Analysis of Algorithms CISC 3220

Basic Information

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Lectures: Tuesdays
18:30 - 21:10
234 Ingersoll Hall Extension

Office Hours: Tuesdays (or by appointment)
17:00 -18:00
128/532 Ingersoll Hall Extension

Required Textbook

Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, and Clifford Stein.
Introduction to Algorithms, Edition 3. MIT Press, 2009.

Final Exam

Tuesday, May 19, 2020, 18:00–20:00, 234 Ingersoll Hall Extension

Prerequisites

CISC 2210 [11]; CISC 21 or CISC 3130 [22]; and MATH 3.20, MATH 1201 [3.3], or MATH 4.10

Course Objectives

Each student will possess knowledge and skills to understand and to use:

1. Growth of functions, the use of O, Omega and Theta notation, and worst-case and average-case time complexity, and apply the above concepts to analyze the complexity and efficiency of algorithms
2. Algorithms for sorting and order statistics and analysis of their complexities
3. Design techniques such as divide-and-conquer and greedy methods
4. Methods for representing a graph and basic graph algorithms such as traversals, finding a minimum spanning tree and finding the shortest path
5. Concepts of P and NP, of NP-complete, and definitions of problems that belong to these classes

Course Outline

Chapter 1	Algorithms and Technology
Chapter 2	Insertion Sort, Analyzing Algorithms, Designing Algorithms
Chapter 3	Growth of Functions
Chapter 4	Divide and Conquer
Chapter 6	Heapsort
Chapter 7	Quicksort
Chapter 8	Sorting in Linear Time
Chapter 9	Medians and Order Statistics
Chapter 10	Data Structures
Chapter 12	Binary Search Trees
Chapter 15	Dynamic Programming
Chapter 16	Greedy Algorithms
Chapter 22	Graph Algorithms
Chapter 23	Minimum Spanning Trees
Chapter 24	Single-Source Shortest Paths
Chapter 25	All-Pairs Shortest Paths
Chapter 32	String Matching

Grading

Each student's final grade is a weighted average of performance on quizzes, homework, and the final exam, calculated according to the following weights:

Quizzes	60%
Homework	5%
Final Exam	35%

Quizzes

A quiz is to be administered every two to four weeks. Each quiz shall consist of problems drawing from or on homework problems.

Homework

The homework assignment due next class period comprises *all* designated problems from *each* section covered during the class period that the next class period follows. Work is late unless it has been presented for submission either in person on its due date by the time it is collected during class or in fulfillment of terms authorized prior to its due date, conformity to this requirement in either case being readily verified, without exception. Late work is not accepted. Work failing to be securely fastened together is not accepted.

Homework Problems

1.1	2, 3, 4, 5
1.2	2, 3, 1-1
2.1	1, 2, 4
2.2	1, 2, 3
2.3	1, 2, 4, 5
3.1	3, 4, 7
3.2	3, 3-3
4.1	1, 2
4.2	1
4.4	2, 4, 6
4.5	1, 2, 3
6.1	1, 2, 6
6.2	1, 3
6.3	1
6.4	1, 3
7.1	1, 4
7.2	3
7.3	2
7.4	
8.1	1
8.2	1
8.3	1
9.1	1
9.2	3
9.3	7, 8
10	
12.1	1, 2, 4
12.2	1, 2, 3, 6
12.3	1, 3
15.2	1
15.4	1, 2
15.5	1, 2
16.1	
16.3	3
22.1	1, 2, 3
22.2	1, 2
22.3	2
22.4	
23.2	1
24.1	
24.2	
24.3	
25.1	
25.2	1
25.3	
32.1	1, 2
32.3	1, 2

Important Dates

Sunday, February 2	Last day to add course
Wednesday, April 1	Last day to withdraw from a course with a grade of "W"
Tuesday, April 7	Classes follow a Wednesday Schedule
Friday, May 15	Reading Day
Saturday, May 16	Final Examinations Begin
Tuesday, May 19	**CISC 2210 Final Exam**
Friday, May 22	Final Examinations End/End of Spring Term

Academic Integrity

The faculty and administration of Brooklyn College support an environment free from cheating and plagiarism. Each student is responsible for being aware of what constitutes cheating and plagiarism and for avoiding both. The complete text of the CUNY Academic Integrity Policy and the Brooklyn College procedure for policy implementation can be found at www.brooklyn.cuny.edu/bc/policies. If a faculty member suspects a violation of academic integrity and, upon investigation, confirms that violation, or if the student admits the violation, the faculty member MUST report the violation.

Disability Services

In order to receive disability-related academic accommodations students must first be registered with the Center for Student Disability Services. Students who have a documented disability or suspect they may have a disability are invited to set up an appointment with the Director of the Center for Student Disability Services, Ms. Valerie Stewart-Lovell at (718) 951-5538. If you have already registered with the Center for Student Disability Services, please provide your professor with the course accommodation form and discuss your specific accommodation with him/her.

Religious Observances

Students are directed to consult the front matter of the Undergraduate Bulletin and Graduate Bulletin on the Registrar's website at www.brooklyn.cuny.edu/web/about/administration/enrollment/registrar/bulletins.php in reference to student rights and college and university rules regarding non-attendance because of religious beliefs.

Bereavement

Students who experience the death of a loved one should refer to the Student Bereavement Policy found at at www.brooklyn.cuny.edu/web/about/initiatives/policies/bereavement.php

Email

Include the expression '[CISC 3220 Spring 2020]' in the subject line of email correspondence.

All content in the present document is tentative and subject to change.