

## CSCI 3400 Data Structures

### Course Description

The design, analysis, implementation, and evaluation of fundamental structures including lists, stacks, queues, trees, hash tables, heaps, and graphs. Sorting algorithms are also analyzed and implemented.

Prerequisites: CSCI 1302 (Programming Principles II)

Textbook: none required

Optional: Data Structures and Algorithms Using C#  
Michael McMillan  
ISBN-10: 0521670152  
Also on Google Docs



Grades: Final grade is determined by performance on the following:

Test #1	25 %	
Test #2	25 %	
Homework and/or quizzes	10 %	No late homework accepted.
Final Exam	40 %	

Course Grade Scale: A 92 - 100 After each exam, I adjust the grading scale if necessary.  
B 84 - 92  
C 74 - 84  
D 64 - 74  
F 0 - 63

**Attendance:** You are strongly encouraged to attend class. I do not repeat lectures or provide notes. You are responsible for all class material whether or not you attend class. If you stop attending class, I have the right to withdraw you. However, withdrawing from the class is the responsibility of the student. Do not assume I will drop you from the class. If you stop attending after midterm, I will give you a WF.

Academic honesty is everyone's responsibility. Therefore, please familiarize yourself with the section on academic honesty in the GRU Student Manual and GRU Academic Policy. Academic dishonesty – cheating on exams, plagiarism of the work of others, unapproved collaboration on graded work, and the like – is not tolerated. Depending on the nature and severity of the problem, a student who is guilty of any such violation may be: 1) withdrawn from the course with a grade of WF (counted as an F in the GPA); 2) given a grade of zero on the assignment; 3) given a grade of F in the course; or 4) otherwise penalized, at the discretion of the faculty member.

**Make-up Policy:** No make-up exams are given. If, due to extraordinary circumstances, a student misses a class when an exam is scheduled, the instructor must be notified at least a week in advance unless it is some type of emergency. A student may be required to submit documentation. If the absence is an excusable absence, the weight of the missed exam is placed onto the final exam's weight.

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Office Hours: See Web page

## Preliminary Course Schedule\*

<b>Week</b>	<b>Topics</b>
1	Algorithm Analysis
2	Algorithm Analysis (cont) Abstract Data Types
3	Lists Linked List Doubly Linked List
4	Stacks
5	Queues Trees
6	Binary Tree Binary Search Tree
<b>7</b>	<b>Exam # 1</b>
8	AVL Tree B-Trees
9	Dictionary Hashing Separate Chaining Probing Hash Tables
10	Double Hashing Priority Queue
11	Sorting Insertion
12	Shell Heap Quick
<b>13</b>	<b>Exam # 2</b>
14	Graphs Adjacency List
15	Topological Sort Shortest-Path Algorithm Dijkstra's Algorithm
	<b>Final Exam</b>

\* Subject to change