CPE 202 Course Plan – Winter 2019 (Subject to change)

Week 1: January 7 Course Structure, Python Refresher, Analysis

Mon: Course Intro: Python overview, Classes
Reading: Chapter 1 (omit 1.13.2)
Lab 0: Python Environment
Wed: Unit testing, Recursion
Reading: 4.1-4.4
Lab 1: Unit testing, Recursion
Fri: Analysis of Algorithms (time complexity, Big O notation, counting instructions)
Reading: Chapter 2.1-2.6
Assignment 1: Generating Permutations

Week 2: January 14 Stacks, Expressions

Mon: Stacks, Stack Frames
Reading: Chapter 3.1-3.5, 4.6
Lab 2: Both stack implementations
Wed: Infix, Prefix and Postfix Expressions
Reading: 3.6, 3.7, 3.9
Quiz #1
Assignment 2: Evaluating infix expressions
Fri: ADT Queue Implementations, Printing Simulation
Reading: Chapter 3.10 – 3.13
Lab 3: Circular Array Implementation of Queue, simulation

Week 3: January 21 Queues, Lists

Mon: Academic Holiday, No Lecture/Lab
Wed: Lists. ADT List, List implementations, singly linked
Reading: Chapter 3.19-3.23
Fri: List implementations, doubly linked
Quiz #2
Lab 4: Implement List using linked data structure

Week 4: January 28 Trees

Mon/Wed: BST basics
Reading: Chapter 6.1 – 6.3, 6.7
Lab 5: Implement basic BST operations
Fri: BST and Huffman Coding
Quiz #3
Assignment 3a: Huffman Coding – Part A

Week 5: February 4 Trees 2

Mon: Binary Search Trees
Reading: Chapter 6.11 – 6.14
Lab: Implement delete
Wed: Parse and Expression Trees
Reading: 6.6
Fri: MIDTERM

Week 6: February 11 Sorting

Mon: Naïve Sorting: Insertion and Selection
Reading: Chapter 5.6 – 5.9
Lab 6: Selection/Insertion Sort
Wed: Merge Sort
Reading: Chapter 5.11
Fri: Quick Sort
Reading: Chapter 5.12
Lab 6b: Implement QuickSort
Quiz #4
Assignment 3b: Huffman Coding – Part B

Week 7: February 18 Heaps, Priority Q

Mon: *Academic Holiday, will have Lecture/Lab on Tuesday*
Tue: Heaps
Reading: Chapter 6.8 – 6.10
Wed: Heaps continued and Heap Sort
Lab 7: Implement Max Heap, Heap Sort
Fri: Hashing and hash functions
Reading: Chapter 5.5.1

Week 8: February 25 Hash functions, Tables

Mon: Hashing and hash functions
Reading: Chapter 5.5.1
Quiz #5
Wed: Open addressing, chaining
Reading: Chapter 5.5.2
Lab 8: Hashing – Separate Chaining
Assignment 4: Hashing Application
Fri: Implementing the Map ADT and Analysis, Hashing applications, assignment
Reading: Chapter 5.5.3 and 5.5.4

Week 9: March 4 Graphs

Mon: Graphs and graph representations
Reading: Chapter 7.1-7.6
Wed: Depth first and Breadth First search
Reading: Chapter 7.9, 7.15
Lab 9: Fill in skeleton for Graph Class
Fri: Balanced Trees
Reading: Chapter 6.15-6.18
Assignment 5: Graphs

Week 10: March 11 Balanced Trees

Mon: Balanced Trees
Reading: Chapter 6.15-6.18
Wed: Review for final
Lab 10: AVL Examples/Worksheet
Fri: No lecture, in lab from 7:10-9:00am