

Discrete Structures for Computer Science



CS 0441 – Fall 2009

Lectures: Tuesday, Thursday: 1:00-2:15 PM

Classroom: Wesley W. Posvar Hall WWPH 1500

Course web page:

<http://www.cs.pitt.edu/~milos/courses/cs441/>

Instructor:

Milos Hauskrecht

5329 Sennott Square Building

milos@cs.pitt.edu

(412) 624-8845

office hours: TBA

Recitations:

Section 35296: Friday: 10:00 – 10:50 AM, 5313 SENSQ, TA: Vyasa Sai

Section 13734: Friday: 11:00 – 11:50 AM, 5313 SENSQ, TA: Vyasa Sai

Section 13682: Friday: 12:00 – 12:50 AM, 5313 SENSQ, TA: James Larkby-Lahet

TAs:

Vyasa Sai (sections 35296, 13734)

6150 Sennott Square

vys1+@pitt.edu

office hours: MW: 12:00-3:00pm

James Larkby-Lahet (section 13682)

5501 Sennott Square

jamesll@cs.pitt.edu

office hours: T: 2:30-4:30pm, W: 4:00-6:00pm, H: 2:30-4:30pm

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 H. Rosen. *Discrete Mathematics and Its Applications*, 6th Edition, McGraw Hill, 2007.

Requirements and Grading:

Exams:

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

Homework Assignments and Quizzes

Homework	30%
Lectures/Recitations	10%

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/Recitations

Recitation attendance is strongly encouraged. Problems similar to those that occur in homework will be practiced during recitations. Unannounced quizzes may be given during recitations/lectures. Unannounced quizzes, that count 10% 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.

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.

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, Pigeonhole principle, Permutations and Combinations, Binomial coefficients and Pascal triangle.
- **Probability:** Discrete probability. Expected values and variance.