Bronx Community College
of the City University of New York
Department of Mathematics and Computer Science

Syllabus: MTH 42 - Linear Algebra
Prerequisite: MTH 32 (Calculus II) or equivalent; and CUNY English Proficiency, or ENG 100 or 110, if required
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 R^2 to R^3 (R^n to 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

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- Using your BCC email account, please email all your **in-person and/or hybrid** professors of your status.
    - Please include your emplid # and current phone number in your email.
    - Please also email us at healthservices@bcc.cuny.edu .
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- You will be called by a Health Services staffer. It is critical that you connect in a timely matter with this staff member for contact tracing information.
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- Your negative test result must come from your doctor or a medical provider (e.g. CityMD, Urgent Care, etc.). We will **not** accept a negative home test result.

PL (06/15)

updated 01/14/2019

updated EA 8/22 for prereq

updated EA 1/23 for COVID