Queens College
Data Structures
CSCI 313
Fall 2019
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: SB A116
 office hours: Tuesday and Thursday 12.15pm – 12.45pm
                or by appointment.

Course Website:

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

Classes:
 Monday and Wednesday,
 7.45am – 9.00am, SB C205

Reminder:

The class will not meet on:
Thursday, September 5 (Monday schedule)
Tuesday, October 1
Tuesday, October 8
Thursday, November 28

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 6 quizzes. The best 5 will be counted.
Homework projects will be announced on the course website.

The final counts for 40% of the course grade.
Each midterm counts for 20% of the grade.
Quizzes count for a total of 10% of the course grade.
The homework projects count for a total of 10% of the course grade.

Exam dates:

Midterm 1:	Thursday, October 3
Midterm 2:	Tuesday, November 26
Final:	Tuesday, December 17 from 8.30am to 10.30am

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 is important for your learning of the course material. You are to do it on your own without help from other students or online sources. 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 very similar work, all students involved will fail that homework assignment.

No make up quizzes will be given.

No make up exams will be given. If you miss a midterm, your final exam score will be used in its place. If you miss the final you will get a WU for the course, or only in the case of good, sufficient and unforeseen reasons you might qualify for an incomplete grade for the course.

IDs may be checked in all exams.