COURSE TITLE: AP Computer Science A

TEACHER NAME: Mr. Beckley   EMAIL: mbeckley@forsyth.k12.ga.us

Course Description: AP Computer Science A (AP CS-A) is an introductory course in computer science. It is both a college preparation 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, just to name a few. Even some "non-technical" fields such as business and psychology require students to take an entry-level programming course. Students enrolled in this course are expected to take the Advanced Placement examination in AP CS-A in May. Students who elect not to sign up to take one of these exams will take an equivalent exam in class that will count towards the final grade.

Because the design and implementation of computer programs to solve problems are skills that are fundamental to the study of computer science, a large part of the AP CS-A course is built around the development of computer programs that correctly solve a given problem. But, computer science is more than just programming. While students should leave this class with a clear understanding of programming in general, and the Java language in particular, they should also leave with the ability to analyze problems, propose potential solutions, and determine which of those are suitable for programming. The should be able to adapt to any new programming language they encounter in college or work situations and should be able to tackle any problem solving obstacles they encounter.

AP CS-A emphasizes programming methodology, procedural abstraction, and in-depth study of algorithms, data structures, and data abstractions. Students will write their own small to medium sized programs, as well as study and modify a large case study program. The basic hardware and software components of computer science systems will be studied, as well as the responsible use of these systems. The course includes preparation for the AP CS-A exam (taken in the first or second week of May).

 College Board website link

Standards: Students should be able to:
1. Design, implement, and analyze solutions to problems;
2. Use and implement commonly used algorithms;
3. Develop and select appropriate algorithms and data structures to solve new problems;
4. Write solutions fluently in an object-oriented paradigm;
5. Write, run, test, and debug solutions in the Java programming language, utilizing standard Java library classes and interfaces from the AP Java subset;
6. Read and understand programs consisting of several classes and interacting objects;
7. Read and understand a description of the design and development process leading to such a program;
8. Understand the ethical and social implications of computer use.

Learning Resources/Textbook(s): *Java Software Solutions (JSS)*, Lewis, Loftus, & Cocking, 3rd Edition, 2011, Pearson Education, Inc. (provided by the school).

Barron's AP Computer Science A, Roselyn Teukolsky, 7th edition (It is highly suggested that students purchase their own copy at approximately $30)
Previous versions 5th or 6th Edition, Barron's Educational Series, Inc. are acceptable but ignore all references to GridWorld.

AP Computer Science Quick Reference Guide (provided by the school and available on-line).

Many other on-line sources and tutorials will be used throughout the course.

Edhesive.com   CS50.net   CodeHS.com   Moksh Jawa   sololearn.com

Summer Assignments: Mandatory summer assignments will not be made for the same reasons that our district does not support homework during school breaks. It is the belief of Forsyth County Schools that many learning opportunities beyond academics are available through summer experiences including family travel, summer camps, independent learning by following personal interests/passions, part time jobs, apprenticeships, and internships. Any assignments designed for summer completion will be considered teacher suggestions and will be optional for students. Completed assignments will not be considered for a grade. However, Forsyth County Schools believes in the value of effective written feedback designed to promote student growth and increased achievement. Therefore, while completed assignments will not receive a numerical grade, students can expect to receive written commentary from their teachers.

Optional summer work: Acquire some general computer language skills by using one of the above on-line resources. You should also have prior knowledge gained from taking the prerequisite AP Computer Science Principles.

Makeup Work: Make up work is defined as work assigned during a student's absence, not work assigned prior to an absence. The student has five (5) school days upon returning to school to complete make-up work. The teacher has the discretion to grant a longer period to make up work, if there are extenuating circumstances.

Grading Calculations:
EOC Course Average = 40% (1st Sem. Course Work) + 40% (2nd Sem. Course Work) + 20% EOC
1st & 2nd Semester Course Work = 75% Summative + 25% Formative
Non-EOC Course Average = 50% (1st Sem. Course Work) + 50% (2nd Sem. Course Work)
1st and 2nd Semester Course Work = 75% Summative + 25% Formative
Concept of formative assessment: http://pareonline.net/getvn.asp?v=8&n=9
Grading Policy:
A = 90 – 100
B = 80 – 89
C = 70 – 79
Failing = Below 70

Formative Assessments include, but are not limited to homework, class work, practice tests, rough drafts, and sections of projects/ research papers/presentations.

Summative Assessments include, but are not limited to unit tests, final projects, final essays, final research papers, and final presentations.