

CSCI 2320 Midterm Review Sheet

This is intended to be a study aid for you in preparing for the midterm. I can not promise that everything that appears on the test is on this, but I will generally try to stick to what is written here. Your best guide to the style of questions that will appear on the test is the quizzes. The test will consist of roughly 10 questions that will require you to write pieces of code, trace pieces of code, and give short answers demonstrating your understanding of what has been covered in the course.

For all data structures that we have covered you need to know how they can be implemented and the strengths and advantages of different implementations. You should know the order analysis of the basic operations on those data structures and what criteria must be met for that order analysis to hold true.

Stacks and Queues

- Both list and array based implementations.
- Adding and removing operations should be $O(1)$.

Linked Lists

- Know the basic types: singly linked, doubly linked, circular.
- Sentinels and how they make linked lists easier.
- Static linking of lists and when/why you would do it.

Hash Tables

- Different hash functions.
- Linked hash tables and how they work.
- Open addressing and the hash functions used for it.

Binary Trees

- Understand the basic operations of a binary search tree.
- Know the basics of the balanced trees we have discussed.
- Be able to combine basic operations to make more complex ones.
- Understand how putting extra data in nodes can help us speed operations or give other functionality.

Direct Access Files

- Understand why we use them and have some idea of how we use them.

C++ Programming Language

- If I give you C++ code you have to be able to follow it.
- I might ask you questions about details of certain features.