

AP College Board Course Description: AP Computer Science A

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.

Johns Creek APCSA: Johns Creek AP Computer Science A goes significantly beyond the college board requirements. We complete the college board requirements typically prior to Thanksgiving break. From there we begin to explore cloud-based full-stack development in the language and offer even some embedded systems Java coding for accelerated student motivation. Students will code to our lab Intranet internal cloud server stack. Java Fx is used for Graphical User Interface (GUI) design. As computer science is now a full Engineering discipline, students will complete a Spring semester Master Project.

Successful APCS-A students have the following characteristics:

- Solid organization skills
- Strong interest or curiosity in Computer Science
- Effective time management and executive function skills
- Willingness to participate in classroom projects and team activities
- Ability to synthesize beyond reading information from sources
- Strong mathematics skills and/or algorithmic thinking
- This is the capstone course in the Computer Science pathway, they should have previously completed the the JCHS APCSP (CS50 AP) course, and the Introduction to Software technology class. The online versions of these courses do not sufficiently prepare students for the rigor of this course. Students with in-seat completion of these courses have priority for seats in this class.

Expectations

Students will write a lot of source code and complete a significant number of projects. Spring semester involves completion of a master project, as computer science is now a full engineering discipline. All course standards are covered in the Fall semester, and the Spring semester is focused on in-depth real work project-based evaluation.

Assessments

Fall: Projects, Programs, Quizzes, Exams

Spring: Projects, Master Project, Presentations