ICS 252—Discrete Structures I

Term: Winter 2006

Section: 1

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DESCRIPTION

The course covers various topics in discrete mathematics that are widely used in Computer Science. Discrete mathematics deals with (finite or infinite) objects that are disconnected like books, tables, integers, graphs, and trees. The course is divided into five main areas: combinatorics, probability, recurrence relations, graph theory, and models of Computations.

PREREQUISITES

MATH 101 and ICS102 are the official prerequisites for this course. However, a background in discrete mathematics (in particular ICS 251), data structures, and probability will be very helpful

TEXTBOOK

The official textbook is

K. H. Rosen, *Discrete Mathematics and Its Applications*, 5th Ed., McGraw-Hill, 1999.

Students are also encouraged to refer to other books on discrete mathematics available in the library. Some of the highly recommended books are:

1. N.L. Biggs, *Discrete Mathematics* (revised edition), Clarendon Press, 1989.
2. Crisler, N., Fisher, P. and Froelich, *Discrete Mathematics through Applications*, 2nd Ed., W. H. Freeman Co., 2000.
3. A. Tucker, *Applied Combinatorics*, John Wiley, 1980.
4. R. P. Grimaldi, *Discrete and Combinatorial Mathematics: An Applied Introduction*, 4th Ed., Addison Wesley, 1998.

CONTENTS

Weeks	Topics	Chapters	Excluded Sections
1-3	Counting techniques.	4	4.6
4	Discrete Probability	5	5.3
5-8	Recurrence relations	6	
9-11	Graphs	8	8.6
12	Trees	9	9.3, 9.4, 9.5
13-15	Models of Computations	11	

EVALUATION

Assignments/Quizzes	15%
Major Exam I* Thu. Mar. 16th	25%
Major Exam II* Thu. Apr. 20th	25%
Final Exam*	35%

- These exams are not comprehensive except the final exam.

REMINDERS

1. It is strongly recommended that class notes be taken on a regular basis.

2. The course website is an important source of information. It will be updated regularly to contain up-to-date announcements, handouts, assignments and their solutions.

3. By the university rules, 9 absences yield a DN grade.

4. No assignments would be accepted without penalty after the due date.