

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: Mathematical Reasoning and Proof with Puzzles, Patterns and Games" by Douglas E. Ensley and J. Winston Crawley, Wiley Publishing, 2006

<i>Chapter Titles</i>	(50 minute) Hours
Chapter 1 <i>Puzzles</i> First examples, number puzzles and sequences, propositional logic, predicates and implications	4
Chapter 2 <i>Primers of Math Writing</i> Proofs, Induction, Strong Induction, Contradiction and Pigeonhole principle	8
Chapter 3 <i>Sets and Boolean Algebra</i> Sets definitions and operations, set properties, boolean algebra	10
Chapter 4 <i>Functions and Relations</i> Properties of relations and functions, composition of functions	8
Chapter 5 <i>Combinations</i> Rules for counting, binomial theorem, recursion	7
Chapter 6 <i>Probability</i> Fundamentals of probability, games of chance	6
Chapter 7 <i>Graphs and Trees</i> Graphs, multi graphs, networks, cycles, trees and spanning trees, greedy algorithms, and binary trees	10
Tests	<u>3</u> 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.