CSCI 3650
Final Exam Review Sheet
Spring 2016

EXAM TIME: Wednesday May 4, 11:00 A.M. – 1:30 P.M. (Austin 303)

The exam is closed-book and closed-note. Exception you may bring one sheet of handwritten notes (normal sized paper). You may write notes on both the front and the back.

The exam will be comprehensive and similar in nature to the quizzes given during the semester. Given the extra time available for the final exam, it is reasonable to expect that there will be a few questions that require deeper thinking than those asked on the quizzes.

During the semester we have explored a variety of topics in our attempt to achieve the course goals described in the syllabus. The major themes have been the following.

Fundamentals of Algorithm Analysis
- Quantitative and qualitative aspects of asymptotic behavior of functions as it enables us to express time and space costs of algorithms (e.g., \( T(n) = O(g(n)) \), \( T(n) = \Omega(g(n)) \), and \( T(n) = \theta(g(n)) \))
- Time cost analysis involving recurrences and basic techniques for solving recurrences.
- Mathematical fundamentals relating to summations and logarithms.
- Basic techniques for determining correctness.

Algorithm Development Techniques (description, examples, appropriateness, and application)
- Divide and Conquer
- Dynamic Programming
- Greedy Algorithms

Sorting Algorithms: (Insertion Sort, Mergesort, HeapSort, and QuickSort)
- Algorithm specification and time and space cost analysis
- Lower bound on all comparison based sort algorithms

Graph Algorithms
- Breadth and Depth-First Search
- Topological Sort
- Dijkstra Shortest Path’s Algorithm
- Minimum Spanning Trees (Kruskal and Prim)

Exam Period Office Hours: Spring 2016 (Regular office hours end Monday April 25)
- Tuesday April 26: 10:00 – 11:30 A.M.
- Wednesday April 27: 1:30 – 3:30 P.M.
- Friday April 29: 9:00 A.M. – 10:00 A.M. and 1:30 – 3:00 P.M.
- Tuesday May 3: 1:30 – 3:00 P.M.
- Wednesday May 4: 9:30 – 10:30 A.M.