

AP Computer Science A – Course Details

Full Year Course

Course Objectives:

- Design and implement computer-based solutions to problems in a variety of application areas.
- Use and implement well-known algorithms and data structures.
- Develop and select appropriate algorithms and data structures to solve problems.
- Code fluently in an object-oriented paradigm using the programming language Java.
- Use the standard Java library classes from the AP Java subset.
- Read and understand a large program consisting of several classes and interacting objects.
- Identify the major hardware and software components of a computer system, their relationship to one another, and the roles of these components within the system.
- Recognize the ethical and social implications of computer use.

Required Text:

All material is provided inside of the course. No textbook is necessary.

Prerequisites: Algebra I and Algebra II

Major Topics and Concepts:

- Segment 1:**
- Variables and Expressions
 - Strings and User Input
 - Condition Statements
 - Arrays: one and two -dimensional
 - Loops
 - Methods
 - Introduction to OOP and Classes
 - Simple Objects
 - Computer Systems and History

Segment 2:

- Technology and Society
- Recursion
- Inheritance & Polymorphism
- Classes Revisited
- Abstraction & Interfaces