Introduction to Problem Solving with Computers II

Course Description

This course is a continuation of COSC 1435, completing the syntax of the language introduced in COSC 1435 and providing an introduction to elementary data structures. It includes the intermediate study of the basic concepts of problem solving. Concepts include basic one- and two-dimensional array handling, recursion, basic searching and sorting algorithms, abstract data types, an introduction to object-oriented programming in C++, and dynamic data structures.

Prerequisite

Successful completion of COSC 1435

Learning Objectives

Upon successful completion of this course, the student will:

- Understand and effectively use dynamic memory allocation to create and manipulate variables within the scope of dynamic linear data structures.
- Be able to use the UNIX operating system to manage and manipulate files and folders and to create, compile, and execute computer programs of intermediate length.
- Develop, implement, and effectively use classes
- Have a basic understanding of algorithm efficiency and be able to determine the Big-O efficiency of an algorithm.
- Understand and effectively use basic bubble, insertion, and selection sorting algorithms.
- Understand and effectively use single- and multi-dimensional arrays.
- Understand and effectively use linear and binary search algorithms.
- Understand the syntax of and effectively use a high-level language to write computer programs of intermediate length including the use of functions, structs, dynamic memory allocation, and classes.
- Understand and effectively use basic recursive algorithms.

Major Course Requirements

# Exams (3) 60% (20% each)
# Programming Assignments 35% (approximately 10, averaged)
# Class Attendance 5%
Required or Recommended Readings


Course Outline

The following is a rough outline and is subject to change. See the course website for the most up to date information.

- Introduction & Review
- Arrays
- Pointers
- String Programming
- Structured data
- Searching
- Sorting
- Classes
- Recursion

Course Policies

Attendance/tardiness
The students are expected to come to class on time every day the class meets. Read the chapter to be discussed before coming to class. Ask questions of material you do not understand. If I cannot explain the answers to your satisfaction, make an appointment with me to discuss the question. Demonstrate integrity, maturity, and ethical behavior.

Late work and Make-up Exams
Assignments are accepted until MIDNIGHT on the due date. Every homework assignment will list a due date for full credit. Late assignments will lose 10% of the maximum score per day. Makeup exams will not be given under normal circumstances. If you notify me immediately that serious, unavoidable, documentable (e.g., with a letter from your doctor) circumstances have arisen, I will discuss options for replacing the missing grade. (For example, I may allow the grade earned on the comprehensive final to replace the grade for the missed exam.) Excused absences due to school sponsored activities, religious observations, family rituals, etc. should be discussed in advance.

Academic Integrity/Plagiarism.

University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in the fail of the class.

Dropping a Class

I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with me before you decide to drop to be sure it is the best thing to do. Should dropping the course be the best course of action, you must initiate the process to drop
the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. 4/10/2015 is the last day to drop a class with an automatic grade of “W” this term.

**Classroom/professional behavior**

Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

**Grade Appeals**

As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at [http://www.tamucc.edu/provost/university_rules/index.html](http://www.tamucc.edu/provost/university_rules/index.html), and the College of Science and Engineering Grade Appeals webpage ([http://sci.tamucc.edu/students/GradeAppeal.html](http://sci.tamucc.edu/students/GradeAppeal.html)). For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

**Disabilities Accommodations**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call or visit Disability Services at (361) 825-5816 in Driftwood 101, or contact the Office of the College of Science and Engineering Dean, or the Office of the Provost.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.