

About AP Computer Science A Course

AP Computer Science A introduces students to computer science through programming. Fundamental topics in this course include the design of solutions to problems, the use of data structures to organize large sets of data, the development and implementation of algorithms to process data and discover new information, the analysis of potential solutions, and the ethical and social implications of computing systems. The course emphasizes object-oriented programming and design using the Java programming language. College Course Equivalent AP Computer Science A is equivalent to a first-semester, college-level course in computer science.

Prerequisites

It is recommended that a student in the AP Computer Science A course has successfully completed a first-year high school algebra course with a strong foundation of basic linear functions, composition of functions, and problem-solving strategies that require multiple approaches and collaborative efforts. In addition, students should be able to use a Cartesian (x, y) coordinate system to represent points on a plane. It is important that students and their advisers understand that any significant computer science course builds upon a foundation of mathematical reasoning that should be acquired before attempting such a course.

Computer Language

The AP Computer Science A course requires that solutions of problems be written in the Java programming language. Because the Java programming language is extensive, with far more features than could be covered in a single introductory course, the AP Computer Science A Exam covers a subset of Java.

Lab Requirement

The AP Computer Science A course must include a minimum of 20 hours of hands-on, structured lab experiences to engage students in individual or group problem solving. Thus, each AP Computer Science A course includes a substantial lab component in which students design solutions to problems, express their solutions precisely (e.g., in the Java programming language), test their solutions, identify and correct errors (when mistakes occur), and compare possible solutions. College Board has developed several labs that are aligned to the course framework that fulfill the 20-hour lab requirement. The class period recommendations provided in the unit guides account for the time needed to complete each lab activity as described in the lab guide.

About AP Computer Science Principles Course

The AP Computer Science Principles course is designed to be equivalent to a first-semester introductory college computing course. In this course, students will develop computational thinking skills vital for success across all disciplines, such as using computational tools to analyze and study data and working with large data sets to analyze, visualize, and draw conclusions from trends. The course engages students in the creative aspects of the field by allowing them to develop computational artifacts based on their interests. Students will also develop effective communication and collaboration skills by working individually and collaboratively to solve problems and will discuss and write about the impacts these solutions could have on their community, society, and the world.

Prerequisites

It is recommended that a student in the AP Computer Science Principles course should have successfully completed a first-year high school algebra course with a strong foundation in basic linear functions and composition of functions, and problem-solving strategies that require multiple approaches and collaborative efforts. In addition, students should be able to use a Cartesian (x, y) coordinate system to represent points in a plane. It is important that students and their advisers understand that any significant computer science course builds on a foundation of mathematical and computational reasoning that will be applied throughout the study of the course.

Summer Activities

Hour of code <https://hourofcode.com/us/learn>

Complete at least one hour of code activity

Lightbot <http://lightbot.com/>

Lightbot is an online platform to get you coding for the first time.

