

CS 3233 Syllabus – Fall 2003

Discrete Mathematical Structures

This course is a survey and development of the theoretical tools suitable for algorithmic applications. Major topics covered include propositional and predicate calculus, mathematical induction, proofs, set theory, and finite state automata. 3 hours credit. Prerequisites: CS 1723 and MATH 1223. The objectives of this course are to introduce you to several mathematical concepts for analyzing computer programs and to give you experience in the use of these concepts.

Instructor

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Office Hours: Monday 10-11am, Wednesday 1-2pm, Friday 11am-12, or by appointment.

Book

Required: K. Rosen, *Discrete Mathematics and Its Applications*, 5th Edition, McGraw-Hill, 2003.

Grading

Homework	10%
Midterm 1	25%
Midterm 2	25%
Final Exam	40%

Late homeworks will be accepted only for reasonable excuses.

Homeworks

There will be several homeworks. Generally, homework will be assigned on Thursday during class and be due on Tuesday. The homework should also be available on my web site. To discourage collaboration and to avoid accounting of illnesses and emergencies, you will fulfill the 10% homework portion of your grade if you correctly solve a majority of the homework problems.

Attendance and Participation

Regular class attendance per se is not required, but note homework policy above. Make-up exams are permitted as long as it's a reasonable excuse, you inform me in a timely fashion, and you document the excuse.

Recitation Policy

The recitation section will have a short quiz nearly every week. Only two quizzes will be dropped, so regular attendance is a must. Illness, car breaking down, or other emergencies do not earn you more quizzes that you are allowed to drop or make up.

My goal for the recitation is to work on basic skills that are needed for the regular class. For example, we will discuss concepts in logic in the regular class while the recitation will work on evaluating logical expressions.

Tentative Schedule

<u>Day</u>	<u>Topic</u>	<u>Reading</u>
Aug. 26	Introduction & Logic	§1.1-2
28	Predicates and Quantifiers	§1.3-4
Sept. 2	Methods of Proof	§1.5, §3.1
4	Sets, Functions	§1.6-8
9	Algorithms & Complexity	§2.1-3
11	Algorithms & Complexity	§2.1-3
16	Integers and Algorithms	§2.4-5
18	Applications & Matrices	§2.6-7
23	Midterm Review	
25	First Midterm	
30	Midterm Results	
Oct. 2	Sums, Sequences, & Math. Induction	§3.2-3
7	Mathematical Induction	§3.3
9	Recursion	§3.4-5, §6.1
14	Counting & The Pigeonhole Principle	§4.1-2
16	Permutations and Combinations	§4.3-4
21	Discrete Probability	§5.1-2
23	Midterm Review	
28	Second Midterm	
30	Midterm Results	
Nov. 4	Relations	§7.1
6	Types of Relations	§7.2,4,5,6
11	Graphs	§8.1-3, §7.3
13	Connectivity & Shortest Path	§8.4,6
18	Introduction to Trees	§9.1,3
20	Spanning Trees	§9.4-5
25	Languages and Grammars	§11.1
Dec. 2	Final Review	
Dec. 11	Final Exam: 10:30am–1:15pm	