

## CSC 210 MIDTERM STUDY GUIDE

PROFESOR GODFREY MUGANDA

This test will have more questions that require coding than just definitions or explanations of concepts.

Make sure you understand the concepts on the Week 3 Study guide. However, the majority of the questions will come from what is indicated below.

### 1. LINKED LISTS

Be able to write code that implements different linked list methods, as in Homework 2.

### 2. BINARY TREES

Be able to write code that implements different binary tree methods, as in Homework 3.

### 3. SORTING

Understand and be able to define the concepts of heap and complete binary tree. Understand how to build a heap, how to remove items from a heap and repair the heap through a sift-down operation, how to add an item to a heap and repair the heap through a sift-up operation, how to store a complete binary tree in an array without using pointers to indicate the left child, right child, and parent of a node.

Understand how insertion sort works. Understand under what conditions insertion sort is the best algorithm to use.

Understand and be able to describe how Shellsort works. You will not be required to know how to code Shell sort.

Understand and be able describe and to write code Mergesort, including the merging part.

Understand and be able to describe how Quicksort workds. You should know what the partition step does, although you will not be required to know how to write the partition code.