



Coding for Everyone: C and C++ Specialization

Beginner to Programmer — Learn to Code in C & C++. Gain a deep understanding of computer programming by learning to code, debug, and solve complex problems with C and C++.

 Instructor: [Ira Pohl](#)

144,620 already enrolled

4 course series

Get in-depth knowledge of a subject

4.4 ★

(3,146 reviews)

Beginner level

Recommended experience [\(1\)](#)

4 weeks to complete

at 10 hours a week

Flexible schedule

Learn at your own pace

What you'll learn

- ✓ Write and debug code in C and C++ programming languages
- ✓ Understand algorithms, and how to properly express them

Skills you'll gain

- Object Oriented Design Command-Line Interface Computer Programming Algorithms Artificial Intelligence Data Structures Programming Principles
Pseudocode C++ (Programming Language) Graph Theory Object Oriented Programming (OOP) Game Design File Systems Software Design Patterns
Debugging C (Programming Language) [View less skills](#)

Details to know



Shareable certificate

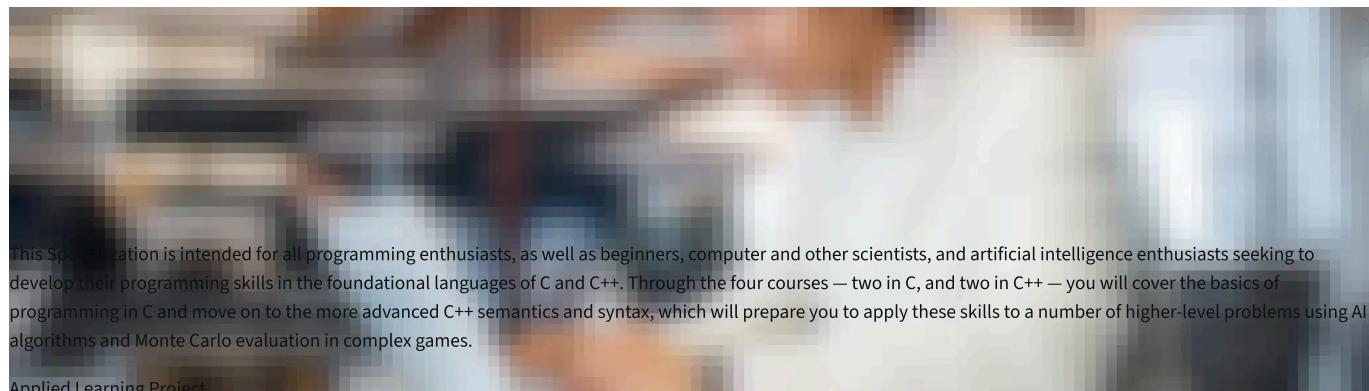
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This Specialization is intended for all programming enthusiasts, as well as beginners, computer and other scientists, and artificial intelligence enthusiasts seeking to develop their programming skills in the foundational languages of C and C++. Through the four courses — two in C, and two in C++ — you will cover the basics of programming in C and move on to the more advanced C++ semantics and syntax, which will prepare you to apply these skills to a number of higher-level problems using AI algorithms and Monte Carlo evaluation in complex games.

Applied Learning Project

Learners in this specialization will start coding right from the start. Every module presents ample opportunities for writing programs and finding errors in the learner's own and others' code. Building on their knowledge, learners will demonstrate their understanding of coding in a practice-intensive final assessment.

[Read less](#)



C for Everyone, Part 1: Programming Fundamentals

Course 1 • 11 hours

[Course details ^](#)

What you'll learn

- ✓ Write, compile, and debug C programs using correct syntax, data types, control structures, functions, and arrays.
- ✓ Apply core programming concepts to solve computational problems and implement common algorithms.
- ✓ Identify, analyze, and troubleshoot logical errors in C programs, applying debugging strategies to write clear, well-structured code.

Skills you'll gain

Programming Principles Pseudocode



C for Everyone, Part 2: Structured Programming

Course 2 • 9 hours

[Course details ^](#)

What you'll learn

- ✓ Apply concepts using command line arguments.
- ✓ Use simple C++ constructs.
- ✓ Use assets to debug code.

Skills you'll gain

C (Programming Language) Data Structures C++ (Programming Language) Command-Line Interface Computer Programming Debugging
Object Oriented Programming (OOP) File Systems



C++ For C Programmers, Part A

Course 3 • 15 hours

[Course details ^](#)

What you'll learn

- ✓ Convert C programs to C++.
- ✓ Use basic container classes.
- ✓ Apply the principles of Dijkstra's shortest path algorithm.

Skills you'll gain

C++ (Programming Language) Data Structures Object Oriented Design Object Oriented Programming (OOP) Computer Programming
Programming Principles Algorithms C (Programming Language) Graph Theory



C++ For C Programmers, Part B

Course 4 • 14 hours

[Course details ^](#)

What you'll learn

- ✓ Use the Standard Template Library.

- ✓ Apply inheritance logic and C++ syntax.
- ✓ Describe and compare Min-Max and the Alpha-Beta algorithm for game playing.

Skills you'll gain

Graph Theory C++ (Programming Language) Game Design Data Structures Software Design Patterns Computer Programming Artificial Intelligence
Object Oriented Programming (OOP) Algorithms C (Programming Language)



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Instructor



Ira Pohl

University of California, Santa Cruz

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Frequently asked questions

^ How long does it take to complete the Specialization?

Most learners will take roughly 80 hours to complete all four courses.

^ What background knowledge is necessary?

No prior knowledge is necessary for the Coding for Everyone Specialization.

Knowledge of a programming language — any language — is useful, but not necessary.

Similarly, some graph theory may be useful in the more advanced classes.

^ Do I need to take the courses in a specific order?

The courses in the specialization build off of each other, so the prerequisite for e.g. C++ for C Programmers Part B is the course C++ for C Programmers Part A, and the C courses are a prerequisite for the C++ courses.

- ✓ What will I be able to do upon completing the Specialization?

- ✓ Is this course really 100% online? Do I need to attend any classes in person?

- ✓ Can I just enroll in a single course?

- ✓ Is financial aid available?

- ✓ Can I take the course for free?

- ✓ Will I earn university credit for completing the Specialization?

Show less ^

More questions

[Visit the learner help center](#)

Financial aid available, [learn more](#)

Skills

Artificial Intelligence (AI)
Cybersecurity
Data Analytics
Digital Marketing
English Speaking
Generative AI (GenAI)
Microsoft Excel
Microsoft Power BI
Project Management
Python

Certificates & Programs

Google Cybersecurity Certificate
Google Data Analytics Certificate
Google IT Support Certificate
Google Project Management Certificate
Google UX Design Certificate
IBM Data Analyst Certificate
IBM Data Science Certificate
Machine Learning Certificate
Microsoft Power BI Data Analyst Certificate
UI / UX Design Certificate

Industries & Careers

Business
Computer Science
Data Science
Education & Teaching
Engineering
Finance
Healthcare
Human Resources (HR)
Information Technology (IT)
Marketing

Career Resources

Career Aptitude Test
Examples of Strengths and Weaknesses for Job Interviews
High-Income Skills to Learn
How Does Cryptocurrency Work?
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How to Learn Artificial Intelligence
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What Is Artificial Intelligence?

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