Queens College
Data Structures
CSCI 313
Instructor: Alex Chen

Course Description: Fundamental data structures and their implementations: stacks, queues, trees (binary and AVL), heaps, graphs, hash tables. Searching and sorting algorithms. Runtime analysis. Examples of problem-solving using greedy algorithms, divide-and-conquer, and backtracking.

Prerequisites: CSCI 211(OOP in C++), CSCI 212(OOP in Java), and CSCI 220(Discrete Structures)

Textbooks:

1) Data Structures and Algorithms in Java
   Author: Goodrich, Tamassia
   Publisher: Wiley & Sons
2) Algorithms
   Author: Sedgewick, Wayne
   Publisher: Addison Wesley Professional

Learning Goals: A solid understanding of the fundamental concepts of data structures. Successful students will be able to write correct and complete Java implementations of homework projects. Successful students will also complete exam questions that test the uses, implementation and efficiency of data structures.

Course Topics:

1) Java Semantics and OOP
2) Arrays
3) Linked Lists
4) Stacks/Queues
5) Algorithm Analysis
6) Sorting Algorithms
7) Iterator/Comparator
8) Sets/Maps
9) Tree/Binary Tree
10) Priority Queue/Heaps
11) Binary Search Tree/AVL Trees
12) Graphs

Instructor:

Alex Chen
Jiali.Chen@qc.cuny.edu / axchen93@gmail.com
Office: SB A201
Office Hour: By appointment only

Course Website: https://venus.cs.qc.cuny.edu/~jchen/CS313/

Classes:

Monday and Wednesday
6:30PM – 7:45PM
Monday and Wednesday
8:00PM – 9:15PM

Grade Policy:

There will be 4 exams, 2 in-class midterm exams and a final exam(all cumulative). There will be 8 quizzes throughout the semester, usually after each topic. All will be counted.
There will be extra credit opportunities throughout the semester.

Midterm 1 (After Sets/Maps)	- 15% of the course grade (15 Points)
Midterm 2 (After BST/AVL)	- 15% of the course grade (15 Points)
8 Quizzes	- 40% of the course grade (5 Points Each)
2 Projects	- 10% of the course grade (5 Points Each)
Final	- 20% of the course grade (20 Points)

Students who has accumulated more than 74 Points **before** the final will be exempt from the final, these students have 2 options:

a) The student may opt to skip the final exam and receive a score for the final that will yield an A (95). For example, if Bob has accumulated 76 points before the final and chooses option A, Bob will receive a 19 as the score for the final (76 + 19 = 95). By choosing this option, the student will not receive a grade higher than A.
b) The student may opt to take the final. This option allows the student to receive a grade of A+ if their score permits. However, by choosing this option, you are no longer guarantee an A. For example, Bob has accumulated 78 points before the final and chooses option B, Bob scores a 10 on the final. His final grade is 78 + 10 = 88 or B+. Or, if Bob scores 19 on the final, his grade will be 78 + 19 = 97 or A+.

Policies:

Academic dishonesty such as plagiarism or cheating will be dealt with seriously in accord with the University's policy on academic integrity.
Any student caught cheating on an exam/quiz will receive a 0 and reported to the Chair/Deen.
Projects must be submitted on or before the published deadline. The projects are important for your learning of the course material. You are to do it on your own without help from other students. The course website will include detailed instructions for submission of projects. Projects is to be submitted on BlackBoard. If two or more students submit copied work, all students involved will receive a 0 for the project and will be reported to the Chair/Deen.
No make up quizzes will be given.
No make up exams will be given.