
TENNESSEE TECH UNIVERSITY

DEPARTMENT OF COMPUTER SCIENCE

CSC 2110-021: DATA STRUCTURES AND ALGORITHMS

MTWRF, 9:30-11:20AM, BR 206, 3 CREDIT HOURS, SUMMER 2017

INSTRUCTOR INFORMATION

Instructor's Name: William (Bill) Eberle

Telephone Number: 931-372-3278

Email: weberle@tntech.edu

Office: Bruner Hall, Room 413

Office hours: Monday – Thursday 8:30-9:30

COURSE INFORMATION

PREREQUISITES

MATH 1910 (C or better); CSC 2100 and CSC 2101 (C or better)

This course is the 2nd course in programming course sequence. A good understanding of pointers and structures in C++ is required for this course.

COURSE DESCRIPTION

This course involves the examination of abstract data types, fundamental data structures, and algorithms.

COURSE OBJECTIVES/STUDENT LEARNING OUTCOMES

Through exercises and programming assignments, by the end of this course, you will have been introduced to the following:

- ✓ Advanced knowledge of C++
- ✓ Ability to understand a program
- ✓ Working with existing code: Modifying or extending a given program
- ✓ Debugging an incorrect (syntax and logic) program

MAJOR TEACHING METHODS

The major teaching methods for this course include lecture and in-class assignments. The course will make use of iLearn.

SPECIAL INSTRUCTIONAL PLATFORM/MATERIALS

The class syllabus and other information will be available on the iLearn website as it is developed. You are responsible for checking the iLearn website regularly for information such as lecture notes and due date changes.

TOPICS TO BE COVERED:

Course topics include Algorithm Creation, Abstract Data Types, Object-Oriented Programming, Templates, Recursion, Data Structures, Classes, Lists, Stacks, Queues, Algorithm Efficiency, Searching, and Sorting.

TEXTS AND REFERENCES:

Required:

- Data Abstractions & Problem Solving with C++, by Carrano and Henry, Seventh Edition

GRADING AND EVALUATION PROCEDURES:

Tests and Assignments	
In-Class Assignments	10%
Programming Assignment One	9%
Programming Assignment Two	10%
Programming Assignment Three	11%
Programming Assignment Four	12%
Exam 1	11%
Exam 2	11%
Exam 3	11%
Final Exam	15%

GRADING SCALE

Letter Grade	Grade Range
A	90-100
B	80-89
C	70-79
D	60-69
F	59 and below

Requests for re-evaluation of assignments are limited to five (5) calendar days after the assignment is returned. Every assignment submitted for re-grading must be given to the instructor in its entirety and will be completely re-graded. Assignments will NOT be re-evaluated in the classroom.

COURSE POLICIES

STUDENT ACADEMIC MISCONDUCT POLICY

A core value of the Department of Computer Science is academic integrity. Violations include, but is not limited to sharing information on an exam, plagiarizing another's work, or unauthorized collaboration.

For the first offense, a student will receive a 0 on the assignment and an 'F' for the course on the second offense, including reporting of the offense to the Department of Computer Science and the College of Engineering.

CLASS PARTICIPATION

The in-class assignments are intended to provide students with the opportunity to apply what they are learning in this course. The duration of in-class assignments will vary.

ASSIGNMENTS AND RELATED POLICY

The assignments are intended to provide students with the opportunity to apply what they are learning in this course on an assignment of a larger scale. Assistance on assignments is provided by weekly office hours for the instructor and TA, as well as via e-mail correspondence with the instructor and TA. Every assignment has a given due date, and must be submitted through the corresponding iLearn dropbox. **No late assignments will be accepted. (Five minutes late is still late!)**

Assignments will be posted on the class iLearn website. Each assignment will be graded on a number of factors. Always be sure that a turned in assignment compiles without warnings or errors even if it is not complete. Programs that do not compile successfully (using the gcc/g++ compiler) may receive no credit. Additional procedural information on assignments may be handed out or made available on the website as required.

EXAMS

Material covered on the exams will be based on the assigned chapters and in-class lectures. There are NO make-up exams after the scheduled times. If a student notifies the instructor IN ADVANCE, then an early make-up exam MAY be arranged at the discretion of the instructor. The instructor's decision is final.

Class Plan by Weeks or Days:

Week	Dates	Chap	Topics	Assignments Due
1	06/05 – 06/09	1-2,5 C++ Interlude 7	Algorithms Object Oriented Programming Programming Errors I/O Abstract Data Types Templates Recursion Iterators & Vectors	Ethics Statement In-Class Assignments
2	06/12 – 06/16	3-4 C++ Interlude 2 C++ Interlude 6	Array-Based Implementation Pointer Review Link-Based Implementations <i>Exam #1</i>	Prog #1 In-Class Assignments
3	06/19 – 06/23	6-10	Stacks Exceptions Lists Algorithmic Complexity <i>Exam #2</i>	Prog #2 In-Class Assignments

4	06/26 – 06/30	11-14	Queues Sorting Searching <i>Exam #3</i>	Prog #3 In-Class Assignments
5	07/03 – 07/05	15-18	Hashing Trees *** HOLIDAY *** July 4th Heaps	Prog #4 In-Class Assignments
	07/07		FINAL EXAM	

DISABILITY ACCOMMODATION

Students with a disability requiring accommodations should contact the Office of Disability Services (ODS). An Accommodation Request (AR) should be completed as soon as possible, preferably by the end of the first week of the course. The ODS is located in the Roaden University Center, Room 112; phone 372-6119. For details, view the Tennessee Tech's Policy 340 – [Services for Students with Disabilities at Policy Central](#).