

Finite Mathematics

Course. Finite Mathematics (Math D11.25). 5 units (60 hours total per quarter).

Time and Location. Winter 2016, MW, 4:00 pm – 6:15 pm, Room: L-27.

Instructor. Francisco Villarroya Alvarez.

Office hours. M 2:45-3:45 pm; W 2:45-3:45 pm. Additional hours by appointment.

Prerequisites. Math 114 or an equivalent course with a grade of C or better. Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.

Textbook. Applied Finite Mathematics, by Rupinder Sekhon.

Required Materials. A scientific calculator is recommended.

Course Description.

- Linear methods: linear equations, matrices, linear programming and the simplex method. Mathematics of Finance.
- Probability methods: combinatorics, frequentist and bayesian probabilities. Markov chains and Game Theory.
- The course puts special emphasis on the understanding of the modelling process and how Mathematics is used in real-world applications.

Student Learning Outcome.

- Identify, evaluate and apply appropriate linear and probability methods.
- Use mathematical concepts and models to obtain deeper understanding of real-world situations, specially those related to Finance.
- Evaluate and analyse problems in a logical manner. Make informed and reasoned decisions. Communicate results effectively.

Assesment. Two 50-minute midterm examinations will be given in class. These tests will be announced in advance.

A mandatory two-hour comprehensive final exam will be given at the end of the quarter. The **final exam** will take place on Wednesday 23th of March 2016, 4pm - 6pm.

The contribution of each exam to the final grade will be as follows: 25% each of the two midterms and 50% for the final exam.

Grading scale. The following table shows the minimum percentage needed to guarantee the indicated grade:

Letter Grade	Percentage	Letter Grade	Percentage
A ⁺	[97, 100]	B ⁺	[87, 90]
A	[93, 97]	B	[83, 87]
A ⁻	[90, 93]	B ⁻	[80, 83]
C ⁺	[72, 80]	D	[50, 65]
C	[65, 72]	E	[0, 50]

Tentative Schedule. Classes will take place according to the following approximate timetable:

Week	Lecture	Task	Test
1	Linear Equations (1.1, 1.2, 1.3, 1.4, 1.5)		
2	Matrices (2.1, 2.2, 2.3, 2.4)	Prob	
3	Linear Programming (3.1, 3.2)		
4	Linear Programming: the simplex method (4.1, 4.2) Mathematics of Finance (5.1, 5.2)		
5	Mathematics of Finance (5.3, 5.4, 5.5)		Test 1
6	Combinatorics: sets and counting (6.1, 6.2, 6.3, 6.4, 6.5)		
7	Combinatorics: sets and counting (6.6, 6.7)	Prob	
8	Probability (7.1, 7.2, 7.3, 7.4, 7.5)		
9	Probability (7.6) Bayesian Probability (8.1, 8.2)		Test 2
10	Bayesian Probability (8.3, 8.4) Markov chains (9.1, 9.2)		
11	Markov chains (9.3) Game Theory (10.1, 10.2, 10.3)		
12			Exam

Tutorials. Tutorial assistance often means the difference between students earning a passing or failing grade. Do not hesitate to come to my office hours to discuss homework or any aspect of the course. In addition, the Math and Science Tutorial Center (building S43) offers free individual and group tutoring. Please take advantage of these free services.

Accommodations for students with disabilities. Disability Support Services (DSS) provides support services for students with disabilities. For more information or to make an appointment to request services, contact DSS at 408-864-8753.