Queens College
Data Structures
CSCI 313
Spring 2018
Instructor: Alex Ryba

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 hours: Wednesday 10am – 10.30am
Wednesday 3.45pm – 4.15pm
or by appointment.

Course Website:

`http://venus.cs.qc.edu/~ryba/cs313/`

Classes:
Monday and Wednesday,
7.45am – 9.00am, SB B145

Reminder:

The class will meet on:
Tuesday, February 20 (Monday schedule)
The class will not meet on:
Monday, February 12
Monday, February 19
Monday, April 2
Wednesday, April 4
Wednesday, April 11

Requirements:

An in-class midterm exam and a final exam (both 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 50% of the course grade.
The midterm counts for 30% 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:	Monday, April 9	
Final:	Monday, May 21	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.