Instructor: Dr. Yuan Li  
In-person Lectures: Mondays & Wednesdays 1:00 pm – 3:40 pm, NTDP B185  
Office Hours: Monday & Tuesday 4:00 – 5:30 pm or by appointment  
Zoom Link: https://unt.zoom.us/j/8798075876  
Office: NTDP E250B  
E-mail: yuan.li2@unt.edu  

TA: Beilei Jiang  
Office Hours: Wednesday & Thursday 4:00 pm – 6:00 pm  
Zoom Link: https://unt.zoom.us/j/9640106327  
E-mail: beileijiang@my.unt.edu  

Class Web Page: Canvas  

Recommended Textbooks:  

Prerequisites: CSCE 2100 and 2110 or equivalent. You need to know how to write C++ code and compile on your own, and basic knowledge of elementary data structures.  

Course Objective: The course is intended to emphasize the understanding of non-linear data structures, and elementary graph algorithms, throughout theoretical analysis, as well as experimentation. The lectures will emphasis the theoretical aspects, whereas assignments will cover both theory and programming aspects. Course contents and topics may slightly vary at the instructor's discretion.  
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 (Prim's and Kruskal's) and their implementations

You are expected to check https://canvas.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

Grading:
Assignments
(Mixed with written and programming exercises) 40%
In-class Quizzes 10%
Mid-term Exam 15%
Final Exam 20%
Challenging Projects 15%

• There will be four homework assignments. Homework assignments will include both written and programming exercises.
• Students should expect at least five in-class quizzes.
• The mid-term exam will be during class on TBD. The final exam will be on 08/12.
• The final letter grade will be determined based on the following criteria: (It may be adjusted at the discretion of the instructors) A 90 – 100; B 80 – 89; C 70 – 79; D 60 – 69; F 59 and below.

Submission: All assignments, shall be turned in electronically using the Canvas. A late penalty of 10% will be applied to all late assignments for up to 3 calendar days. Assignments that are not turned in 3 days after the due date will not be accepted. All holidays and weekends will be counted as calendar days.

Attendance: Attendance is mandatory. A student is responsible for requesting an excused absence in writing, providing satisfactory evidence to the faculty member to substantiate excused absence, and delivering the request personally to the faculty member assigned to the course for which the student will be absent. When an absence is excused, the faculty member will provide a reasonable time after the absence for the student to complete an assignment or examination missed. Any student who misses a class over two absences without informing the instructor of valid reasons, and obtaining approval, will lose one point (out of 5 possible points).

Plagiarism: Plagiarism of any kind will automatically result in a grade of F for the course.

Acceptable Student Behavior: Student behavior that interferes with an instructor's ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed
to leave the classroom and the instructor may refer the student to the Center for Student Rights and Responsibilities to consider whether the student’s conduct violated the Code of Student Conduct. The university's expectations for student conduct apply to all instructional forums, including university and electronic classroom, labs, discussion groups, field trips, etc.

**Americans with Disabilities Act:** We cooperate with the Office of Disability Accommodation to make reasonable accommodations for qualified students (cf. Americans with Disabilities Act and Section 504, Rehabilitation Act) with disabilities. If you have not registered with ODA, we encourage you to do so. If you have a disability for which you require accommodation, please discuss your needs with the instructor or submit a written Accommodation Request on or before the fourth-class day.

**Important Dates:**

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<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>June 6</td>
<td>First Class Day</td>
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<tr>
<td>June 10</td>
<td>Last day for change of schedule other than a drop. (Last day to add a class.)</td>
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<tr>
<td>July 1</td>
<td>Last day for change in pass/no pass status.</td>
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<tr>
<td>July 4</td>
<td>Independence Day (university closed)</td>
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<tr>
<td>July 27</td>
<td>Last day to withdraw from the semester. Process must be completed by 5 p.m. in the Dean of Students Office. Grades of W are assigned.</td>
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<tr>
<td>August 12</td>
<td>Final examinations</td>
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