Soochow University

MATH 1150 Finite Mathematics

Course Outline

Summer, 2020

The course introduces the basic mathematical techniques of Finite Mathematics. This course will discuss linear functions, matrices, sets and counting, probability and statistics, and Markov chains, as well as input-output analysis, inventory planning, optimal production schedules, insurance probabilities, and traffic patterns.

Course Information

Contact Hours: 54 hours

Credits: 3 credits

Course Prerequisite: n/a

Instructor: TBA

Course Objectives

Upon successfully completing the course, students will be able to:

1. Apply analytical skills and mathematical techniques to solve problems
2. Develop mathematical models like a linear model, a system of inequalities, simple linear optimization problems and so on
3. Represent quantitative information using mathematical models

Textbooks/Materials

Tan, S T. 2018. *Finite Mathematics for the Managerial, Life, and Social Sciences*. 12th edition. Stamford, CT: Cengage Learning. ISBN: 978-1-337-40578-7.

Attendance Requirements and Academic Integrity

Students are required to attend classes on the scheduled time. Missing classes without permission will lead to decrease in overall grade.

- Missing less than two classes: no penalty.
- Missing more than two classes: 7% will be taken off from the overall grade.

Exams must be taken on the scheduled day and location. There will be no makeup exam for summer sessions.

A nonprogrammer calculator could be used in the tests.

Soochow University values academic integrity, respect, fairness, honesty and responsibility. Students must be aware of and comply with Soochow University's Academic Integrity policies. Any cheating, falsification, plagiarism, impersonation or any attempting to commit the above will be reported to the university's administration office. Any academic dishonesty behaviors will be kept on record and students will be punished according to the rules.

Evaluation and Grading

Participation and Homework	10%
3 Assignments	5% for each
2 Midterm Tests	20% for each
Final Exam	35%
	Total: 100%

Homework will be given on a regular basic in order to reinforce the understanding of specific skills and they should be submitted to the course website. Assignments are required to finish independently and submitted on time.

Midterm Tests will be held on the middle of the class while the Final Exam will be on the last day of the class. More details will be informed in class.

Soochow University's grading scale is shown as the following:

Letter Grade	Score Grade	Grade Point Average
A+	95-100	4.0
A	90-94	4.0
A-	85-89	3.7
B+	80-84	3.3
B	75-79	3.0
B-	72-74	2.7
C+	68-71	2.3
C	65-67	2.0

C-	60-64	1.7
D+	55-59	1.3
D	50-54	1.0
F	< 50	0.0

Course Topics

1. Week of July 20th:

Course Introduction and Overview

Straight Lines and Linear Functions

The Method of Least Squares

Systems of Linear Equations

Basic Matrix Operations

2. Week of July 27th: **Assignment 1 due (5%) Midterm Test 1 (20%)**

Matrix Products, Inverses and Applications of Matrices

Midterm Test #1

Sets and Counting

Applications of Venn Diagrams

The Multiplication Principle, Permutations, and Combinations

3. Week of August 3rd: **Assignment 2 due (5%)**

Introduction to Probability

Basic Concepts of Probability

Rules of Probability

Conditional Probability and Independent Events

Distributions of Random Variables

Expected Value

4. Week of August 10th: **Midterm Test 2 (20%)**

Midterm Test #2

Measures of Variation

Normal and Binomial Distributions - Applications

Markov Chains

Markov Chains-Stochastic Matrices

5. Week of August 17th: **Assignment 3 due (5%) Final Exam (35%)**

Game Theory and Strictly Determined Games

Games with Mixed Strategies

Final Exam Review