



FORT COLLINS HIGH SCHOOL *AP Computer Science A*

Instructor: Dan Reinke

Phone: (970) 488-8116

Email: dreinke@psdschools.org



Course Objectives:

- Train students in computer-oriented problem solving, using the JAVA programming language, and utilizing standard Java library classes to write computer solutions.
- Teach basic principles of software design, implementation, and testing.
- Expose students, throughout the course, to recognize ethical and social implications of computer use. The course will reinforce these principles as they apply to student conduct and use of the computer network within the school building and in computer class.
- Familiarize students with programming structures common to all computer languages, as well as those features which pertain to the JAVA language.
- Develop student problem solving abilities by presenting them with a variety of programming challenges whose solutions invite open thinking and reward creativity.

Students completing AP Computer Science A should be able to:

- Modify an existing program to fit a new set of specifications.
- Write computer code in the JAVA language that employs an object-oriented programming design.
- Use appropriate control elements, data structures, and algorithms in the design of computer-coded problem solutions.
- Recognize major hardware and software components within a computer system and understand their interactions.
- Demonstrate the ability to use each of the elements of the AP Computer Science Java subset, as needed, in creating new computer code or in modifying existing code.
- Demonstrate proficiency in working with a large software package, such as the GridWorld Case Study or AP Computer Science Exemplar Lab Series, and be able to modify, adapt, and extend existing code in those packages.
- Show evidence of 20 or more hours of lab-centered problem solving, which may include work on the College Board AP Computer Science A exemplar lab activities.

Prerequisite Skills

Students enrolling in AP Computer Science A should have taken or be enrolled in intermediate algebra and possess good general problem-solving strategies.

Description of Computer Facilities

AP Computer Science is taught in a classroom setting with classroom-style seating rows and overhead projector. A media projector and SMART Board are available for classroom demonstrations. Students can submit complete source code both electronically and on paper. Notes and sample code are distributed to the student both electronically and/or on paper. Class time is divided into both lecture and lab time – the relative proportions vary from day to day, with typically 2 – 2.5 hours of in-class lab time available per week. We are currently using the Eclipse Luna IDE and Java Version 1.8 (often called Java 8) and get frequent on-line updates. Students have access to copies of Eclipse to run on home computers, and Eclipse is also installed on several open-access computers in the school building.

If you would like to download this software yourself for work at home, check the following webpages:

Java SDK (SDK = Software Development Kit)

www.oracle.com/technetwork/java/javase/downloads/index.html

Eclipse Standard 4.11 (Eclipse Luna) IDE (IDE = Integrated Development Environment)

www.eclipse.org/downloads

Grading:

- Programming assignments, quizzes, and tests are weighted by point value.
- A 90-80-70-60% scale will be applied to point totals for determining letter grades.
- Students code at drastically different rates. Many assignments will come in multiple levels, based on difficulty and challenge.
- Short quizzes will be used for assessing understanding.
- Written tests will be announced with more lead time (generally a week) and may have non-graded preparatory practice.
- Both quizzes and tests may include sample AP exam questions.
- There will be a semester final each semester.