CSc 220: Algorithms

Instructor: Rosario Gennaro
Office Hours: Tuesdays, 2-4pm in Shepard 279
Course Webpage: http://www-cs.ccny.cuny.edu/rosario/csc220/


Grading: The grade will be computed as follows: 30% on the final exam, 30% on the midterm exam, and 30% on the homework (including random quizzes see below). The remaining 10% will be at the instructor's discretion based on class participation.

Homework: Homework will be assigned (almost) weekly, tentatively on the schedule listed below. Each problem in the homework should be done on a separate sheet of paper, marked with your name and the course number. Collaboration is allowed and actually encouraged, but students must write up solution on their own and return individual solutions. Moreover you are required to acknowledge your collaborators. Similarly you are allowed to research solutions on the Internet or any other sources, but again you must acknowledge them.

On the day the homework is due, students will be required to take an in-class 15-minute quiz which will be one of the problems assigned in the homework. Students will have to solve the problem again in class (closed-book and obviously no notes). The score of the quiz (not the one of the homework) will be taken as the score for that particular problem.

Homework and quizzes will be graded according to two criteria: (i) correctness of the solution; (ii) clarity of the presentation. It is important that you put effort not only in reaching a correct solution to the problems assigned to you, but also in explaining it in very clear and simple terms.

A note about coding: This is a theoretical class which is aimed at developing your problem-solving and communication skills. As such there will be no coding assignments, but you are certainly encouraged to try to code some of the algorithms we will see in class and in the homework, as it can lead to a better understanding.

Tentative Course Schedule

Thursday September 1: Recurrences, summations, etc. Homework 1 out.
Tuesday September 6: Probability, Randomized Algorithms, Randomized Quicksort.
Thursday September 8: Sorting: Heaps and Priority Queues. Homework 1 due. Homework 2 out.
Tuesday September 13: Sorting lower bounds. Sorting in linear time (radix sort, bucket sort).
Thursday September 15: Median and other statistics. Homework 2 due. Homework 3 out.
Tuesday September 27: Data Structures. Balanced Trees.
October 4, 6 and 11: NO CLASS

Tuesday October 18: Amortized Analysis.


Tuesday October 22: MIDTERM

Thursday October 27: Graph Algorithms: shortest path. Homework 7 out.

Tuesday November 1: Graph Algorithms: all pairs shortest path.


Tuesday November 8: Network Flow.


Tuesday November 22: Number Theoretic Algorithms: GCD. Modular Arithmetic.

Thursday November 24: NO CLASS.

Tuesday November 29: Number Theoretic Algorithms: Chinese Remainder Theorem.


Tuesday December 6: Cryptography

Thursday December 8: A word on NP-completeness and approximation algorithms. Homework 11 due.

Tuesday December 13: Spillover. Bloomberg workshop?