SAN JOSÉ STATE

Data Structures and Algorithms Section 02

Spring 2025 In Person 3 Unit(s) 01/23/2025 to 05/12/2025 Modified 01/31/2025

Contact Information

Instructor: Dr Nada Attar

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Office Hours

Monday, 2:45 PM to 3:45 PM, MH218 (In Person)

Tuesday, 2:45 PM to 3:45 PM, Zoom

https://sjsu.zoom.us/j/83923495067?pwd=mAsZRNPbkh3Y9dG8FP7dPdpqSTzK9x.1 (https://www.google.com/url?q=https://sjsu.zoom.us/j/83923495067?pwd%3DmAsZRNPbkh3Y9dG8FP7dPdpqSTzK9x.1&sa=D&source=calendar&ust=1738247794320926&usg=AOvVaw0EbV3cJNGbEypTg2hDcaeh)

Course Information

Lecture (In Person)

Monday, Wednesday, 12:00 PM to 1:15 PM, MH222

Course Description and Requisites

Implementations of advanced tree structures, priority queues, heaps, directed and undirected graphs. Advanced searching and sorting techniques (radix sort, heapsort, mergesort, and quicksort). Design and analysis of data structures and algorithms. Divide-and-conquer, greedy, and dynamic programming algorithm design techniques.

Prerequisite(s): MATH 30, MATH 42, CS 46B, and [(CS 48 or CS 49J) if CS 46B was not in Java], each with a grade of "C-" or better; Computer Science, Applied and Computational Math, Forensic Science: Digital Evidence, Software Engineering, Data Science majors only; or instructor consent.

6. Solve recurrence relations representing the running time of an algorithm designed using a divide-and-conquer strategy
7. Understand the basic concept of NP-completeness and realize that they may not be able to efficiently solve all problems they encounter in their careers
8. Understand algorithms designed using greedy, divide-and-conquer, and dynamic programming techniques

Course Materials

Introduction to Algorithms

Cormen, Leiserson, Rivest, and Stein
MIT Press, 2009
3rd Edition
ISBN-10: 0262033844ISBN-13: 978-0262033848

You can find errata (bug reports) for the book http://www.cs.dartmouth.edu/~thc/clrs-bugs/bugs-3e.php,for whichever printing of the book you get

Course Requirements and Assignments

- SJSU classes are designed such that in order to be successful, it is expected that students will spend

Criteria

Your grade for the course will be based on the following components:

Assignments	20%		
Lab and Class Activities	10 %		
Quizzes	20%		
Exam 1	15%		
Exam 2	15%		
Final Exam	20%		

University Policies

Per University Policy S16-9 (PDF) (http://www.sjsu.edu/senate/docs/S16-9.pdf), relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of c

02/03/2025 12:00 PM - 1:15 PM	Divide and Conquer technique: Merge Sort, other examples	
02/05/2025 12:00 PM - 1:15 PM	Solving recurrences	
02/10/2025 12:00 PM - 1:15 PM	Master Theorem	
02/12/2025 12:00 PM - 1:15 PM	Heapsort, Priority Queues	
02/17/2025 12:00 PM - 1:15 PM	Sorting in linear time	
02/19/2025 12:00 PM - 1:15 PM	Counting sort, Radix Sort	
02/24/2025 12:00 PM - 1:15 PM		
02/26/2025 12:00 PM - 1:15 PM	Hash Tables	
03/03/2025 12:00 PM - 1:15 PM	Quicksort	

03/05/2025 12:00 PM - 1:15 PM	Binary Search Trees	
03/10/2025 12:00 PM - 1:15 PM	Red-Black trees	
02/12/2025 12:00 PM - 1:15 PM	2-3 Trees	
03/17/2025 12:00 PM - 1:15 PM	Dynamic Programming	
03/19/2025 12:00 PM - 1:15 PM	Dynamic Programming	
03/24/2025 12:00 PM - 1:15 PM	Heap, Graph Algorithms, Undirected graph	
03/26/2025 12:00 PM - 1:15 PM	BFS, DFS	
03/31/2025 12:00 PM - 1:15 PM		

05/07/2025 12:00 PM - 1:15 PM	NP-complete problems	
		Tuesday, May 20 | 10:45 AM-12:45 PM