

Last Revised: September 2019

**COURSE INFORMATION**

**Course Title:** C++ for Programmers

**Course Number:** CSCI 200

**Credits:** 3

**Total Weeks:** 14 (Fall, Spring)  
12 (Summer)      **Total Hours:** 39

**Course Level:**     First Year       Second Year  
                          New                 Revised Course  
                          Replacement Course

**Department:** Computer Science    **Department Head:** M. O'Connor    **Former Course Code(s) and Number(s) (if applicable):** N/A

**Pre-requisites (If there are no prerequisites, type NONE):** CSCI 120 and CSCI 125/CSCI 127 or equivalent

**Co-requisite Statement (List if applicable or type NONE):** NONE

**Precluded Courses:** N/A

**COURSE DESCRIPTION**

This course is designed to extend the student's knowledge of the principles and practice of Object-Oriented Programming (OOP) to the C++ programming language. Students must have a thorough understanding of the features of OOP before starting this course. The course begins with a review of basic programming techniques and OOP concepts and progresses to advanced topics in OOP using C++. The examples and exercises require knowledge of fundamental algorithms and programming techniques in an object-oriented context

**LEARNING OUTCOMES**

Upon successful completion of the course, students will be able to:

- Outline the essential features of the C++ programming language.
- Describe the fundamental principles of Object-Oriented program design.
- Describe the basic concepts of Software Engineering.
- Define algorithms using pseudocode.
- Construct C++ programs from algorithms using standard OOP methodologies.
- Apply the concepts of class, method, constructor, and object.
- Apply the concepts of program data abstraction, function abstraction, inheritance, overriding, overloading and polymorphism.
- Describe and apply techniques to debug C++ programs.
- Trace the execution of C++ programs.
- Use elementary data structures such as arrays and linked lists.
- Implement fundamental algorithms such as the linear search and selection sort.
- Use C++ standard templates.
- Test programs using the methods described in the course.
- Document a project.

**INSTRUCTION AND GRADING**

Instructional (Contact) Hours:

Type	Duration
Lecture	39
Seminars/Tutorials	
Laboratory	
Field Experience	
Other ( <i>specify</i> ):	
Total	39

**Grading System:** Letter Grades  Percentage  Pass/Fail  Satisfactory/Unsatisfactory  Other

**Specify passing grade:** 50%

**Evaluation Activities and Weighting** (total must equal 100%)

Assignments: % <i>Specify number of, variety, and nature of assignments:</i>	Lab Work: 15%	Participation: % <i>Specify nature of participation:</i>	Project: % <i>Specify nature of project:</i>
Quizzes/Test: 20%	Midterm Exam: 30%	Final Exam: 35%	Other: %

**TEXT(S) AND RESOURCE MATERIALS**

Provide a full reference for each text and/or resource material and include whether required/not required.

**Required:** Starting out with C++ From Control Structures through Objects 9th Edition by Tony Gaddis

**Reference:** Free online book: Thinking in C++ 2nd Edition by Bruce Eckel:

<https://ia802806.us.archive.org/25/items/ThinkingInCVol1/Thinking%20in%20C++%20-%20Vol%201.pdf>

**COURSE TOPICS**

List topics and sequence covered.

- Week 1 Introduction to Computers and Programming, and C++
- Week 2 Expressions and Interactivity
- Week 3 Conditional Statements in C++: Making Decisions
- Week 4 Loops and Files in C++
- Week 5 Functions in C++

Week 6	Arrays and Vectors in C++
Week 7	Searching and Sorting Arrays in C++ <b>Midterm</b>
Week 8	Pointers, Characters, and Strings
Week 9	Structured Data
Week 10	Classes in C++
Week 11	Classes in C++
Week 12	Inheritance, Polymorphism, and Virtual Functions
Week 13	Exceptions, Templates and Linked Lists
Week 14	<b>Final Exam</b>

### NOTES

1. Students are required to follow all College policies. Policies are available on the website at: [Coquitlam College Policies](#)
2. To find out how this course transfers, visit the BC Transfer Guide at: [bctransferguide.ca](http://bctransferguide.ca)