Midterm 1-Page Study Guide

Handout 7
CSCI 136: Spring 2017
March 8

Your midterm will be designed to take 75 minutes to complete. You will be given 90 minutes to complete it. There will be two seatings for the exam on the evening of **Wednesday, March 15**, and you may choose to attend one of the two time slots: 7:00pm *or* 8:30pm. The exam will be "closed book".

You are responsible for anything we covered in class or in lab through **Friday, March 10th**, and everything in the assigned reading from *Java Structures*, up to and including Lists and Lab 5; that is, Chapters 1-6 and Chapter 9, as well as the handouts.

The following non-exhaustive list may be helpful in reminding you about some of the key topics we have covered:

- Java syntax, as we have used it in our programming assignments.
- Classes, abstract classes, and interfaces and their respective roles.
- Information hiding (abstraction) and why it's good.
- Extending classes with inheritance.
- Generic classes (e.g., Vector<E>, Association<K,V>, SinglyLinkedList<E>, etc) and their use
- Pre- and post-conditions, and assertions.
- The meaning of `static` (and non-static) as applied to variables and methods
- Vector, its implementation in the structure5 package, and its methods.
- Complexity: Big "O" definition.
  - Determining the asymptotic behavior of mathematical functions
  - Determining the time and space complexity for a given algorithm.
  - Worst and best case analysis.
- Linear and binary search.
- Recursion and induction.
- Sorting.
  - Bubble sort, selection sort, insertion sort, merge sort, quicksort.
  - Using `Comparator/Comparable` for sorting.
- Linked lists: Singly, Doubly, Circularly, and Chain-style list