CS U200 Discrete Structures Fall 2003 Syllabus

Text:

Kenneth H. Rosen, "Discrete Mathematics and Its Applications, Fifth Edition", McGraw Hill, 2003.

Overview:

What is "discrete mathematics" about? This course will present the mathematical foundations necessary for computer science. You will study mathematical facts and how to apply them. We hope that you will learn to think mathematically about the problems you wish to solve with a computer. Some of the topics we will cover are listed here.

mathematical reasoning

We will study logic and methods of proof as tools for reading, understanding, and constructing mathematical arguments.

combinatorial analysis

Counting or enumerating objects may sound like something you learned in elementary school but just how many strings are there of 20 decimal digits that contain two 0s, four 1s, three 2s, one 3, two 4s, three 5s, two 7s, and three 9s? We will study combinations and permutations to tackle problems like this.

discrete structures

Discrete stuctures are the mathematical structures we will use to represent discrete objects. In this course, we will study sets, functions, permutations, relations, graphs, trees, and perhaps, some finite-state machines.

algorithmic thinking

An algorithm is a finite set of clear instructions that tell how to perform a task. The design and implementation of algorithms is a major part of computer science. A good algorithm designer must also be able to verify that an algorithm works properly and determine the memory and time required for it to run.

applications and modeling

We will see many applications of discrete mathematics to solve real problems.

Grading:

The work for this course will consist of written and on-line homework, quizzes, and a final exam. Your grade will be computed as follows:

written homework	10%
on-line homework	10%
quizzes	50%
final exam	30%

We expect that you will study with friends and often work out problem solutions together but you must write up your own solutions, in your own words. Some of the on-line exercises will be different for each student.

Course url:

http://www.ccs.neu.edu/home/fell/CSU200/CSU200F2003.html