Discrete Structures for Computer Science

CS 0441 – Fall 2004

Lecture meeting time: Monday, Wednesday**:** 6:00-7:15 PM
Classroom: 5129 Sennott Square (SENSQ)
Recitations: Monday: 7:25 - 8:15 PM; 5129 SENSQ

Instructor:	Milos Hauskrecht	TA:	Mahmoud Elhaddad
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Office Hours:	Monday, Wednesday 2:00 -3:00pm	Office Hours:	Tuesday, Thursday 11:00am-1:00pm
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Course Web page:	http://www.cs.pitt.edu/~milos/courses/cs441/	Web Page:	

Course Description:

The purpose of this course is to understand and use (abstract) discrete structures that are backbones of computer science. In particular, this class is meant to introduce logic, proofs, sets, relations, functions, counting, and probability, with an emphasis on applications in computer science.

Prerequisites: 2 years of high school algebra.

Text:

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

Requirements and Grading:
Exams:

Exam 1	20%
Exam 2	20%
Exam 3	25%

Homework Assignments and Quizzes

Homework	20%
Lectures/Recitations	15%

Homework

There will be weekly homework assignments. Homework **must be handed** in at the **beginning of lecture** on the day that it is due (penalty will apply otherwise). No late homework will be accepted.

Lectures

Unannounced quizzes, that count 15% of the total grade, will be given throughout the term to prepare you for the exams. Quizzes will be based on lecture material, reading assignments, and homework. Quizzes may be given in lecture or in recitation without prior announcement. No make up quizzes are allowed.

Recitations

Recitation attendance is strongly encouraged. Problems similar to those that occur in homework will be practiced. Unannounced quizzes may be given in recitations.

Policy on Cheating

All the work in this course should be done independently. **Collaborations on *quizzes, exams* and *homework assignments* are not permitted.** Cheating and any other anti-intellectual behavior, including giving your work to someone else, will be dealt with severely. If you feel you may have violated the rules speak to us as soon as possible.

Please make sure you read, understand and abide by the Academic Integrity Code for the Faculty and College of Arts and Sciences (http://www.fcas.pitt.edu/academicintegrity.html).

Students With Disabilities

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and Disability Resources and Services, 216 William Pitt Union, (412) 648-7890/(412) 383-7355 (TTY), as early as possible in the term. DRS will verify your disability and determine reasonable accommodations for this course.

Tentative Syllabus

- **Logic:** propositional logic, logical equivalence, predicates & quantifiers, and logical reasoning.
- **Sets:** basics, set operations
- **Functions:** one-to-one, onto, inverse, composition, graphs
- **Integers:** greatest common divisor, Euclidean algorithm.
- **Sequences and Summations**
- **Mathematical reasoning and induction:** Proof strategies, Mathematical Induction, Recursive definitions, Structural Induction
- **Relations:** Properties, Combining relations, Closures, Equivalence, Partial ordering
- **Counting:** basic rules, Pigeon hall principle, Permutations and Combinations, Binomial coefficients and Pascal triangle.
- **Probability:** Discrete probability. Expected values and variance.