



Course Title: Math for Decision Sciences I

Course No. MAT-125

Class Hours: 3

Laboratory Hours: 0

Credit Hours: 3

Dept. Head Approval: _____
Maria DeLucia, Ph.D.

Date: 2007 - 2008

Dean Approval: _____
Reginald Luke, Ph.D.

Prerequisite

MAT - 014, at least two years of high school algebra, satisfactory score on placement examination, or departmental approval.

Textbook of Course:

Titles	<u>Finite Mathematics and Its Applications</u>	<u>Essential Computer Mathematics (Schaum's Outline)</u>
Authors	Goldstein, Schneider, Siegel	Lipschutz
Publishers	Prentice-Hall	McGraw Hill

Supplemental material to be supplied to students and instructors.

Catalog Course Description:

This course is designed to introduce students to methods of mathematical thinking, to prepare them for more advanced courses, and to introduce them to mathematical concepts that occur in programming and algorithm development. Topics introduced in the first semester are logic, truth tables, number systems, linear equations, systems of equations, matrix operations, mathematics of finance, exponentials, logarithms, relations and functions. Topics stress discrete mathematics. This is the first semester of a two-semester sequence designed for students in computer science.

Objectives of Course:

1. to introduce students to mathematical concepts underlying key concepts in computer science such as logic, development of algorithms and the use of number systems.
2. to familiarize students with the use of logic in assessing arguments and claims made in the media (such as news items, editorials and advertisements).
3. to develop a problem solving framework and strategies that can be used to solve a variety of problems.
4. to develop an appreciation in students that mathematics, logic and originality are used to improve the technologies that affect our daily lives.
5. to analyze information gathered from tables and other references using a calculator, computer software and other resources.
6. to be aware that precise mathematical methods may lead to invalid solutions of problems.
7. to recognize that mathematical ideas may be represented in numerical, algebraic, geometric and verbal terms.
8. to demonstrate the concept of a mathematical model and its uses.

COURSE OUTLINE MAT -125

<u>CHAPTERS</u>	<u>TOPICS</u>	<u>APPROXIMATE NUMBER OF WEEKS</u>
12	Logic and Truth Tables	(2 weeks total)
	Propositions and Truth Tables (AND, OR, XOR)	$\frac{1}{2}$
	Implication, Biconditional and Logical Equivalences	$\frac{1}{2}$
	Valid Arguments	$\frac{1}{2}$
	Circuits	$\frac{1}{2}$
1	Number Systems (Schaum's Outline)	(2 weeks total)
	Binary System and Operations	1
	Base Conversion and Hexadecimal System	1
1	Linear Equations	(1 week total)
	Coordinate System, lines, parallel and perpendicular lines	$\frac{1}{2}$
	Applications Problems	$\frac{1}{2}$
2	Matrices	(3 weeks total)
	Solving Systems	$\frac{1}{2}$
	Larger Systems and Matrix Algebra	1
	Multiplication of Matrices	$\frac{1}{2}$
	Matrix Inverses	1
10	Mathematics of Finance	(1 week total)
	Interest; Compound Interest	1
Supplemental material	Exponentials and Logs	(1 week total)
	Laws of exponents	$\frac{1}{2}$
	Using Logs	$\frac{1}{2}$
Supplemental material	Relations and Functions	(1 $\frac{1}{2}$ weeks total)
	Properties of Relations and Digraphs	1
	Properties of Functions	$\frac{1}{2}$

SUGGESTED TIME SCHEDULE

MAT 125

1.	12.1 - 12.2	15.	2.3 - 2.4
2.	12.3	16.	2.5 - 2.6
3.	12.4	17.	More 2.5 - 2.6
4.	12.4 / Circuits (supplemental)	18.	Review / Catch up
5.	Review / Catch-up	19.	EXAM
6.	EXAM	20.	10.1
7.	1.1 - 1.3 (Schaum's)	21.	Exp. And Logs
8.	1.4 - 1.6 (Schaum's)	22.	Exp. And Logs
9.	more 1.4 - 1.6	23.	Relations & Functions
10.	1.1 - 1.2	24.	Review / Catch-up
11.	1.3 - 1.4	25.	EXAM
12.	Review / Catch-up	26.	Relations & Functions
13.	EXAM	27.	Relations & Functions
14.	2.1 - 2.2	28.	Review for Final