COSC 445: Design and Analysis of Algorithms
Midterm Study Guide
Spring 2018

Readings: Dasgupta Chapters 0, 2-5; Goddard Chapters 1.2, 1.3, 2.1

Topics and Exercises

Chapter 0:   Asymptotic notation
              Exercises 0.1, 0.3

Chapter 2:   Divide and conquer
              D&C multiply
              Master theorem
              Mergesort
              Exercises 2.1, 2.4, 2.5, 2.14, 2.22, 2.26

Chapter 3:   Graphs
              DFS
              Tree edges
              Strongly connected components
              Exercises 3.2, 3.4, 3.7, 3.11, 3.16, 3.26

Chapter 4:   BFS
              Dijkstra's algorithm
              Bellman-Ford algorithm
              Exercises 4.1, 4.2, 4.5, 4.10, 4.12, 4.21

Chapter 5:   Greedy algorithms
              Minimum spanning trees
              Kruskal's algorithm
              Prim's algorithm
              Huffman encodings
              Exercises 5.1, 5.2, 5.7, 5.13, 5.15, 5.20, 5.30