Information
Math 338

Professor	Marcello Lucia Office 1S-226, marcello.lucia@csi.cuny.edu `http://www.math.csi.cuny.edu/~mlucia/`
Time and Place	Monday, Wednesday : 6:30–8:10pm, 1S-219
Office hours	Monday: 8:10–8:50pm, Monday, Wednesday: 5:30–6:30pm.
Textbook	INTRODUCTION TO LINEAR ALGEBRA, by *Strang (5th Edition)* Wellesley-Cambridge Press & Co. (2016) ISBN: 978-0-9802327-7-6 (**The book is mandatory**)
Course Outline	This course aims to study linear systems, and develop a theory to understand the structure of the solutions. To reach this goal, we will introduce the concepts of matrix, vector space and of linear maps.

Course Grade   The final course grade is determined as follows:

		Test 1	10%		
Homework	5%	**Test 2**	15%	**Final**	45%
		Test 3	25%		

The material on each exam is cumulative and based on the lectures given in class together with the HW.

First test: Monday, February 23rd
Second Test: Wednesday, March 25th
Third Test: Monday, May 4th

Homework	The HW must be submitted using "Webwork" that can be found on the mathematics Website of CSI. Go to `http://www.math.csi.cuny.edu/` and follow the links.
Integrity policy	In every university, College of Staten Island included, there is an integrity policy. You can find it on brightspace and you should look at it.
Cell phone	Cell phone must be switched off. No phone during my lectures.

Lesson Plan

Below, each lesson corresponds to a 100 minutes class.

The lesson may start with a 10-15 minutes student presentation on a topic that I will assign.

Lesson	Sections	Topics	Homework
1	1.1, 1.2	Vectors, Linear combinations, Dot Products	p.8, p.17
2	1.3, 2.1	Matrices, Linear equations	p.29, p.40
3	2.2, 2.3	Elimination, Elimination using matrices	p.52, p. 64
4	2.4	Matrix operations	p.76
5	2.5	Inverse matrices	p.90
6	2.6	Factorization A=LU	p.102
7	2.7	Transpose, permutations	p.115
8		**Exam 1 (February 23 rd)**	
9	3.1	Vector spaces	p.128
10	3.1	Vector spaces	p.128
11	3.2	Null space	p.140
12	3.3	Rank and solutions to AX = b	p.155
13	3.4	Independence, basis, dimension	p.174
14	3.5	Dimension of the four subspaces	p.189
15	4.1	Orthogonality of the four subspaces	p.200
16	4.2	Projections	p.214
17		**Exam 2 (March 25th)**	
18	4.3	Least squares approximations	p.227
19	4.4	Orthogonal Bases and Gram-Schmidt	p.240
20	5.1	Determinants	p.252
21	5.2	Permutation and cofactors	p.264
22	5.3	Cramer's rule, inverses	p.281
23	6.1	Eigenvalues	p.295
24	6.2	Diagonalizing a matrix	p.311
25		**Exam 3 (May 4th)**	
26	6.4, 6.5	Symmetric matrices, positive definite matrices	p.343 and p.357
27	8.1, 8.2	Linear Transformations	p.406 and p.417
28		Last Day of Class (12/11)	

You must to do as much as possible HW from the book.

The page indicated above gives only the first page of the problems related to the section covered.

The HW on Webwork must be submitted every Sunday.