CSCE 2110 Foundations of Data Structures

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Course Catalog Description

Introduces students to the basics of more organized software developments. This include the basics of using Integrated Development Environments (IDE), proper debugging and testing strategies, and the use of code repositories. Students will be expected to work in teams to develop programming solutions in C or C++. Additionally, the effective use of regular expressions to parse text and the use of hash tables to store data will be covered. By the end of the foundation courses, each student will have a solid foundation in conceptual and formal models and levels of abstraction as used in the field of computer science, as well as greater proficiency in software development.

Course Outcomes

Student Outcomes are measurable achievements to be accomplished by the completion of the degree. These outcomes are evaluated as part of our ABET accreditation process.

Computer Engineering Students:
1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Computer Science Students:
1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Apply computer science theory and software development fundamentals to produce computing-based solutions.

Information Technology Students:
1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Identify and analyze user needs and to take them into account in the selection, creation, integration, evaluation, and administration of computing-based systems.

Expected Course Outcomes:
Course Outcomes are measurable achievements to be accomplished by the completion of the course. These outcomes are evaluated as part of our ABET accreditation process.
1. Demonstrate the ability to use Integrated Development Environments (IDE) and use formal debugging tools and techniques to develop C/C++ programs.
2. Demonstrate the ability to develop unit tests and testing strategies for C/C++ programs.
3. Demonstrate the ability to use code repositories for project development.
4. Use abstraction in the design and implementation of algorithms, such as sorting and searching algorithms.
5. Design and implement programming solutions to problems in C or C++.
6. Collaborate with other students in a team towards the design and development of programming solutions.
7. Use regular expressions in C/C++ programs to match patterns.
8. Use of hash tables in design of software.

Textbook:

We are using an E-Book this semester as the required textbook
Instructions for purchasing and using the textbook will be posted on Canvas, or a code can be purchased at the University Bookstore

Prerequisites

Completion of CSCE 1040 with a grade of C or better.

Course Requirements:

Attendance: Required - student is responsible for all materials covered in lecture and class discussion and there will be occasional quizzes in class
Exams: One Review Exam, One Final and 3 Assessment Exams
Assignments: There will be some larger programming assignments, quizzes, exams and laboratory exercises to complete

For More information

Faculty Webpage: Faculty.unt.edu
Class Web Page: Canvas

Course Plan

You will have readings and small participation and Challenge Assignments that you must complete before coming to each class period. In class we will review the material for the day and any questions. At least one class period each week we will focus on developing some code in class, usually related to your homework or lab assignments. We will also be doing some special activities related to broadening your critical thinking, Problem solving and communications skills as it relates to a professional workplace.

The detailed calendar will be available in Canvas

Grading Policy

The various components of your grade are weighted as follows:

Items	Total Percentage
Quizzes (Recitation)	5%
Zybooks Participation and Challenge	10%
Projects	40%
Assessment Exams	45%

Course Policies:

Attendance Policy:
Students are encouraged to attend all lectures in order to gain the full benefit of the course. While I will be posting my slides before class, they will not contain all of the content discussed during class, nor the examples presented on the board. If you are not able to attend class or recitation, please email me as soon as possible.

Recitation Policy:
Recitations will be used to facilitate development of the projects for this course. As such, they are mandatory and failure to attend recitations may result in overall poor project outcomes. Further, failure to attend recitation on time will result in a student not receiving credit for the recitation. Quizzes will occur during recitations.

Submission Policy:
All projects are expected to be submitted on time with all of the correct parts through the Canvas system. The project documentation must be created as a wiki page in GitLab, and no

photographed or scanned content will be scored. Further, any content that is deemed illegible will not be scored. The program must be coded in C or C++ and contain ample comments and descriptions. All programs will be compiled and executed on the department's CSE servers, and any that fail to compile or execute on that system will lose points. Additionally, a README file, in .txt format, with clear instructions on how to compile and execute your program must be included.

Content Responsibility Policy:
Students are responsible for all content presented in class and during recitations. While attendance will not be taken in class, you will be expected to know and understand the requisite topics and concepts. If you are confused or unsure about anything, please ask the instructor or the TA's.

Make-up Work Policy:
For most situations there will be no make-up work for any assessment in this course. However, in the event of an unavoidable absence for one of the reasons below, email the instructor as soon as possible so we can work out a solution. The following events are grounds for make-up work: being a participant in a conference
Additionally, because these are group projects, if one group member is caught cheating the consequences of their actions will extend to the group as a whole. It is the responsibility of all group members to insure that when they put their names on their submission as a whole and submit it, the submission does not contain any instances of cheating. Failure to report known instances of cheating within a group will be deemed facilitation of academic dishonesty and reported as such.

Late Work Submission Policy:
All projects may be submitted up to one day late at a 50% penalty. Any projects submitted two or more days after the due date will receive a 0.

Academic Integrity and Collaboration:
UNT policy 06.003 defines the following breaches of academic integrity:

A. **Cheating.** The use of unauthorized assistance in an academic exercise, including but not limited to:
a. use of any unauthorized assistance to take exams, tests, quizzes or other assessments;
b. usage of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; usage without permission, of tests, notes, or other academic materials belonging to instructors, staff members, or other students of the university;
c. dual submission of a paper or project, or resubmission of a paper or project to a different class without express permission from the instructor;
d. any other act designed to give a student an unfair advantage on an academic assignment.

B. **Plagiarism**. Use of another's thoughts or words without proper attribution in any academic exercise, regardless of the student's intent, including but not limited to:
a. the knowing or negligent use by paraphrase or direct quotation of the published or unpublished work of another person without full and clear acknowledgement or citation.
b. the knowing or negligent unacknowledged use of materials prepared by another person or by an agency engaged in selling term papers or other academic materials.

C. **Forgery**. Altering a score, grade or official academic university record; or forging the signature of an instructor or other student.

D. **Fabrication**. Falsifying or inventing any information, data or research as part of an academic exercise.

E. **Facilitating Academic Dishonesty**. Helping or assisting another in the commission of academic dishonesty.

F. **Sabotage**. Acting to prevent others from completing their work or willfully disrupting the academic work of others.

Cheating of any sort will not be tolerated in this course. All submissions must be your own original work. Taking information or code from the internet or other students is considered a breach of academic integrity. Failure to adhere to these strict standards will be cause for disciplinary action that could be as severe as expulsion from the university. If it is determined a student cheated on any assignment in this course they will receive an F for their final course grade and an academic integrity report will be filed with the Office of Academic Integrity. Further, UNT is now maintaining a database recording any acts of academic dishonesty that is available to employers. Additionally, because these are group projects, if one group member is caught cheating the consequences of their actions will extend to the group as a whole. It is the responsibility of all group members to insure that when they put their names on their submission as a whole and submit it, the submission does not contain any instances of cheating. Failure to report known instances of cheating within a group will be deemed facilitation of academic dishonesty and reported as such.
For more information see the UNT Student Academic Integrity Policy.

Collaboration Policy:
For each project submission, all work is expected to be your own. While you should be working with your group members, you are not to collaborate with other groups for projects, provide solutions to other groups, search for solutions on the internet, or purchase solutions. Doing so will be deemed a breach of academic integrity. However, for any non-graded, practice assignments students are encouraged to work together to solve problems.

ODA:
The University of North Texas makes reasonable academic 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**.

Syllabus Revisions:
This syllabus may be modified as the course progresses should the instructor deem it necessary.
Notice of changes to the syllabus shall be made through Canvas and/or in-class announcements.

Grading Policy:
By the end of the course you must have earned at least a 60% average from the exams. Failure to do so will result in a final grade of an F, despite having a potentially passing course average. Additionally, if there are questions about posted grades, they must be discussed with the instructor within two weeks of the grades being posted. After two weeks, barring an exceptional circumstance, grades will not be altered.