CSCI 1323 (Discrete Structures), Spring 2002

Review for Final Exam

Note: The HTML version of this document may contain hyperlinks. In this version, hyperlinks are represented by showing both the link text, formatted like this, and the full URL as a footnote.

1 Format of the exam

The exam will be at the scheduled exam period, May 8 at 8:30am. It will be about twice the length of the in-class exams and so should take about 2.5 hours, but you will have the whole three-hour exam period if you need it. You may use your textbook and any notes or papers you care to bring, but you may not use other books, a calculator or computer, or each other's papers.

Most questions will be similar in form to those in the homeworks, the end-of-lecture quizzes, and previous exams.

The exam will cover everything we have done this semester, but there will be an emphasis on material not covered in previous exams. (Approximately half the questions will come from material not previously covered.)

2 Lecture topics to review

You are responsible for all material covered in class or in the assigned reading. (See Homeworks and other assignments[1] for a list of assigned reading.) The following is a summary of recent topics I consider most important; see the review sheets for Exam 1[2] and Exam 2[3] for lists of earlier topics.

- Sets:
  - Definitions.
  - Operations on sets.
- Counting:
  - Multiplication and addition principles.
  - Principle of inclusion and exclusion.
  - Pigeonhole principle.
  - Permutations and combinations.
  - Permutations and combinations with repetitions.
- Relations:
  - Definition and properties (reflexivity, symmetry, transitivity, antisymmetry).
  - Partial orderings.

[1] http://www.cs.trinity.edu/~bmassing/CS1323_2002spring/assignments.html
[2] http://www.cs.trinity.edu/~bmassing/CS1323_2002spring/Notes/review-exam1/index.html
[3] http://www.cs.trinity.edu/~bmassing/CS1323_2002spring/Notes/review-exam2/index.html

  - Equivalence relations.
  - Topological sorting.

- Functions:
  - Definition and properties (one-to-one, onto).
  - Composition and inverse functions.
  - Set equivalence.
  - Order of magnitude of functions.

- Graphs:
  - Definition and terminology (pp. 335–336).
  - Computer representation (adjacency matrices and adjacency lists).

- Trees:
  - Definition and terminology (pp. 363–364).
  - Tree traversals.
  - Recursive definition and inductive proofs.