



**SOUTHWESTERN
UNIVERSITY OF FINANCE AND ECONOMICS**

MATH 205

Introductory Discrete Mathematics

Academic Inquiry: Southwestern
University of Finance and
Economics

COURSE OVERVIEW

The course covers elementary discrete mathematics that is necessary for study of computer science and engineering, which emphasize the formality of proofs and problem solving techniques. Topics included: Logic, Set, Asymptotic Notion, Probability, Combinatorics, Algebraic Structure, and if time allowed Graph theory.

COURSE FORMAT

48 lecture hours;
9 tutorial hours;
9 office contact hours;
1 3-hour Q-A review session;
1 3-hour final exam.
The total Contact Hour of this class is 72 hours.
Credits: 4

SWUFE Official Email:
ysm@swufe.edu.cn
Office Hours: 3 hours each week
To be determined by instructor,
Last updated in 2019

EVALUATION

- Homework 20%
- 3Tests 20%
- Midterm 20%
- Final Exam 40%

A	90% and above
B	80% and above but 90% below
C	70% and above but 80% below
D	60% and above but 70% below
F	Below 60%

REFERENCE TEXT

Discrete Mathematics by Norman L. Biggs

COURSE GOALS

Upon successful completion of this course, students will

- Understand the formal definition of functions
- Familiarize with the process of writing formal proofs
- Acquire knowledge of basic algorithms
- Introduction to Proofs

ASSIGNMENTS

Homework will be assigned each week and will be collected on the first day of the week. Students will receive the graded homework during the week and can submit one correction with the next homework assignment.

PREPARATION BEFORE CLASS

Students are expected to have a glance on the topic in the textbook to understand the agenda of the course. Students should also review the last lecture and ask any unsolved question in the beginning of class.

ATTENDANCE

Attendance for this class is mandatory and graded. Participation includes the following: regular attendance, timely arrival, and participation in in-class problem-solving. Regular attendance is critical to learning the class material and will be therefore a part of your overall grade. Absences and tardiness may lower your grade.

ACADEMIC INTEGRITY

All students are expected to only submit their original work. Students with evidence of cheating will fail the course and will be reported to the administration office.

SPECIAL ACCOMMODATION FOR EXAMS

Southwestern University of Finance and Economics intends to assist students with special needs. Students with documented disabilities or serious illness will be accommodated after prior arrangement.

TENTATIVE COURSE OUTLINE

- Class1: Introduction to the course
- Class2: Propositions and Logic Operations
- Class3: Logical Reasoning
- Class4: Predicates
- Class5: Algorithms
- Class6: Set basics
- Class7: Set Operations and Cartesian Products

Class8: Proof Techniques and Induction
Class9: Properties of Functions
Class10: Function Composition, Inverses
Class11: Binary Relations; Binary Relations and graphs
Class12: Midterm
Class13: Directed Graphs; Undirected Graphs
Class14: Trees; Coloring
Class15: Partial Orders and Equivalence Relations; Algorithms Computation
Class16: Connections
Class17: Sequence and Math Induction
Class18: Counting Basics
Class19: Permutation
Class20: Discrete Probability
Class21: Bayes' Theorem
Class 22: Distribution; Expected Value
Class 23: Recurrences; Fast Arithmetic
Class 24: Review for final