CSCI 201 – Computer Science 1 Spring 2024

Instructor: Professor Sarnath Ramnath ECC 145, email: sarnath@stcloudstate.edu

Office hours: M, W, F: 3:30 - 4:20; T, Th: 9:30 - 10:20 or by appointment. On T, Th, I will either be in ECC 145, or in ECC 127; M W F on zoom. Click here for zoom link during office bours.

Class Meetings. This is a combined D2L section of on-campus(face-to-face) and online courses. **Attendance is required for face-to-face students; attendance will be a part of your grade. Online students will post weekly learning summaries on D2L for their attendance component** (see details on page 3 of this document). **For the health and safety of everyone, please maintain distancing norms and wear face-masks whenever we are in a face-to-face situation in the classroom or in the closed lab.**

Face-to-face Lecture Meetings. Sections 1, 2 and 3 meet on Monday, Wednesday and Friday from 9:00 to 9:50 All lectures meet in ECC 115.

Lab Meetings. There are three face-to-face closed lab sections, that meet as follows:
Section 1 meets 10:00am - 11:50am AM on Thursdays
Section 2 meets 8:00am - 9:50am AM on Thursdays
Section 3 meets 8:00am - 9:50am AM on Tuesdays
Section 54 is online, but students are encouraged to join the labs.

Online Students. Online students should be registered in section 54. You may choose to attend a face-to-face lecture if there is room available. Materials will be posted on the D2L website for online students (face-to-face students are also welcome to use these materials).

Computer access. To ensure a uniform experience for all students, you have been given account on a server, running the `UNIX operating system`.
Remote access to Unix. To see a video explaining how to access the server remotely through a laptop click here. This next video explains how you can use Notepad++ on your PC, as an editor for creating files in Unix.
Access in the closed lab. Those who are physically in the lab can bring a laptop or access the server through the thin clients provided in the lab. This video explains how to use the thin clients in the lab to access Unix, create and edit files, etc.

Course Prerequisites This is **not a first course on computer programming.** Students taking this class should have completed the following prerequisites:
Math Prerequisites. Some amount of mathematical maturity is needed for this course. Students should be familiar with the mathematical notions of variables, expressions, systems of equations and their solutions and functions. The ability to apply these concepts to solve problems is essential. All this is usually covered in MATH 112 (College Algebra) in this university.
Programming Ability. Students must have had the equivalent of a semester's worth of programming (year's worth of high school work). This work should involve the **writing of code**, *i.e., generation of code using a system that automatically* **translates "drag-and-drop" actions into code is not sufficient**. This prior programming experience does not have to be in any particular language,

but must involve application of the following:
sequencing, i.e., breaking down a task into a sequence of operations
branching, i.e., using *if* statements with conditional expressions
looping, i.e., repeating a sequence of statements until a certain condition is satisfied
functions, i.e., a program that can be called from the main program
Such an experience is provided in the course CSCI 200 in this university.

Course Objectives and Outcomes The main focus of the course is to **analyze common problems, design good programmable solutions and implement the solutions as C++ code. Note that wrting code is the last step.** Students successfully completing this course will be able to:

- *Apply structured principles and good practices to the task of developing software systems.* Use the control structures of branching and iteration to devise algorithms and construct, document and test programs that perform simple processes. Identify, design and employ appropriate abstractions to organize data and programs. Develop, document and test programs that efficiently manipulate collections of data objects. Design and report on test cases for simple programs.
- *Understand general OS functions and structures.* Use the UNIX/Linux command line environment. Use external storage devices for input and output operations in programs. Apply a mechanism that enables the use of indirection to manipulate data items.
- *Apply common formal methods to the process of constructing a system and appreciate the need to study and develop such methods.* Translate a solution for a given problem into a formal process that can be automated; construct a flowchart to describe the formal process. Use formalisms such as assertions, apply measures to deetermine the scalability of programs, and become familiar with the big-O notation.

(If some of the above points seem strange and mysterious, don't worry! They will make more sense as we go through the semester.) Towards the end of the semester, we will complete a project that will use most of the principles that you have learned during the semester.

Exams. Two midterm exams and two end-term exams will be conducted to evaluate students' grasp of the underlying principles, and some aspects of the applications. The administration of exams will be done as D2L quizzes using Respondus Lockdown Browser and Respondus Monitor. *Computers are available in the SCSU Library that can be reserved for the exam.*
Please do not take any chances if you are not sure of your own computer or the connectivity in your home.
Dates for the exams are:
Self-study quiz (20 minutes) on Chapters 1-3 and Problem solving handout: Available on Monday January 22, 8:00 AM to 10:00 PM
Mid-term 1 (75 minutes) Available on Monday February 26, 8:00 AM to 10:00 PM (no lecture class that day)
Mid-term 2 (75 minutes) Available on Monday April 8, 8:00 AM to 10:00 PM (no lecture class that day)
Final Part 1 (75 minutes) Available on Wednesday April 24, 8:00 AM to 10:00 PM (no lecture class that day)

Final Part 2 (90 minutes) Same date as specified in final exam schedule, available on Monday April 29, 8:00 AM to 10:00 PM
Make-up exams will not be given except under extenuating circumstances (must be approved in advance by the instructor).

Activity Based Learning(ABL). We will employ this pedagogical approach. With ABL there is an activity associated with every concept, and the active participation of the student in the activity is essential. In the lectures, I will both present material and also have the students work on problems. The work done in lectures will be part of your grade. The closed labs will involve working on some problem that is related to what we do in class that week.

Lab and Homework Policy. Please take note of the following:

- **Pre-lab assignments.** All students should complete the pre-lab part of the assignment before coming to the lab. If you had difficulties, you should clarify the difficulties faced with the pre-lab before you work on the lab assignment. During the scheduled lab time, you will get assistance with any difficulties you face. Online students can get help over email.
- **Due dates.** Homework and lab due dates will be posted on the assignment. Since the labs meet at different times, please read the assignments and start work on them **before you come to the lab**. This will enable you to get help in the lab session.
- **Late policy:** You are encouraged to complete the homework and submit even if you are late. In general, you can submit within 48 hours of deadline. Penalties 20% upto 24 hours late; 50% upto 48 hours. **If you are more than a three days behind, please move on to the next assignment. DO NOT FALL BEHIND - that is the number one reason for students doing poorly in the course.** (You will have to do some catching up later, but do not let one missed assignment to cascade into the next one.)

Evaluation and Grading.
Lab and Homework - 45 %; Exams - 45-50%; Attendance and Participation 5-10%. The final grades will be curved.
Face-to-face students will get **attendance points** for coming to the meetings, **especially the lab sessions,** and showing progress on their assignments. For the **online students, attendance** will be shown through a weekly learning log; this log will contain the times when you watched the class videos and what you learned from each video. For getting credit, these logs must be uploaded every week on D2L.

Materials for the course

Texts:
Starting Out with C++: From Control Structures through Objects (8th/9th/10th Edition), by Tony Gaddis, Addison Wesley.

The course will follow the text book for the most part and you will also get some additional handouts.

Code of Conduct. The SCSU Code of Conduct lists academic dishonesty as prohibited conduct. There are other prohibited behaviors that are not listed here. *Academic dishonesty includes, but is not limited to, cheating, plagiarism, falsification, and collusion. This includes any violation of the Academic Integrity Policy. Other examples include the use by paraphrase or direct quotation, the published of unpublished work of another person without full and clear acknowledgment; unacknowledged use of materials prepared by another person or agency engaged in selling or otherwise providing term papers or other academic materials; and commercialization, sale or distribution of class notes without instructors' permission.*