DATA STRUCTURES AND ALGORITHMS

DR SAMABIA TEHSIN

BS (AI)

Instructor's Info

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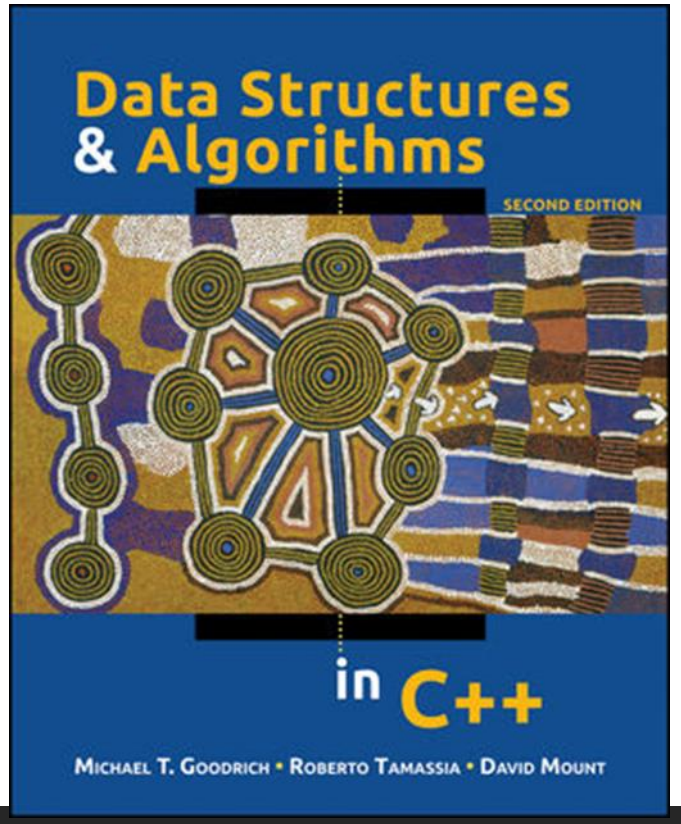
Topics

1. Abstract Data Types (ADTs)
2. Linear data structures (Stacks, Queues, Linked list)
3. Non-linear data structures (Trees, Graphs)
4. Recursion and recursive algorithms
5. Sorting Algorithms (Bubble, Insertion, Selection, Quick, Merge, Shell, Heap)
6. Searching (Linear, Binary, Depth First, Breadth First, Shortest Path, Minimum Spanning Trees)
7. Hashing and Collision resolution techniques (Open Addressing, Separate Chaining, Double Hashing)
8. Data Compression (Huffman's Code),
9. Complexity Analysis of Algorithms (Big-O notation)

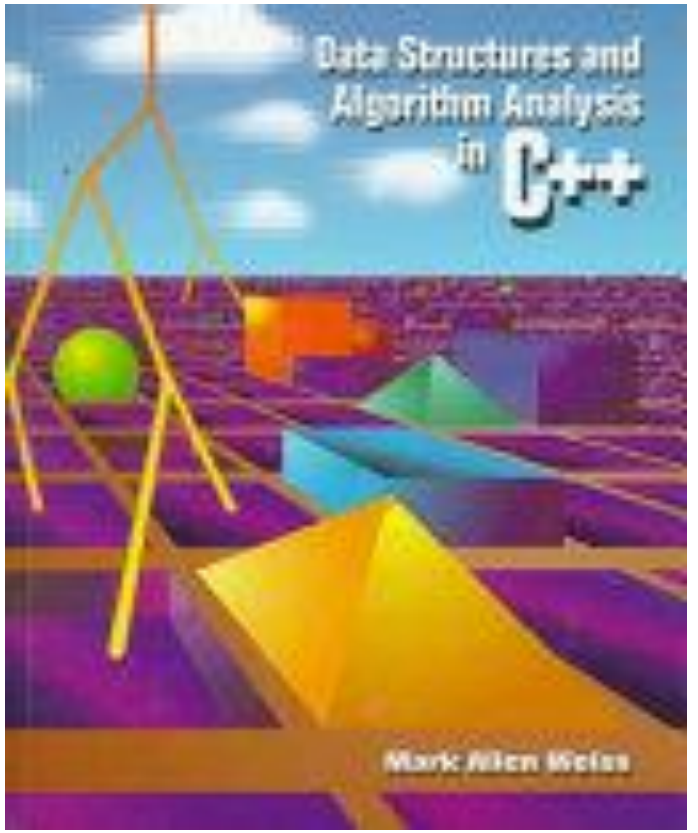
Course material: *BOOKS*

GOODRICH AND TAMASSIA,

DATA STRUCTURES AND ALGORITHMS IN C++



DATA STRUCTURES AND ALGORITHM ANALYSIS IN C++, BY MARK ALLEN WEISS



Course material

LMS

Assessment Methods and Weightage

Quizzes	10%
Assignment/project	20%
Mid-Term Examination	20%
Final Examination	50%
Total	100%

Policies regarding Quizzes

- I will take 3 to 5 quizzes and all quizzes are included in final grade calculation
- Quizzes may be announced or surprise
- There will be no makeup quiz

Academic Honesty

All parties involved in any kind of cheating in any exam will get zero in that exam

Basically,

- Don’t copy the code from the Internet
- Don’t store other people’s code in your storage
- Don’t discuss by looking at others’ code (even in the screen)
  - Highly likely to share codes

Remember

- Zero Tolerance!

Course Learning Outcomes

Course Learning Outcomes		
After successful completion of this course, the students should be able to:	PLO	BT Level
1. Explain and compare different data structures and their applications	1	C2
2. Apply appropriate data structures according to the given scenarios and application domain.	2	C3
3. Analyze time complexity of different algorithms		C4
4. Design efficient algorithm(s) to solve real-world problems	4	C6

Bloom's Taxonomy