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AP® Computer Science Principles

BRING AP'S
NEWEST COURSE
TO YOUR SCHOOL

AP®

AP® Computer Science Principles

AP®'s newest computer science course introduces students to the foundational concepts of computer science and challenges them to explore how computing and technology impact the world. With a unique focus on creative problem solving and real-world applications, AP Computer Science Principles prepares students for college and career.

Computer Science: The New Literacy

Whether for 3-D animation, engineering, music, app development, medicine, visual design, robotics, or political analysis, **computer science** experience has become an imperative for today's students and the workforce of tomorrow.

The AP Program has designed AP Computer Science Principles to attract and engage a wide variety of students, including those traditionally underrepresented in computer science, such as women and minorities.

Teaching the Course

AP Computer Science Principles is a natural addition for teachers of foundational computing courses and AP Computer Science A.

However, because the course is multidisciplinary, teachers in other disciplines such as STEM, the arts, or social sciences, can draw on their unique knowledge and teaching expertise to make AP Computer Science Principles come alive for students. In addition, **the course represents an important opportunity for teachers without computer science expertise to broaden their skills and knowledge** in a rapidly expanding field.

Supporting teachers

Professional development opportunities, like AP Summer Institutes and one-day workshops, are available for teachers who are new to the field as well as those with extensive experience in computer science. **The AP Program has endorsed curriculum and professional development, delivered by a limited number of organizations, to support teachers.**

Visit **collegeboard.org/CSPresources** for ongoing updates.

The Bureau of Labor Statistics estimates there will be over 9 million STEM jobs available within the next decade. Half of those will require a computer science degree and all will require a background in computer science.

Rigorously Developed

In development since 2008, AP Computer Science Principles was created with significant support from the National Science Foundation. The College Board worked with **more than 50 leading high school and higher education computer science educators** who piloted the program at their institutions.

This rigorous process of development and testing has yielded a course that not only reflects the latest scholarship in the field, but provides students with a relevant and engaging learning experience.

Across Careers.
Across Industries.
Across the World.

AP Computer Science Principles can help students prepare for success not only in computing majors and careers, but throughout a broad range of other fields and interests. Along with the fundamentals of computing, students will learn:

→ Creative problem solving
→ How to apply computational processes to analyze large data sets
→ Programming and global impacts of computing
→ Internet structures and important cyber security issues

Students will also have an opportunity to:

→ **Use** computer science to address real-world issues that interest them
→ **Create** programs or technology that have practical impact
→ **Gain** skills relevant across other disciplines and industries

A Focus on Innovation and Computational Thinking

The *AP Computer Science Principles Curriculum Framework* focuses on the innovative aspects of computing as well as the computational thinking that helps students make connections to their everyday lives.

AP Computer Science Principles is designed to open a pathway for students to continue studies in college-level STEM and computing courses, but also positions them for success in a wide variety of disciplines and industries.

AP Computer Science A & AP Computer Science Principles

As it aims to broaden participation in the study of computer science, **the AP Computer Science Principles course will be a complement to the more programming-oriented AP Computer Science A course.** Students can take the courses in any order.

AP Computer Science A
→ Curriculum is focused on object-oriented programming and problem solving
→ Java is the designated programming language

AP Computer Science Principles
→ Curriculum is built around fundamentals of computing, including problem solving, working with data, understanding the Internet, cyber security, and programming
→ Teachers choose the programming language(s)

"Every student has this ability to create things that they didn't even imagine they could create. And when they do, it starts to draw them in and inspire them to think well beyond what they even imagined."

—Richard Kick
AP Computer Science Principles Teacher

FAQ

Does our school need a computer science teacher to offer this course?

Due to the broad and multidisciplinary nature of the course, teachers do not need to have prior computer science experience. While STEM teachers may be particularly suited to teach the course, teachers of all backgrounds will have the opportunity for professional development to supplement their experience. Information about state-specific computer science teacher certification requirements can be found at: **csta.acm.org/ComputerScienceTeacherCertification/sub/ StateRequirements.html**.

What's the best way to identify students for this course?

It is recommended that students successfully complete Algebra I. However, any student with the proficiency to take AP has the potential to succeed in this course.

What high school graduation requirements does this course fulfill?

Currently, computer science fulfills a high school general education requirement in over half of the United States. In some states, computer science can fulfill a math or science requirement. Go to **code.org** to learn more.

What are some of the things students will be asked to do in class?

Students will learn the computational and thinking skills needed to create digital projects — from simple games and apps to programs that can analyze large data sets or inspire the creation of visual art and music.

> *"I think the students liked the use of creativity. They liked the relevance and the ability to research things that excited them."*
>
> — Barbara Froehlich
> AP Computer Science Principles Teacher

Why did AP create this course?

Virtually every field today — from the arts and the media to lab sciences — requires an understanding of computing. It's important to give students the opportunity to learn the fundamentals of computer science and understand its application across a wide range of careers and disciplines.

Learn how to bring AP Computer Science Principles to your school or district. Visit: **collegeboard.org/ APCSP**.

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Create the Future

Learn how to bring AP Computer Science Principles to your school or district.

Visit **collegeboard.org/APCSP**.

"It's one of the best courses I've taught. You'll learn new things. You'll understand your world and environment better."

—Chinma Uche
AP Computer Science Principles Teacher

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