

# CPSC 120 Syllabus

**Instructor:** Anil Shende

**Student Hours:** [By Appointment](#)

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## Course Objectives

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This course is the first in a two-course sequence designed to introduce students to the fundamental concepts of computer science. The course focuses on developing algorithms to solve problems and using the programming language C++.

**Intended Learning Outcomes:** At the end of the course, the successful student will be able to

1. design and implement (in the C++ programming language) algorithms to solve problems appropriate for an introductory course.
2. use the basic data types (numbers, booleans, and strings), control structures (conditionals and loops), data structures (arrays and structs), and libraries (math and random) provided by the C++ language.
3. write thorough test cases for a program given input and output specifications.
4. debug programs that complete execution but have incorrect output.

**Other Intended Outcomes:** I hope that by working hard throughout the semester you will:

1. look forward to coming to class
2. think of programming assignments as fun puzzles
3. celebrate failure as an opportunity to learn
4. feel like there is no system too complicated for you to learn

## Course Content

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**Prerequisites:** There are no prerequisites for this course.

**Text:** *How To Think Like a Computer Scientist C++ Edition*, by Barbara Ericson and Allen B. Downey, Runestone Academy, 2020.

**Project:** In this course, you'll get to work on your very own app. You'll use your programming skills to create a cool program that you can proudly share with your friends and family. ?

**Labs:** During our lab sessions, you'll have the chance to practice your programming skills. It's more fun and easier to learn with others, so please work together with your classmates. These activities will help you get ready for the final project.

**Assignments:** You'll also have some small programming assignments that are designed to be fun and engaging. These assignments will help check your skills and prepare you for the more challenging lab activities.

**Quizzes, Tests, and Exam:** We will have short quizzes to help you understand the concepts and stay on track with the coursework. There will be three tests and **one final exam.**

Test	Date
Test	Friday, September 19
Test	Friday, October 10
Test	Friday, November 14
CPSC120A Final Exam	Friday, December 12 (8:30 AM - 11:30 AM)
CPSC120B Final Exam	Wednesday, December 10 (8:30 AM - 11:30 AM)
CPSC120C Final Exam	Tuesday, December 9 (8:30 AM - 11:30 AM)

**Grading:** Course grades are assigned based on the following weights and scale:

Grade Weights

Category	Weight
Quizzes	10%
Assignments & Labs	12%
Project	8%
Tests	40%
Exam	30%

Grade Scale

Grade Range		Grade Range	
A	93-100	C	73-76
A-	90-92	C-	70-72
B+	87-89	D+	67-69
B	83-86	D	63-66
B-	80-82	D-	60-62
C+	77-79	F	0-59

Course Policies

**Attendance Policy:** Attending class is crucial for your success in this course. If you anticipate being unable to attend class, email me before class to be excused.

**Make-up Policy:** Everyone is expected to take quizzes, tests, and exams as scheduled. If you have an excused absence, email me to arrange a make-up. Unexcused absences will result in receiving no credit.

**Late Policy:** Assignments and Labs should be turned in during class on the due date. If you anticipate being unable to meet a deadline, email me before the deadline to request an extension. Unexcused late work will receive no credit.

**Academic Integrity:** I expect everyone to follow the Academic Integrity policy detailed in the handbook [Academic Integrity at Roanoke College](#). Please contact me if you have questions about how these policies apply to our class. The bottom line is that all work you submit for a grade must be solely your own unless explicitly stated as group work.

**Generative AI:** Working with a partner is an excellent way to learn programming. On group quizzes, assignments, and labs, you are encouraged to work with other students. You can also seek the assistance of other students, lab assistants, instructors, and generative AI such as ChatGPT for group work. The goal of this assistance should be to maximize learning, not to minimize effort.

**Electronic Devices:** All cell phones must be silenced and stored out of sight during class. The use of any electronic device during a test or quiz is prohibited. Using such a device during a test or quiz will be considered a breach of academic integrity.

**Writing Center & Subject Tutoring:** The Dr. Sandee McGlaun Writing Center and Subject Tutoring, located in the lower level of the Fintel Library (Room 5), offers free one-on-one support in writing, oral presentations, and course content such as Business, Economics, Mathematics, INQ 240, Modern Languages, Lab Sciences, and Social Sciences. Open Sunday–Thursday from 4–9 PM, students can stop by or schedule through Navigate by selecting “Schedule an Appointment” → “Writing Center and Subject Tutoring” → “Writing Support” or “Course Tutoring” → preferred date and tutor. Contact [subject\\_tutoring@roanoke.edu](mailto:subject_tutoring@roanoke.edu) or 540-375-2590 for more information.

**Accessible Education Services:** Accessible Education Services (AES) is located on the first floor of the Bank Building. AES provides reasonable accommodations to students with documented disabilities. To register for services, students must self-identify to AES, complete the registration process, and provide current documentation of a disability along with recommendations from the qualified specialist. Please contact Dustin Persinger, Assistant Director of Academic Services for Accessible Education, at 540-375-2248 or by e-mail at [aes@roanoke.edu](mailto:aes@roanoke.edu) to schedule an appointment. If you have registered with AES in the past and would like to receive academic accommodations for this semester, please contact Dustin Persinger at your earliest convenience to schedule an appointment and/or obtain your accommodation letter for the current semester. The testing center, also located on the first floor of the Bank Building, can be reached at 540-375-2247.

**Student Health & Counseling Services:** Student Health & Counseling Services supports students through in-person health appointments, in-person counseling, 24/7 telehealth (TimelyCare), Therapy Assistance Online, as well as resources related to general wellness, LGBTQ+, sexual assault, substance abuse, and suicide prevention. Unmet health needs can negatively impact your performance in this course. Student Health & Counseling Services can help. Please see <https://www.roanoke.edu/shcs> for more information and to access services.

**Diversity:** I consider this classroom to be a place where you will be treated with respect, and I welcome individuals of all ages, backgrounds, beliefs, ethnicities, genders, gender identities, gender expressions, national origins, religious affiliations, sexual orientations, ability - and other visible and nonvisible differences. All members of this class are expected to contribute to a respectful, welcoming, and inclusive environment for every other member of the class.

**Preferred Name/Pronoun:** I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so I can make appropriate changes to my records.

## Course Schedule

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This course expects you to spend at least 12 hours of work each week inside and outside of class.

Date	Topic
Wednesday, August 27	Statements
Friday, August 29	Expressions
Monday, September 1	Variables
Tuesday, September 2	Lab: Variables
Wednesday, September 3	Types
Friday, September 5	Reassignment
Monday, September 8	For Loops

**Date**

Tuesday, September 9  
Wednesday, September 10  
Friday, September 12  
Monday, September 15  
Tuesday, September 16  
Wednesday, September 17  
Friday, September 19  
Monday, September 22  
Tuesday, September 23  
Wednesday, September 24  
Friday, September 26  
Monday, September 29  
Tuesday, September 30  
Wednesday, October 1  
Friday, October 3  
Monday, October 6  
Tuesday, October 7  
Wednesday, October 8  
Friday, October 10  
**Fall Break**  
Monday, October 20  
Tuesday, October 21  
Wednesday, October 22  
Friday, October 24  
Monday, October 27  
Tuesday, October 28  
Wednesday, October 29  
Friday, October 31  
Monday, November 3  
Tuesday, November 4  
Wednesday, November 5  
Friday, November 7  
Monday, November 10  
Tuesday, November 11  
Wednesday, November 12  
Friday, November 14  
Monday, November 17  
Tuesday, November 18  
Wednesday, November 19  
Friday, November 21  
Monday, November 24  
**Thanksgiving Break**  
Monday, December 1

**Topic**

Lab: Loops  
Loop Variable  
Accumulator  
Nested Loops  
Lab: Nested Loops  
Graphics  
**Test: Variables and Loops**  
Functions  
Animation  
Return  
Scope  
Conditionals  
Lab: Functions  
Logic  
Booleans  
Conditional Loop  
Lab: Conditionals  
User Input  
**Test: Functions and Conditions**  
  
Robotics  
Lab: Conditionals  
Strings  
String Mutation  
Binary  
Lab: Strings  
String Creation  
File I/O  
Arrays  
Lab: String Creation  
Nested Arrays  
**No Class**  
Images  
Lab: Arrays  
Structs  
**Test: Strings and Arrays**  
Methods  
Lab: Structs  
Recursion  
Recursive Return  
Recursive Graphics  
  
Project

Date	Topic
Tuesday, November 2	Project
Wednesday, December 3	Project
Friday, December 5	Project Demos
Tuesday, December 9 (8:30 AM - 11:30 AM)	<b>CPSC120C Final Exam</b>
Wednesday, December 10 (8:30 AM - 11:30 AM)	<b>CPSC120B Final Exam</b>
Friday, December 12 (8:30 AM - 11:30 AM)	<b>CPSC120A Final Exam</b>