SU DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
SYLLABUS *(Tentative)*
MATH 210   Introduction to Discrete Mathematics

Objectives: To introduce basic techniques of proof and reasoning, in particular, those for solving discrete problems. To enhance modes of thinking essential to mathematics. To teach techniques widely used in computer science, operations research, and statistics.

Intended for: Students interested in enhancing their reasoning and problem-solving skills. (Required for Mathematics and Computer Science Majors)

Prerequisite: MATH 140 or equivalent.

Text: " Discrete Mathematics A Brief Introduction," by Kathleen M. Shannon; 2012 (available only through Salisbury University's Bookstore).

	Topics	(50 minute) Hours
Chapter 0 **What is Discrete Mathematics? (with examples)** Logistic problem, Königsburg problem, party problem		3
Chapter 1 **Preliminaries I: Sets** Sets, subsets, set operations, truth tables, functions and relations, equivalence relations, modular arithmetic, partial orderings, and Hasse Diagrams		12
Chapter 2 **Preliminaries II: Logic and Proof** Introduction to proof, mathematical induction, strong induction, universal and existential quantifiers		7
Chapter 3 **Counting** Multiplication rule, ordered samples with and without repetition, unordered samples with and without repetition, principle of inclusion and exclusion		12
Chapter 4 **Trees and Other Graphs** Graphs, multigraphs, networks, cycles, trees and spanning trees, greedy algorithms, and binary trees		9
Chapter 5 **Propositional Calculus, Boolean Algebra and Digital Logic Gates** Set theory, propositional calculus, Boolean algebra, digital logic gates		9
Tests		$\underline{3}$ 56

EVALUATION

Homework, Quizzes, and Class Participation	30-40% (approx)
Tests and Final Exam	60-70% (approx)

 This course complies with the University Policy on Writing Across the Curriculum. The ability to communicate mathematics effectively both orally and in writing is very important. The assignments in this course are designed to help students develop and enhance that ability.

NOTE: ONCE A STUDENT HAS RECEIVED CREDIT, INCLUDING TRANSFER CREDIT, FOR A COURSE, CREDIT MAY NOT BE RECEIVED FOR ANY COURSE WITH MATERIAL THAT IS EQUIVALENT TO IT OR IS A PREREQUISITE FOR IT.