



**King Saud University**

**College of Applied Studies & Community Services**

**Program: Natural & Engineering Sciences Program (NESP)**

**2<sup>ND</sup> Semester: 1439/ 1440**

**GC 211 Data Structures and Algorithms in Java**

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**Instructor:** Sara Almudaah

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**Office:** building 26 -ground floor – office 2

**Office hours:** Sunday, Monday, Tuesday (9-10), Thursday (10-11)

**Course goal:**

Students are introduced to: Fundamental concepts of data structures. Performance measurement of algorithms. Implementation and use of lists, stacks, queues, priority queues, trees, heaps and graphs.

**Text Book:**

**Text Book :**

1. ***Data Structures and Problem Solving with C++: Walls and Mirrors,***  
**Carrano and Henry, © 2013**

2. ***Data Structures and Algorithms in Java***

**(4th edition) by Michael T. Goodrich and Roberto Tamassia**

**Reference:**

Slides, lecture notes and the text book

**Assessment Plan for the Course:**

Assessment Instruments	Mark
Midterm Examinations	40
Quiz	10
Homework, Project and presentations	10
Final Examination	40
<b>Total</b>	<b>100</b>

**Course Topics:**

Week	Basic and support material to be covered
(1)	<b>Review of Arrays and Pointers</b>
(2)	<b>Functions and Passing Parameter</b>
(3)	<b>Introduction to Object-Oriented Programming: Classes, Attributes and Methods.</b>
(4)	<b>Introduction to Abstract Data Types</b>
(5)	<b>List ADT (Array List)</b>
(6)	<b>List ADT (Linked List)</b>
(7)	<b>Double Linked List ADT</b>
	<b>Midterm 1 Exam</b>
(9)	<b>Queue ADT</b>
(10)	<b>Stack ADT</b>
(11)	<b>Trees and Binary Trees</b>
	<b>Midterm 2 Exam</b>
(13)	<b>Heaps</b>
(14)	<b>Graphs</b>
	<b>Final Examination</b>

**Notes:**

- Late assignment submission will be not accepted.
- Students are encouraged to discuss assignments but not copy.
- If you miss an assignment, you will get on a zero.
- Missed exams can be made up in cases of extreme circumstances and it covers all chapters.
- Attendance is very important if you absent more than 25% you will be forbidden to enter the final exam.