

AP Computer Science A

Course Number: 736

Course Title: AP Computer Science A

Department: Science OR Math

Open to Students in Grade: 11-12

Any Required Prerequisite Courses: Strong Mastery of Algebra 2

(Recommended that students had at least an A+ in Algebra II CP, a B+ in Algebra II H2 or a B- in Algebra II HI)



Topics Addressed/Skills Developed:

AP Computer Science A is equivalent to a first-semester, college-level course in computer science. The course emphasizes object-oriented programming and design using the Java programming language. The course will focus on five computational thinking practices central to the study and practice of computer science: Designing Code, Developing Code; Analyzing Code, Documenting Code and Computing Systems, and Using Computers Responsibly. The course content covers four units: Using Objects and Methods, Selection and Iteration, Class Creation, and Data Collections. Students will be prepared for the AP Computer Science A exam.

Approximate or range of hours of homework per class meeting:

0.5-1.5 hours, depending on how much work was completed during class

Textbook / informational text reading amount:

2-3 hours per unit (with time given in class) from the online textbook CSAwesome

Types of large assessments in this course:

Computer Programs, Tests, and Presentations

Level of Independence Expected:	More Independent → Less Independent				
Assessment: 5 = anything can be assessed 1 = only things explicitly discussed in class are assessed	5	4	3	2	1
Project/Class Work: 5 = little to no class time 1 = almost all the work will be done in class	5	4	3	2	1
Level of Collaboration: 5 = frequently (almost every class) 1 = infrequently (almost never)	5	4	3	2	1

Additional Slides/Videos/Information to Share:

I am interested in Computer Science! Which class is right for me?

Intro to Computer Science (Honors)	AP Cybersecurity	AP Computer Science Principles	Computing and Data Science*	AP Computer Science A*
• An introduction to computer science and computer programming • Languages learned may include: ◦ Snap ◦ JavaScript ◦ Python • Topics covered include: ◦ Computational Thinking ◦ Programming and Algorithms ◦ Abstraction • Assignments include: ◦ Projects ◦ Classwork/hw ◦ Tests/quizzes • Class time is focused on working on assignments • Assignments will be a mix of independent and collaborative work	• An introduction to the field of cybersecurity • Topics Covered Include ◦ Introduction to Security ◦ Securing Spaces ◦ Securing Networks ◦ Securing Devices ◦ Securing Applications and Data • Assignments include: ◦ Readings ◦ Projects ◦ Classwork/ HW ◦ Tests/quizzes • Class time is focused on working on assignments • Assignments will be a mix of independent and collaborative	• An introductory computer science class with a focus on computational thinking and the “Big Ideas” in computer science • Languages learned include: ◦ C ◦ Javascript ◦ Python ◦ SQL • Topics covered include: ◦ Creative Development ◦ Data ◦ Algorithms and Programming ◦ Computing Systems and Networks ◦ Impacts of Computing • Assignments include: ◦ Projects ◦ Classwork/ HW ◦ Tests/quizzes • Class time is focused on working on assignments • Assignments will	• An introductory computer science class focused on problem solving with computers. • Languages and platforms learned include: ◦ Spreadsheets ◦ MATLAB ◦ SQL ◦ Python • Topics covered include: ◦ Implementing algorithms ◦ Programming fundamentals ◦ Gathering and organizing data ◦ Simulating dynamical systems ◦ Modeling ◦ Ethical considerations of computing applications ◦ Machine Learning • Assignments include: ◦ Readings ◦ Reflections ◦ Programming projects	• A computer programming course equivalent to a first-semester, college-level course in computer science. • Language learned: ◦ Java • Topics covered include: ◦ Using Objects and Methods ◦ Selection and Iteration ◦ Class Creation ◦ Data Collections • Assignments include: ◦ Labs ◦ Classwork/HW ◦ Tests/quizzes • Class time is focused on working on assignments • Assignments will be a mix of independent and collaborative work

• Prerequisite: None	work • Prerequisite: None	be a mix of independent and collaborative work • Prerequisite: Algebra I	• Class time is focused on seeing new concepts and building projects with them. • Work is largely guided inquiry, requiring motivation and curiosity. • Prerequisite: Algebra 2	• Prerequisite: Strong mastery of Algebra 2; Intro to Computer Science or APCS Principles is preferred, but not required
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***can be taken for Science OR Math credit**