



This syllabus is subject to change as needed.

Quarter & Term: 2019-2020
Course Number & Title AP Computer Science A
Instructor Name and email: Mrs. Shannon Anderson-Rush,
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678-979-7730 (cell)

Office Hours & Location: 5:00 p.m. – 8:00 p.m.

Delivery Method: online: www.mrsrush.net

Pre-requisites: None

COURSE INFORMATION

COURSE OBJECTIVES & COMPETENCY AREAS:

Course Description

The AP Computer Science A course introduces students to computer science with fundamental topics that include problem solving, design strategies and methodologies, organization of data (data structures), approaches to processing data (algorithms), analysis of potential solutions, and the ethical and social implications of computing. The course emphasizes both object-oriented and imperative problem solving and design. These techniques represent proven approaches for developing solutions that can scale up from small, simple problems to large, complex problems. It is both a college-prep course for potential computer science majors and a foundation course for students planning to study in other technical fields such as mathematics, engineering, physics, and chemistry. Even some “non-technical” fields such as business and psychology require students to take an entry-level programming course.

Java Development Environment

We will use BlueJ as our Integrated Development Environment. Students will need to download and install BlueJ Combined Installer appropriate for the operating system and type of computer. BlueJ is free and available from: <http://www.bluej.org/>

Learning Resources/Textbook(s)

- Online: www.mrsrush.net
- 5 Steps to a 5: AP Computer Science A by Dean R. Johnson, Carol A. Paymer, Aaron P. Chamberlain. 2019 (book is available on amazon.com, Barnes & Nobles, and Read it Again Books in Johns Creek).

AP Test Information

You can receive college credit for AP Computer Science A by taking the AP CSA test. The score you need to achieve and whether you receive credit depends upon the individual college. The test is broken into two parts: Multiple Choice Questions = 50% and Free Response Questions = 50%. Details and deadlines for registration and payment will be shared throughout the year. It is the expectation that all students take the AP test and students with financial concerns should speak with their teacher.

The new College Board exam ordering system requires that all students create a College Board account if they have not done so already. Once students create an account, they will join their specific AP class via a join code. An additional change that has occurred within the AP program concerns the ordering deadlines for AP exams. Students will be required to register and pay for AP exams during the months of September and October. Details concerning the registration and payment process will be shared with students and parents at a later date.

- The AP test fee is ~\$123.00. More details will be provided September.

Students will indicate "intent" to take exam through the College Board portal but will need to register for the test and pay any testing fees to their base school. Students should listen for AP Test Registration announcements during September and October at their base school.

Nature of the Work in AP Computer Science

AP Computer Science is a college-level course. Students who pass the AP exam in May often earn college credit in Computer Science (requirements for credit vary by college). As such, students should not expect to have prepared reviews handed to them prior to quizzes and tests, and they should also not expect their tests to be essentially identical to their practice problems. Computer Science requires different types of critical thinking and problem solving skills than other high school courses. There is also much reading in the course and a great demand for a high level of reading comprehension. Regular daily reading and programming practice is necessary to excel in this course. In order to prepare students for the AP exam, it is important that parents and students understand that we cannot lower our expectations for the course. Consistent practice and willingness to seek help early when they don't understand is by far the most effective way for students to adjust and thrive at this new level of rigor.

- Students who are not prepared to make the commitment required for the elements mentioned above and whose primary motivation in taking the course is for AP recognition/college admissions are generally not successful in this course.
- Students with poor attendance and/or poor study habits are generally not successful in this course.

AP Computer Science A is the third class in the Computer Science pathway. Students in the Computer Science pathway will take the following EOPA: ***MTA Software Development Fundamentals***

College Majors: Computer Science, Information Technology, Software Engineering, Computer Game Design and Development, etc.

Professions: Software Engineer, Computer Programmer, Computer Network Engineer, Database Administrator, Game Designer, Information Security, etc.

Required Assignments

Formative Assignments:

This class will have daily homework and reading. There will be a few quizzes (drills) for each unit. Homework will sometimes be collected for a grade. Students will frequently complete AP level free response questions and these will also sometimes be collected for a grade. The major component for this portion of the grade is quiz grades, CodeHS exercises, and routine programming assignments. Programming assignments will be turned in through itsLearning, or by inspection in class. ALL assignments must be turned in by assigned due dates. Selected programming assignments will be graded in detail.

Summative Assignments:

The summative grade will come primarily from test scores. There will be 2-3 tests in fall semester, plus a mid-term exam. There will be 2-3 tests in the spring semester, including at least one, but usually two, complete AP practice exams that will be scored for a grade. There will be at least one large programming project each semester that will be counted as a summative grade. The "Final Exam" will be a written final exam, similar in content and length to the various AP practice exams.

Independent Work Requirement (Extremely Important!):

While students will have the opportunity to work together and share ideas, both in and away from the classroom, every student is expected to turn in independent and original work. Students will not receive credit for submitted assignments that are substantially identical to work from other sources.

Course Pacing Guide

Course Pacing Overview		
Duration (Weeks)	Unit/Topic	Standard
6 weeks	Object-Oriented Programing Design	CS.A.1A. Program and Class Design
6 weeks	Program Implementation	CS.A.2A. Implementation techniques CS.A.2B. Programming constructs

		CS.A.2C. Java library classes and interfaces included in the AP java subset
2 weeks	Program Analysis	CS.A.3A. Testing CS.A.3B. Debugging CS.A.3C. Runtime exceptions CS.A.3D. Program correctness CS.A.3E. Algorithm analysis CS.A.3F. Numerical presentation of integers
9 weeks	Standard Data Structure	CS.A.4A. Primitive data types CS.A.4B. Strings CS.A.4C. Classes CS.A.4D. Lists CS.A.4E. Arrays
4 weeks	Standard Algorithms	CS.A.5A. Operations on data structures CS.A.5B. Searching CS.A.5C. Sorting
2 weeks	Computing in Context	CS.A.6A. System reliability CS.A.6B. Privacy CS.A.6C. Legal Issues and intellectual property CS.A.6D. Social and ethical ramifications of computer use
2 weeks	Employability Skills	GaBest ePortfolio

STUDENT LEARNING OBJECTIVES:

The AP Computer Science A course description and standards will be provided to each student in PDF format through itsLearning, including a detailed list of objectives and topics within each objective. The standards are also located at:

<https://www.georgiastandards.org/standards/Georgia%20Performance%20Standards%20CTAE/AP-Computer-Science-A.pdf>

Forsyth Virtual Academy Policies

GRADING POLICY: 90-100=A; 80-89=B; 70-79=C; Below 70=F

LATE POLCIY: -20%

MID-TERM & FINAL EXAM: 2 summatives each. Mid-term and/or final exam will not replace any grade. Final exam can be exempted if course grade is a 90% or higher.

GRADING SCALE: Assignments (including quizzes): 25%; Tests: 75%

Assignments/Tests are expected to be submitted by the end of the week unless the instructor is contacted in advance of the due date. All late assignment will be accepted in accordance with FVA late work policy.

INSTRUCTIONAL METHODOLOGY USED: Presentations, quizzes, tests, lecture, assignments, access to publisher website, discussions, and evaluations

WORK ETHICS: To promote positive behaviors, Students will discuss the following topics: Attendance, character, teamwork, appearance, attitude, productivity, organization, communication, cooperation and respect. A separate grade will be given to the student. 1=unacceptable; 2=acceptable and 3=above average

ATTENDANCE REGULATIONS: Attendance will be tracked and marked in Infinite Campus. Attendance is based on assignment completion in itsLearning in accordance with FVA attendance policy. Attendance will also be tied to amount of work complete and submitted by the due date. Students will lose their driver's license (the ability to apply for a driver's license) if absent for 10 or more days in a school year.

PLAGIARISM/CHEATING: Making false representations to the Academy, including forgery and unauthorized alteration of documents, unauthorized use of any document or instrument of identification. This includes looking at other students itsLearning and copying answers. See the Student Handbook for specifics on Academic dishonesty, including, but not limited to, dishonesty in quizzes, tests, or assignments.

EMAIL COMMUNICATION: ItsLearning email is the official medium for communication with students at Forsyth Virtual Academy. Students should monitor their ItsLearning email daily.