

Queens College
Data Structures
CSCI 313
Spring 2018
Instructor: Krishna Mahavadi

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, 212 and 220.

Required text:

Michael T. Goodrich, Roberto Tamassia & Michael Goldwasser:
Data Structures & Algorithms in Java, 6th Edition
John Wiley, 2014,
ISBN 978-1-118-77133-4.

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:

Review of Java programming (Chapters 1 and 2)
Linked Lists (Chapter 3)
Algorithm Analysis (Chapter 4)
Recursion (Chapter 5)
Stacks and Queues (Chapter 6)
Iterators (Section 7.4)
Trees and Binary Trees (Chapter 8)
Priority Queues and Heaps (Chapter 9)
Maps and Hash Tables (Chapter 10)
Binary Search Trees, AVL Trees (Chapter 11)
Sorting (Chapter 12)
Graphs (Chapter 14)

Instructor:

Krishna Mahavadi
kmahavadi@qc.cuny.edu
office: SB A201
office hours: Monday 12:00pm – 1:00pm
Tuesday 6:00pm – 7:00pm
or by appointment.

Course Website:

<http://venus.cs.qc.edu/~krishna/cs313/>

Classes:

Tuesday and Thursday,
9:15am – 10:30am, SB B145

Reminder:**The class will not meet on:**

Tuesday, February 20 (Monday schedule)

Spring Break: Friday, March 30th - Sunday, April 8th

Requirements:

Two in-class midterm exams and a final exam (all cumulative).

After each chapter or unit of chapters there will be a quiz.

Dates for quizzes are given on the course website.

In total there are 8 quizzes. All will be counted.

The final counts for 40% of the course grade.

Each midterm counts for 20% of the grade.

Quizzes count for a total of 20% of the course grade.

The homework project is graded on a pass/fail basis. Students who fail the homework will get a failing grade for the course.

Exam dates:

Midterm 1: Thursday, March 22

Midterm 2: Thursday, May 10

Final: Thursday, May 24 The date of the final might be changed by the College during the semester.

Policies:

Academic dishonesty such as plagiarism or cheating will be dealt with seriously in accord with the University's policy on academic integrity.

Homework must be submitted on or before the published deadline. The homework project is 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 homework. Homework is to be submitted by email from your official Queens College email account. If two or more students submit copied work, all students involved will fail the homework component of the course.

No make up quizzes will be given. If a student misses an exam, the score from their next exam will be used in place of the missing exam score.