CSCI 2110
Data Structures and Algorithms
TOPICS FOR TEST 1

Module 1: Key Concepts in Object Oriented Programming

- Review of object-oriented programming concepts
- Polymorphism in Java
- Object class
- Generics

Module 2: Algorithm Time Complexity

- What is algorithm complexity?
- How is running time of an algorithm measured?
- How is it expressed as a function of the input size?
- Big O notation
- Deriving Big O given a function.
- Problems with Big O and growth functions
- Examples of algorithms with various Big Os.
- Analysis of code snippets
- Best case, worst case and average case complexity
- Other orders of complexity: Big Theta, Big Omega and Little o

Module 3: Unordered Lists

- Definition of data structures
- Abstract data types
- Definition and examples
- Generic set of operations and the big picture of implementation
- Generic Unordered List Class: Method definitions and complexities
- Generic Linked List Class: Implementation of methods
- Generic Unordered List Class: Implementation of methods
- Sample application: Expense List class
- Best case, worst case and average case complexity of unordered lists

Types of Questions

- Problems on Algorithm Complexity
- Writing code snippets
- Writing and analyzing pseudocode
- Short snappers (multiple choice, tracing the output, etc.)

What to Study:

- Lecture Notes and Work Book: Pages 1 to 66
- Practice Set
- Lab Exercises (relevant ones)