MATH 144

City Colleges of Chicago Course Title: Finite Mathematics (IAI Code: M1 906)

Length of course: 16 Weeks

Contact Hours: 4 Contact Hours

Credit Hours: 4 Credit Hours

Lecture Hours: 4 Lecture Hours

Lab Hours:

Weekly Plan: 4 Hours

Catalogue Description:

This course covers mathematical concepts applicable to problems in business and social science. Topics include linear functions, linear systems, linear programming, finance, set theory, logic, counting techniques and probability theory. The use of technology (e.g., graphing calculator, computer software, etc.) is an integral part of this course. Writing assignments, as appropriate to the discipline, are part of the course.

Students the Course is Expected to Serve:

This course is intended for students majoring in business administration or management sciences or those whose program requires a finite mathematics course.

Pre-requisites:

Prerequisite -- MATH 140 with a minimum grade of 'C' or Placement Test -- or Consent of Chair --

Course Objectives:

- 1. Interpret mathematical solutions appropriately (verbally and in writing) within the context of a proposed problem.
- 2. Use technology to perform mathematical computations and explore mathematical concepts.
- 3. Apply and adapt a variety of appropriate strategies and models to solve problems involving the areas of business and social science.
- 4. Communicate orally and in writing mathematical ideas coherently.

Student Learning Outcomes:

Upon satisfactory completion of the course, students will be able to:

- A. Identify the domain and range of a linear function, including any restrictions, when applied to a contextual (real-world) situation.
- B. Formulate and apply a linear model (e.g., profit, supply, demand, depreciation, regression, etc.) to a contextual situation with and without technology.
- C. Solving systems of equations in three variables using matrices with and without technology.
- D. Formulate and apply a linear system of equations (e.g., input-output models, regression, etc.) to a contextual situation.
- E. Solve systems of inequalities in two variables with and without technology.
- F. Formulate and apply a linear programming model, including the use of the simplex method, to a contextual situation and interpret the solution.
- G. Apply the concepts of simple and compound interest, annuity, future and present value, and the yield rate of investments to contextual situations.

- H. Construct truth tables and equivalent statements involving compound or conditional statements.
- I. Formulate and apply principles of sets and set operations to a contextual (real-world) situation.
- J. Apply Venn diagrams to problems involving sets and counting.
- K. Apply permutations and combinations to a contextual situation.
- L. Determine and count the outcomes in the sample space of an experiment.
- M. Determine the conditional or unconditional probability of an event from a contextual situation using the appropriate rules of probability (i.e., addition, multiplication, etc.).
- N. Formulate and apply discrete probability distributions to a contextual situation.
- O. Compute the expected value for a discrete probability distribution.

Topical Outline:

<u>Week</u>	<u>Topic</u>
1-2	Linear Functions
3 - 5	Linear Systems of Equations & Inequalities
6 - 7	Linear Programming
8	Finance
9 - 10	Sets and Logic
11 - 16	Counting and Probability

Calendar:

Methods of Evaluation:

Total Percentage: 0%

The weight given to exams, quizzes, and other instruments used for evaluation will be determined by the instructor.

Methods of Assessment:

Exams, quizzes, homework, in-class activities and other assessments will be used as appropriate to measure student learning.

Methods of Instruction:

Problem-based activities, collaborative-learning techniques, and lecture will be used as appropriate.

Recommended Text:

- 1. Rolf, H L. Finite Mathematics. 7th Edition, Brooks Cole, 2007 ISBN: 0495118427
- 2. Lial, Greenwell, & Ritchey Finite Mathematics 9th Edition, Pearson, 2007