

CSCI 235: Procedural Programming



Spring 2020

Course Description

In this course, we will study the concepts of computer science using the C++ language. This will include problem-solving techniques, developing algorithms, program design, and testing. Additional topics include the history of computing and ethical issues in computing. Programming constructs include: control, repetition, functions, arrays, data types, and file handling. While C++ is an object-oriented language, for this introductory course we will focus on the procedural aspects of the language only.

Prerequisites: CSCI 215/217 or instructor's permission, and MATH 110 or higher

Course Objectives

At the end of this course, the student is expected to:

- Define an algorithm.
- Develop algorithms for basic computing functions involving iteration, control-flow, files and functions.
- Analyze a problem description and to refine a solution into an algorithm.
- Take a large problem, break it down into smaller parts, solve it, and code it using C++.
- Understand the basic imperative syntax and semantics of C++.
- Translate an algorithm into C++.
- Demonstrate basic debugging capabilities.
- Express the issues involved in an ethical situation involving computing.

ABET Student Outcomes

The following student outcomes shall be supported by this course:

1. An ability to analyze a problem and identify and define the computing requirements appropriate to its solution.
2. An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.
2. An ability to use current techniques, skills, and tools necessary for computing practice.
3. An ability to communicate effectively with a range of audiences.
4. An understanding of professional, ethical, legal, security and social issues and responsibilities.
4. An ability to analyze the local and global impact of computing on individuals, organizations, and society.
5. An ability to function effectively on teams to accomplish a common goal.
6. An ability to apply knowledge of computing and mathematics appropriate to the discipline.

Text

Malik, D. S. (2018). *C++ Programming: Program Design Including Data Structures*. 8th edition. Stamford, CT: Course Technology. ISBN: 978-1-337-11756-2. URL: <https://www.cengage.com/c/c-programming-program-design-including-data-structures-8e-malik>. *You may also choose to purchase the cheaper 7th edition for this course.*

Topic materials are expected to be read by students prior to the in-class discussions. See the [Tentative Course Schedule](#).

Free Resources

Allen B. Downey (2012). *How to think like a computer scientist: C++ Version*. Green Tea Press. URL: <https://www.greenteapress.com/thinkcpp/>.

Wikibooks (2012). *C++ Programming - Wikibooks, The Free Textbook Project*. Wikibooks. URL: https://en.wikibooks.org/wiki/C%2B%2B_Programming.

Busbee, Kenneth (2013). *Programming Fundamentals - A Modular Structured Approach using C++*. 1.22th ed. OpenStax CNX. URL: <https://open.umn.edu/opentextbooks/textbooks/144>.

Attendance

Staying on top of things in an online course is of the utmost importance. There will be a class announcement at the beginning of each week detailing the week's work. Stay up to date on these assignments; the more behind you get the less likely it becomes that you will pass the course. Email me as soon as you hit a problem; I am more than happy to help you.

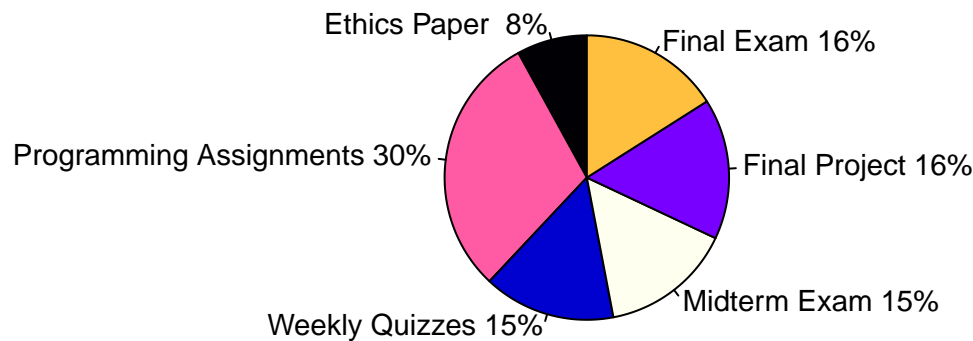
Attendance is mandatory and [CSU's FAs \(Failure for Absences\)](#) policy will be enforced. See the Student Handbook for more information on FAs. Since this class meets twice a week, **7 absences for any reason will result in an automatic FA** without exception. Three (3) instances of tardiness or leaving class early are equal to one absence. If you arrive after the role is called, check in with the professor directly after class so that you will be recorded as tardy instead of absent.

"Attendance" for the Online Course

Online students are counted as having "attended class" by completing the exams and weekly quizzes. Failure to attempt a quiz or exam will count as a week of absences. Four (4) weeks of absences (i.e., 25% of the weekly quizzes and exams) for any reason will result in an automatic FA (Failure for Absences) without exception in accordance to [CSU's Excessive Absences policy](#).

Grading Policy

Weights



Grading Scale for Letter Grade

Letter grades will be calculated from the following ranges.



Late Work

Deadlines are an inevitable part of life. Meeting deadlines is an important part of becoming a professional computer scientist. In order to begin to instill this within each of you, I am making a concerted effort to stick to all deadlines for programming exercises. *I will **not** grade late homework.*

The lowest assignment problem's grade will be dropped at the end of the semester. Therefore, if you are a conscientious student and turn in all homework, you will benefit by dropping the lowest score. If you miss one deadline, that grade of zero will be dropped. If you miss multiple deadlines, your grade will be affected. I will look at your late work and let you know how you did if you bring it to me; however, *any late work will receive a grade of zero.*

Teamwork

Teamwork is a highly valued skill in the workplace and society as a whole. For team projects, the professor will use his/her discretion as to the team membership and will direct each teams to produce a single solution. The goal is to develop an understanding of what makes teams successful and to be able to be an effective teammate.

Academic Integrity and the Honor Code

All students are expected to adhere to [Charleston Southern University's code of Academic Honesty](#). **All assignments** are individual assignments unless explicitly specified by the professor. Do not collaborate, search for posted solutions, or post code online. **Make sure that you write every line of your own code.** You should not use **ANY** outside sources of code for this class. Using or referencing code written by someone else or sharing your code with others (online or in person) is considered a violation of the academic integrity policy and will result in a report to the registrar's office. **Posting code relating to assignments on the Internet is prohibited** (e.g., **don't** post to discussion boards, forums, blogs, public repositories, **chegg.com**, etc.). Do NOT look at your neighbor's screen for hints or ask, "how did you do that?", unless you talk to me **beforehand**.

- **NEVER** look at someone else's code in person or online (chegg.com, forums, email, etc.).
Do ask your professor if you have questions or get stuck.
- **NEVER** search online for assignment solutions.
Do reference code from the book, code given to you by the instructor, and online documentation on the C++ language.
- **NEVER** exchange code in any manner or you tell someone what code they need.
You may talk to your classmates about C++ or assignments as long as you are not sharing ideas for assignment solutions.

A Community of Honor

As a liberal arts university committed to the Christian faith, Charleston Southern University seeks to develop ethical men and women of disciplined, creative minds and lives that focus on leadership, service and learning. The Honor System of Charleston Southern University is designed to provide an academic community of trust in which students can enjoy the opportunity to grow both intellectually and personally. For these purposes, the following rules and guidelines will be applied.

"Academic Dishonesty" is the transfer, receipt, or use of academic information, or the attempted transfer, receipt, or use of academic information in a manner not authorized by the instructor or by university rules. It includes, but is not limited to, cheating and plagiarism as well as aiding or encouraging another to commit academic dishonesty.

"Cheating" is defined as wrongfully giving, taking, or presenting any information or material borrowed from another source - including the Internet by a student with the intent of aiding himself or another on academic work. This includes, but is not limited to a test, examination, presentation, experiment or any written assignment, which is considered in any way in the determination of the final grade.

"Plagiarism" is the taking or attempted taking of an idea, a writing, a graphic, music composition, art or datum of another without giving proper credit and presenting or attempting to present it as one's own. It is also taking written materials of one's own that have been used for a previous course assignment and using it without reference to it in its original form. Students are encouraged to ask their instructor(s) for clarification regarding their academic dishonesty standards.

Tentative Course Schedule

The weekly schedule is subject to change.

#	Week Days	Lecture Topics	Textbook
1	01/13 – 01/17	Syllabus, Schedule, etc.; Overview of Computers and Programming Languages; Introduction to Flowcharts and the Command Line	CH 1
2	01/20 – 01/24	Basic Elements of C++	CH 2
3	01/27 – 01/31	Input / Output	CH 3
4	02/03 – 02/07	Boolean Expressions and Conditionals (Branching)	CH 4
5	02/10 – 02/14	Repetition (Looping)	CH 5
6	02/18	Midterm Exam (<i>tentative date</i>)	CH 1-5
6–7	02/17 – 02/28	User-Defined Functions	CH 6
8	03/02 – 03/06	User-Defined Simple Data Types and Namespaces	CH 7
9	03/09 – 03/13	<i>Spring Break</i>	
10	03/16 – 03/20	The String Type	CH 7
11–12	03/23 – 04/03	Arrays	CH 8
13	04/06 – 04/10	Records	CH 9
14–15	04/13 – 04/24	Review / Work on Final Project	
16	April 30 th	Final Exam	CH 1-9

Standard Charleston Southern University Policies

Course Evaluations

Course evaluations are completed via the web. Instructions on how to access this system and how to evaluate the course will be available midway through the semester. I encourage you to take this seriously and provide constructive feedback for improving the class.

Student Representatives

These are students who are designated by letter to represent the University on official business, e.g., athletic, music, and similar events. If officially scheduled absences cause these students to miss tests, assignments, and/or other similar academic activities, University policy allows these to be made up without penalty. In accordance with this policy, Student Representatives may opt to either make up tests prior to departure, or supplanting missed tests with the final exam grade. Final exams must always be taken prior to departure to avoid an Incomplete for the course. Scheduled assignments remain subject to the lateness policy and must be turned in before departure to avoid lateness penalties. Student Representatives are responsible to inform the instructor of official absences and to make all appropriate arrangements.

Students with Disability

Any student who may need of accommodations should review the requirements / procedures on [Disability Services website](#). Once approved to receive accommodations through Disability Services, the student will need to contact the instructor.

Nondiscrimination Policy and Student Rights

Charleston Southern University does not illegally discriminate on the basis of race, color, national or ethnic origin, sex, disability, age, religion, genetic information, veteran or military status, or any other basis. Inquiries regarding the non-discrimination policies should be directed to Latitia R. Adams, Title IX Coordinator, 843-863-7374, ladams@csuniv.edu. Students should refer to the [CSU Student Handbook](#) to be fully informed of their rights and remedies.

Internet Etiquette Policy

Charleston Southern University (CSU) holds its students, faculty and staff to the highest standards of conduct and expects all to demonstrate courteous behaviors and practices in online communications. CSU's "netiquette" (Internet etiquette) policy includes guidelines and recommendations for online communications. Being respectful, thoughtful, meaningful and ethical are fundamental to good netiquette.

CSU's basic netiquette rules are:

- Course communications are for internal use only and considered confidential. Do not forward or quote discussion posts, emails or other course communications to outside parties.
- Never share personal login usernames, IDs or passwords.
- Do not type in all capital letters. It is perceived online as shouting.
- Use proper capitalization, grammar, spelling, and punctuation conventions for professional communications.
- Avoid texting jargon or abbreviations without explanation.
 - Incorrect: "CSU is a wonderful university."
 - Correct: "Charleston Southern University (CSU) is a wonderful university."
- Be mindful of sending emails. Ensure that content is relevant and pay attention to *Reply* versus *Reply All*.
- BucMail is the only email allowed for course communications. Other platforms (Yahoo, Gmail, etc.) are prohibited.
- In video conferencing, mute your microphone when not speaking.
- Differing views are natural and welcome in discussion boards. Be respectful in your comments-even if you disagree or dislike someone's position on a topic.
- Respect the time and availability of students, faculty, and staff. Emails should be addressed within 24 hours of receipt. Keep in mind that traditional faculty work hours are 8 a.m. - 5 p.m. EST.