



CSCI 515-004: Fundamentals of Programming

FALL 2015

Instructor: Dr. Mingon Kang
Lecturing Time: R 1:00pm-3:30pm, Meets 08/31/2015 through 12/18/2015
Lecturing Room: AGIT 233
Office Hours: M: 1-4pm, W: 1-2pm, 3-4pm, Th: 2:30-4pm or anytime my door is open
Office: JOUR 212
Email: Mingon.Kang@tamuc.edu
Website: TBA

Please when you e-mail include 'CSCI 515-004' in the subject of your message

COURSE DESCRIPTION

This is an advanced programming course using a high level programming language, C and C++. Specific objectives are to introduce the development of algorithms as a disciplined approach to problem solving; to present programming practices in design, coding, debugging, testing and documentation of computer programs; to provide the student with the fundamental knowledge necessary for further study in the field of computational sciences.

REQUIREMENTS AND OBJECTIVES:

Students should be familiar with basic C/C++ coding prior to this class.

EXPECTED STUDENT LEARNING OUTCOMES

- To understand the internal representation of the various data types.
- To review the language syntax and learn new syntax you have not previously used in programming applications.
- To correctly solve programming problems and learn how to develop algorithms.
- To examine the internal representation of two and three dimension arrays in C/C++.
- To understand dynamic memory allocation, parameter passing, the use of pointers.

Recommended Text: C++ How to Program (7th Edition), by Paul J. Deitel, Harvey M. Deitel , ISBN-13: 978 0136117261

Prerequisite: CSCI 504

There is also a separately scheduled lab course CSCI 515L.04L

Student must enroll in and successfully complete the required lab class for this course. No grade is assigned to a student for lab. However, students' lab scores will contribute to their letter grade in 515.

Class Time: W 2:00pm-3:00pm

Location: BA258

COURSE EVALUATION

Basis for Evaluation:

Exam 1	25%
Exam 2	25%
Lab/Assignment	20%
Final	30%

Grading Policy:

A:	100% - 90%
B:	89% - 80%
C:	79% - 70%
D:	69% - 60%
F:	Less than 59 %

Final test might be in any form, a program, such as project presentation, a regular test, or a paper. The instructor will make a decision after a cooperative discussion with the students. You should do your own work on exams/projects and for computer assignments. Copying another student's work is not acceptable. Any indication of cheating and/or plagiarism on an exam/assignment/project will be an automatic 0 (zero) for the exam/assignment/project for all students involved. Yet, based on cheating and plagiarism activity in any section of class, instructor holds the right to give F grade to the identified student(s). Regarding codes in assignments / projects, you may be required to explain the code you submitted. In case of discursive explanation, the instructor holds the right to lower your grade. You are given many programming assignments during semester.

The professor reserves the rights to reward students for continuous hard work or for an exceptional novel scientific work (as judged by the instructor) relevant to the topics covered.

The programs will be submitted in an electronic form, whereas the other assignments are to be written in paper.

Any student caught plagiarizing on an assignment will receive a zero on that assignment.

COURSE POLICIES

TESTS: *The two in-class midterm exams will be given roughly at regular intervals. Students will be informed of the test dates around a week in advance. There will be a final exam too. The test will take one class period and will be given at the scheduled times only. No opportunity will be given to take the test at earlier or later times except in extreme cases as judged by the instructor.*

MAKEUP: *Except extreme cases (as judged by the instructor), no individual makeup test will be permitted. All quizzes and tests are closed book.*

During the exams laptops and phones must be switched off all the time.

ATTENDANCE:

From the Students' Handbook: *"Students are expected to be present for all class meetings of any course for which they are enrolled. Per University Procedure A13.02, effective September 1, 1996, students are responsible for learning about and complying with the attendance policy stated in the catalog, Student's Guidebook, and/or faculty syllabus. It is the prerogative of the faculty to drop students from courses in which they have accrued excessive absences as defined in the course syllabus."* **Student Handbook**

The instructor will take the attendance at the beginning of each lecture and only once. AFTER THAT THE INSTRUCTOR WILL CLOSE THE CLASSROOM DOOR AND/OR PUT A NOTE AT THE DOOR INDICATING LECTURE IS ON. NO STUDENT WILL

BE ALLOWED TO THE LECTURE AFTER THIS.

If a student misses 3 or more lectures without legitimate reasons, the instructor will make the student drop the course. If this is not possible, the letter grade of 'F' will be assigned to the student.

Lateness and leaving class early may count as an absence and are not acceptable unless you are ill or a family emergency exists. If you miss a class, it is your responsibility to obtain notes from a fellow student. Office hours are not meant for individual lectures. Any class material missed by the student is the student's responsibility to acquire.

LATE POLICY:

The deadline for any assignment can be extended with a 15% penalty per day. No deadline can be extended by more than two days. Assignments will NOT be accepted 48 hours after the due date.

MAKEUP POLICY:

There will be no makeup exams in general. Makeup exams may be given to students under extreme circumstances, such as hospitalization, serious injury, death in the family, etc, with prior notification and valid documents.

COLLABORATION POLICY:

Students are encouraged to talk to each other, to the instructor, or to anyone else about any of the assignments. Any assistance, though, must be limited to discussion of the problem and sketching general approaches to a solution. Each student must write out his or her own solutions to the homework. Consulting another student's or group's solution is prohibited, and submitted solutions may not be copied from any source. These and any other form of collaboration on assignments constitute cheating. If you have any question about whether some activity would constitute cheating, please feel free to ask.

ACADEMIC DISHONESTY:

Academic integrity is the pursuit of scholarly activity free from fraud and deception and is an educational objective of this institution. Academic dishonesty includes, but is not limited to, **cheating, plagiarizing**, fabricating of information or citations, facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students. If you are caught in an academic dishonesty situation on **any** course work, you will be given a grade of **F** for the course and referred to the Dean of Students for further disciplinary action.

"All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment." (See **Student's Guide Handbook, Policies and Procedures, Conduct**).

WITHDRAWAL POLICY:

There are deadlines for withdrawing from this course. It is the student's responsibility to follow these deadlines.

STUDENTS WITH DISABILITIES:

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 have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
Texas A&M University-Commerce
Gee Library
Room 132
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
StudentDisabilityServices@tamuc.edu

SMOKE, VAPOR & TOBACCO FREE ENVIRONMENT: Procedure 34.05.99.R1 now prohibits the use of vapor/electronic cigarettes, smokeless tobacco, snuff and chewing tobacco inside and adjacent to any building owned, leased, or operated by A&M – Commerce.

The professor will make supplementary information for the course available in eCollege. These include class notes, assignments, PowerPoint slides, class announcements, the course syllabus, test dates, etc. The professor will announce in class when such information becomes available electronically. It is the student's responsibility to follow these announcements.

The professor maintains the right to modify the course policy within the semester if need arises. **Some changes are possible within the first few weeks.**

Schedule (Tentative)

WEEK	TOPIC
1	Introduction, Data types, Cin, Cout
2	Decision making, details of loops, string comparison, nested control structures, logical operators, == and =
3	File Operations, text files, binary files. How to read and write, randomness. Loops to read data from file.
4	Functions: Modular programming, pass by reference, pass by value, ARGV details for main() function, memory details of functions.
5	Determining the Size of a Data Type, Scope, static variables, function overloading, predefined (system) functions, default arguments
6	Arrays: Using with different data types, indexes and access to arrays. Applications to images.
7	Array operations, add, shift, replace, delete an element, parallel arrays with different data types (basics of structs)
8	Array applications: Search in sorted and unsorted data. Sort algorithms, efficient array size calculation for a given problem
9	Structs, memory status of structs, arrays in structs, functions with structs.
10	Structs, structs in structs, sorting structs, sorting structs in an array.
11	Dynamic Programming, Pointers, new and delete operators. Dynamically created arrays, dynamically created pointers.
12	Dynamic Programming with various scenarios. Friendship network, Facebook problem, Traveler salesman problem,
13	Dynamic Programming with structs. Pointers to various datatypes,
14	Templates, pointer based strings, C string and string class.
15	Family tree problem with dynamic programming, recursive functions
16	Review for Final exam, practical examples: constrained sorting, DNA search, bank simulation