27, 29, 37
1.3	Matrices and matrix operations	1, 3, 5, 6, 7, 12, 15, 16, 17, 20, 22, 27-30	1, 3, 5, 6, 7, 11, 12, 15, 16, 23, 25, 27-30
1.4	Inverses and rules of matrix arithmetic	1,3, 5, 6, 7, 14-17, 29, 35	1, 2, 3, 5, 6, 7, 10, 12, 14, 18, 35, 36, 37
1.5	Elementary matrices and a method for finding A^{-1}	1-5, 9, 13, 15, 19, 20	1 - 6, 9, 13, 15, 17, 19, 20
1.6	Further results on systems of equations, invertibility	1, 3, 5, 10, 13, 15, 16	1, 3, 5, 10, 12, 13, 15, 18
2.1	Determinants by cofactor expansion	1-4, 19, 25, 29, 38	1-4, 19, 25, 29, 38
2.2	Evaluating determinants by row reduction	1, 3, 5, 9, 10, 13, 15, 20, 21, 27, 29	1, 3, 5, 7, 8, 10, 13, 14, 17, 19, 22, 23
2.3	Properties of the determinant function	5, 7, 9, 14, 15, 17	5, 7, 9, 14, 15, 17
4.1	Real vector spaces	3-14	3-14
4.2	Subspaces	1-5, 7-12, 17	1-5, 7-12, 17
4.3	Linear independence	1-4, 7, 9, 15	1-4, 7, 9, 10, 15
4.4	Coordinates and basis	1-5, 7-11	1-5, 7, 7-11, 16, 17, 20
4.5	Dimension	1, 3, 4, 8, 9, 12, 14, 19, 20	1, 3, 4, 8, 9, 12, 14, 22, 27
4.6	Change of basis	1-8, 13	1-3, 6-8, 9
4.7	Row space, column space, and null space	1-6, 11, 12, 16	1, 3, 5, 8, 9, 14, 16, 24
4.8	Rank and nullity	1-5, 7, 9, 13, 17, 18	1-6, 9, 15, 18, 19, 27
4.9	Matrix transformations from $\mathbb{R}^2$ to $\mathbb{R}^3$ ($\mathbb{R}^n$ to $\mathbb{R}^m$)	1, 3, 5, 7, 8, 14-16	1, 3, 5, 7, 8, 14-16
4.10	Properties of matrix transformations	1, 3, 5, 11	5, 10, 11, 13
5.1	Eigenvalues and eigenvectors	1-7, 13, 16, 18, 19, 28	1-6, 21, 24, 28, 29
5.2	Diagonalization	3, 5, 6, 7, 9, 11, 13, 15, 17, 23, 24	3, 5, 9,11, 14,15, 17, 20, 21, 35
8.1	General linear transformations	1-11, 14, 16, 18, 20, 21, 23, 25, 29, 41	1, 3, 5, 11, 14, 20, 21, 23, 25, 30
8.2	Composition and inverse linear transformations	1, 2, 5, 6, 11, 13, 15	1, 2, 3, 5, 11, 14, 17,
8.3	Isomorphism	1-7, 8	1-11, 17, 19
8.4	Matrices of general linear transformations	1, 3, 5, 6, 7, 9, 13, 16, 17	1, 3, 6, 7, 9, 10, 14, 17
8.5	Similarity	1, 3, 5, 11, 12	1, 3, 6, 7, 9, 11, 14, 22