College of Staten Island, City University of New York (CUNY)

Math 338 (Section 5414): Spring 2013 Syllabus

Linear Algebra

Instructor: **Joseph Maher**

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Office hours: M 2:30-4:25 W 2:30-3:20

Course location: M,W 10:10 - 12:05 PM
3S-116

Textbook: Gilbert Strang, *Linear Algebra and Its Applications*, 4th edition, Brooks Cole
ISBN: 978-0-03-010567-8

Grading policy: 10% Homework and attendance

50% Midterms

40% Final

Additional info:

Disability policy: Qualified students with disabilities will be provided reasonable academic accommodations if determined eligible by the Office for Disability Services. Prior to granting disability accommodations in this course, the instructor must receive written verification of student's eligibility from the Office of Disability Services, which is located in 1P-101. It is the student's responsibility to initiate contact with the Office for Disability Services staff and to follow the established procedures for having the accommodation notice sent to the instructor.

Integrity policy: CUNY's Academic Integrity Policy is available online at
http://www.cuny.edu/about/info/policies/academic-integrity.pdf

DEPARTMENT OF MATHEMATICS
COLLEGE OF STATEN ISLAND

MTH 338 LINEAR ALGEBRA

8/2012 ACP/JC

Text: Linear Algebra and Its Applications , Gilbert Strang (4th edition)
Publisher: Brooks Cole Inc., 2006, ISBN-13: 978-0-03-010567-8
MIT OpenCourseWare http://ocw.mit.edu/courses/mathematics/18-06sc-linear-algebra-fall-2011
Note: Each lesson is a 2 hour class period

Date	Lesson	Section	Topic	Exercises
8/28	1	1.1 1.2	Introduction Geometry of Linear Equations	p. 9: 1,2,3,4,8,9,11
8/30	2	1.3	Gaussian Elimination	p. 15: 1,2,3,5,10.17,20,28
9/4	3	1.4 1.5	Matrix Notation and Multiplication	p. 26: 1,3.4,7,10,17, 22,32
9/6	4	1.5	Triangular Factors Row Exchanges	p. 39: 3,4,11,13,29
9/11	5	1.6	Inverses and Transposes	p. 52: 1,6,7,8,10,11,18, 25, 38, 40.41,49,50,53
9/13	6	1.7	Special Matrices and Applications Review (Quiz 1)	p. 63: 1,2,3
9/20	7	2.1	Vector Spaces and Subspaces	p. 73: 1,2,5,8,14,17,18, 22,28
9/27	8	2.2	Solving Ax =0, Ax = b	p. 85: 1,2,3,5,7,12,19 33,35,53
10/2	9		Review	
10/4	10		Exam 1	
10/9	11	2.3	Linear Independence, Basis, Dimension	p. 98: 1,2,6,11,13,16,20 32,37,44
10/11	12	2.4	Fundamental Subspaces	p. 110: 1,2,3,12,22,29
10/16	13	2.5	Graphs & Networks	p. 122: 1,6,10,17
10/18	14	2.6	Linear Transformations Review (Quiz 2)	p. 133: 1,2,3,4,6,21,22 28,36
10/23	15	3.1	Orthogonal Vectors and Subspaces	p. 148: 1,2,5,6,7,21,32
10/25	16	3.2 3.3	Cosines and Projections on Lines Projections and Least Squares	p. 157: 1,12,17,21 p. 170: 1,3,12,13
10/30	17	3.4	Orthogonal Bases and Gram-Schmidt	p. 185: 1,6,13,16,17,31
11/1	18		Review (Quiz 3)	
11/6	19		Exam #2	
11/8	20	4.1 4.2	Introduction to Determinants Properties of Determinants	p. 206: 1,2,4,10,14,15,22 25

11/13	21	4.3	Formulas for the Determinant	p. 215: 1,2,3,7
		4.4	Applications of Dertminants	p. 225: 1,13, 14,27,28
11/15	22	5.1	Eigenvalues: Introduction	p. 240: 1,2,3,5,7,10,11, 14,20,21
11/20	23	5.2	Diagonalization of a Matrix	p. 250: 1,2,3,5,6,7,15,16, 17,19,23
11/27	24	5.3	Applications	p. 262: 2,8,9,12,18
11/29	25	5.6	Similarity Transforms: Change of Basis	p. 302: 1,2,3, 8, 12, 16, 31
12/4	26		Review (Quiz 4)	
12/6	27		Exam #3	
12/11	28		Review for Final	

ROLE IN CURRICULUM

Required course for the math major. At least one of MTH 338 and 311 required for the computer science major.

LEARNING GOALS AND ASSESSMENT PLAN

Learning Goal	Assessment
The student will be able to solve a system of linear equations.	NA
The student will be able to construct a basis for any appropriate vector space.	NA
The student will be able to diagonalize a matrix when possible.	NA
	NA

When assessment activities are done, the results will be summarized in memorandum form and filed with the department chairperson for record keeping purposes.

Information obtained from assessment will be used to assess and self-reflect on the success of the course and to make any necessary changes to improve teaching and learning effectiveness.

Undergraduate Catalog Course Description

College of Staten Island

Course prefix:	MTH
Course number:	338
Course title:	Linear Algebra
Subject	Mathematics
Minimum credits:	4.0
Maximum credits:	4.0
Hours per week:	4.0
Course description:	An introduction to the computational and theoretical aspects of linear systems and linear transformations, and to the writing of mathematical proofs. This is a core topic in mathematics, with applications in many fields. Topics include systems of linear equations, matrices, matrix equations, determinants, vector spaces, linear transformations, linear dependence, eigenvalues, and eigenvectors; with selected applications.
Prerequisite:	MTH 232.
Comments:	