

Queens College
Data Structures
CSCI 313
Fall 2017

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:

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office: SB A201
office hours: Monday, Wednesday 10:00am – 10:30am
Tuesday, Thursday 6:00pm – 6:30pm
or by appointment.

Course Website:

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

Classes:

Tuesday and Thursday,
9.15 am – 10.30 am, SB B141

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

Thursday, September 21

Tuesday, November 21 (Friday schedule)

Thursday, November 23

Requirements:

An in-class midterm exam and a final exam (both cumulative).

After each chapter or unit of chapters there will be either a quiz or homework programming assignment (or both).

Dates and deadlines for quizzes and homeworks are given on the course website.

In total there are 7 quizzes, only the best 5 will be counted.

In total there are 3 homework projects, all will be counted.

The final counts for 40% of the course grade.

The midterm counts for 30% of the grade.

Quizzes count for a total of 15% of the course grade.

Homeowkrs count for a total of 15% of the course grade.

Exam dates:

Midterm: Thursday, October 26

Final: Thursday, December 14

Policies: Homework must be submitted on or before the published deadline, late homework will not be accepted. The homework projects are important for your learning of the course material. You are to do them on your own without help from other students, the website will include detailed instructions for submission of homework. Homework is to be submitted by email from your official Queens College email account. Each assignment can only be submitted once.

You should make sure that your homework is able to compile and run on venus as well as inside eclipse. Homework will initially be screened by an automated process that will compile your code. If it does not compile your grade for the project will be 0. If the process detects shared or copied solutions, all students that are found to have shared work will receive a score of 0 for **all** homework assignments in 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.

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