University of North Texas
CSCE3110, Spring 2017
Data Structures and Algorithms

Meetings	Mondays, Wednesdays and Fridays, 10:30am–11:20pm, NTDP B155
Instructor	Dr. Eduardo Blanco
Office	NTDP F245
Email	`eduardo.blanco@unt.edu`
TAs	Longbo Kong, `LongboKong@my.unt.edu`
	Harshitha Yalamanchili , `HarshithaYalamanchili@my.unt.edu`

Textbook
Mark Weiss. 2013. Data Structures & Algorithm Analysis in C++. ISBN 9780132847377

Course Contents
This course is intended to emphasize the understanding of non-linear data structures and elementary graph algorithms. We will cover both theoretical analysis and experimentation. Lectures will emphasize theoretical aspects, whereas assignments will cover both theory and programming aspects.

Topics include:

- Time and Space analysis (Asymptotic notation)
- Recursion and Recurrence relations
- Review of Basic Data Structures (Lists, stacks, queues, etc.)
- Tree based data structure, including heaps, BSTs, union/find data structures and AVL trees
- Hashing
- Data structures for storing graphs, elementary graph algorithms (breadth-first search, depth-first search) and their applications
- Algorithms for solving minimum spanning tree problem (Prims and Kruskals) and their implementations

You are expected to check `https://learn.unt.edu/` often for course material, homework assignments and grades.

ABET outcomes

- Understand time complexity of algorithms.
- Be able to solve recurrence relations.
- Understand and be able to analyze the performance of data structures for searching, including balanced trees, hash tables, and priority queues.
- Apply graphs in the context of data structures, including different representations, and analyze the usage of different data structures in the implementation of elementary graph algorithms including depth-first search, breadth-first search, topological ordering, Prim's algorithm, and Kruskal's algorithm.
- Be able to code the above-listed algorithms.

Prerequisites
CSCE 2100 Computing Foundations I and CSCE 2110 Computing Foundations II. You need to know how to write C++ code and compile on your own, and basic knowledge of elementary data structures.

Grading

Homework	30%
Quizzes	10%
Midterm	30%
Final exam	30%

- There will be five homework assignments. Homework grade will be the average of the four highest-graded homework assignments. Homework is due at the beginning of class at least a week after it is assigned. Homework assignments will include both written and programming exercises. As a rule, late homework will not be accepted.
- Students should expect five quizzes. Quiz grade will be the average of all quizzes after dropping the lowest-graded quiz.
- The midterm exam will be during class on TBD.
- The final exam will be on TBD.

Academic Integrity
Academic Integrity is defined in the UNT Policy on Student Standards for Academic Integrity. Any suspected case of Academic Dishonesty will be handled in accordance with the University Policy and procedures. Possible academic penalties range from a verbal or written admonition to a grade of F in the course. Further sanctions may apply to incidents involving major violations. You will find the policy and procedures at: `http://vpaa.unt.edu/academic-integrity.htm`.

Each topic discussed in class will have associated homework. Students may discuss homework problems and approaches with each other, but must write their solutions individually. Students may not copy homework from any source, including other students or the internet. No collaboration is allowed in quizzes and exams.

Religious Observance
In accordance with state law, a Student absent due to the observance of a religious holiday may take examinations or complete assignments scheduled for the days missed, including those missed for travel, within a reasonable time after the absence. Students should notify the instructor in each course of the date of the anticipated absence as early in the semester as possible. Only holidays or holy days observed by a religion whose place of worship is exempt from property taxation under Section 11.20 of the Tax Code may be included. A student who is excused under this provision may not be penalized for the absence, but the instructor may appropriately respond if the student fails satisfactorily to complete the assignment or examination.

Check `http://policy.unt.edu/policy/15-2-5` for more information.

Disability Accommodations
The University of North Texas makes reasonable academic reasonable accommodation for students with disabilities. Students seeking reasonable accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with a reasonable accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request reasonable accommodations at any time, however, ODA notices of reasonable accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of reasonable accommodation for every semester and must meet with each faculty member prior to implementation in each class. Students are strongly encouraged to deliver letters of reasonable accommodation during faculty office hours or by appointment. Faculty members have the authority to ask students to discuss such letters during their designated office hours to protect the privacy

of the student. For additional information see the Office of Disability Accommodation website at `http://www.unt.edu/oda`. You may also contact them by phone at 940.565.4323.