COMP 282 - Advanced Data Structures (Spring, 2019)

Professor: Adam Clark (adam.clark@csun.edu)

Section: 21126

Lectures: JD1618, Tu 1900-2145

Office Hours: JD3338 Tu 1745-1845

Prerequisites: COMP 182/L, MATH 150A

Objectives

Throughout this course, the student will become familiar with data structures and algorithms used to efficiently manage large volumes of information. In particular, the student will become comfortable implementing and using hash tables and trees. Sorting and searching of large volumes of information will also be discussed, as well as their representation in persistent memory structures, such as indexed files. Finally, the student will be introduced to formalized systems for data storage: databases.

Schedule

Tuesday	Exams	
January 22		Class Introduction, Data Structures Review
January 29		Introduction to Graphs
February 5		Searching Graphs (BFS and DFS)
February 12		Shortest Path, Trees, and MST
February 19		Binary Trees, Balance, Rotation, and Review
February 26	Midterm 1	Introduction to Specialized Binary Trees
March 5		AVL Trees and B-Trees
March 12		Red Black Trees
March 19		Spring Break
March 26		Hashing Functions, Hash Tables, and Collisons
April 2		No Class
April 9		Files, Data Access, and Review
April 16	Midterm 2	Introduction to Databases
April 23		Data Design, Keys, and Normal Forms
April 30		Introduction to SQL
May 7		Comprehensive Review
May 14	Final	

Grading

Quizzes: 20% (4 Quizes each worth 5%)

Midterms: 40% (2 Midterms each worth 20%)

Final: 40% (Comprehensive)

Quizzes have no set dates, there are four of them that may be given at any time. They are not comprehensive; rather, they are a review of the material covered since the last quiz or midterm. These will be multiple choice and will be delivered at the beginning of lecture. Quizzes may only be made up at the discretion of the professor, after explicit documentation as to the reason for your absence is presented.

Midterms are not comprehensive, however the final will be comprehensive. These exams are not multiple choice, expect a mix of short-essay and reproducing algorithms. Some time during lecture prior to each exam will be devoted to a review of material covered on the exam. In the case of the final, the entire lecture period will be devoted to a comprehensive review of the course material. The student is expected to come to these review sessions with any questions they would like covered, there will be no structured review material.

Score	Grade
90 - 100	A
80 - 89	B
70 - 79	C
60 - 69	D
0 - 59	F

Academic Dishonesty

According to CSUN academic policies:

> The maintenance of academic integrity and quality education is the responsibility of each student within this University and the CSU system. Cheating or plagiarism in connection with an academic program at a CSU campus is listed in Section 41301, Title 5, California Code of Regulations as an offense for which a student may be expelled, suspended or given a less severe disciplinary sanction. Academic dishonesty is an especially serious offense and diminishes the quality of scholarship and defrauds those who depend on the integrity of the University's programs.

All instances of academic dishonesty will be reported to the office of student affairs. In addition, the offending assignment or exam will at minimum receive no credit towards a final grade. In most cases, the student will simply receive a failing grade for the course. If you are unsure as to what constitutes academic dishonesty, please see the instructor for clarification.

Attendance

Students are expected to attend lectures. While there is no credit given for attendance, students who miss a session are expected to learn the material on their own. Office hours are a student's primary opportunity to ask questions about course materials.