

Instructor: Ari Mermelstein

Email address for questions: mermelstein AT sci DOT brooklyn DOT cuny DOT edu

Class meeting hours: Tuesdays 6:30 - 9:10 in 234 NE

Office hour and room: Tuesdays 5:00 - 6:15 in room 532NE (or by appointment)

Required Textbook

Introduction to Algorithms 3rd edition by Cormen, Leiserson, Rivest, and Stein.

Prerequisites

CISC 3130 - Data Structures

Information most needed from CISC 3130:

1. Recursion
2. Linked lists
3. stacks
4. queues
5. priority queues
6. binary search trees
7. hash tables
8. graphs (a plus)
9. sorting (a plus)
10. binary heaps (a plus)
11. The rudiments of Big Oh notation

CISC 2210 — Discrete Math

1. Sets
2. Logic
3. Graphs
4. Matrices
5. Trees (a plus)

6. Proofs (especially by induction and contradiction)

Math 1201 — Calculus I

1. Derivatives
2. limits
3. L' Hôpital's rule.

Course Objectives

Objectives

Student will be able to:

1. Demonstrate an understanding of the 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. Demonstrate knowledge of several algorithms for sorting and order statistics and an understanding of the analysis of their complexities.
3. Demonstrate an understanding of various design techniques such as divide-and-conquer and greedy methods.
4. Demonstrate knowledge of different methods for representing a graph and of basic graph algorithms such as traversals, finding a minimum spanning tree and finding the shortest path.
5. Demonstrate an understanding of the nature of the classes P, NP and NP-complete, and define several problems that belong to these classes.

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.

Non-Attendance Because Of Religious Observance

The state law regarding non-attendance because of religious beliefs is on p. 53 in the Bulletin. Please let me know now if you have to miss an exam.

Center for Student 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.

Important Dates For the Spring 2019 Semester

Thursday, January 31: Last day to add a course.

Tuesday, February 12 : College Closed.

Monday, February 18 : College Closed.

Monday, April 1 : Last day to W from a course.

Friday, April 19 - Sunday, April 28 - Spring Recess

Grades

First Test - 25%

Second Test - 25 %

Final Exam- 35%

Homework - 10%

Participation- 5%

Final grade calculation

Your letter grade will be determined as follows:

A+ : 98-100
A : 93-97
A- : 90-92
B+ : 87-89
B : 83-86
B- : 80-82
C+ : 77-79
C : 73-76
C- : 70 - 72
D+ : 67-69
D : 63 - 66
D- : 60 - 62
F : < 60

Exam Dates - Tentative

The first exam will be held on Tuesday March 5.

The second exam will be held on Tuesday April 30.

The final exam (not tentative) will be held on Tuesday May 21, 2019 from 6-8 PM (**NOT 6:30AM!!**) , Room TBA.

Homework

Chapter 1: Section 1.1: 2,3,4,5
 Section 1.2: 2,3
 Problems: 1-1

Chapter 2: Section 2.1: 1,2,4
 Section 2.2: 1,2,3
 Section 2.3: 1,2,4,5

Chapter 3: Section 3.1: 3,4,7
 Section 3.2: 3
 Problem: 3-3

Chapter 4: Section 4.1: 1,2

	Section 4.2:	1
	Section 4.4:	2,4,6
	Section 4.5:	1,2,3
Chapter 6:	Section 6.1:	1,2,6
	Section 6.2:	1,3
	Section 6.3:	1
	Section 6.4:	1,3
Chapter 7:	Section 7.1:	1,4
	Section 7.2:	3
	Section 7.3:	2
	Section 7.4:	
Chapter 8:	Section 8.1:	1
	Section 8.2:	1
	Section 8.3:	1
Chapter 9:	Section 9.1:	1
	Section 9.2:	3
	Section 9.3:	7,8
Chapter 10:	This is a review of data structures. You are responsible for all the material in this chapter. We will not go over any of it.	
Chapter 12:	Section 12.1:	1,2,4
	Section 12.2:	1,2,3,6
	Section 12.3:	1,3
Chapter 15:	Section 15.2:	1
	Section 15.4:	1,2
	Section 15.5:	1,2
Chapter 16:	Section 16.1:	
	Section 16.3:	3
Chapter 22:	Section 22.1:	1,2,3
	Section 22.2:	1,2
	Section 22.3:	2
Chapter 23:	Section 23.2:	1
Chapter 24:	Section 24.1:	

Section 24.2:

Section 24.3:

Chapter 25: Section 25.1:

Section 25.2: 1

Section 25.3:

Chapter 32: Section 32.1: 1,2

Section 32.3: 1,2