

**High School to College Course  
Articulation Agreement  
West Los Angeles College**

High School District: Culver City Unified School District High School Name: Culver City High School

Discipline: Computer Science Course Title: AP Computer Science Principles

<b>College Course Title: Introduction to Computer Science</b>	<b>HS Course Title: AP Computer Science Principles</b>
<b>College Course Number: CS 902</b>	<b>HS Course Number: CT007</b>
<b>College Units: 3.00 units</b>	<b>HS Credits/Hours: 5.00 credits</b>
<b>HS Course Description:</b> This course introduces students to the central ideas of computer science, inviting students to develop the computational thinking vital for success across multiple disciplines. The course is unique in its focus on fostering students to be creative and encouraging students to apply creative processes when developing computational artifacts. It is an excellent course for those who may want to take AP Computer Science A in the future, or for those who are interested in exploring computer science. There is a possibility of taking the course for AP credit, though this is not required.	
<b>College Prerequisite(s): None</b>	
<b>HS Prerequisite(s): Algebra I</b>	
<b>College Advisories/Recommendations:</b>	
<b>HS Advisories/Recommendations: Completion of Algebra I</b>	

HS Course Content (Course Outline):

1. **Big Idea: Global Impact, Abstraction**
  - a. Why is computer science relevant?
  - b. What does computer science involve?
  - c. How does CS impact my area(s) of interest?
  - d. Man vs. Machine
  - e. Speaking Machine Language
2. **Big Idea: Algorithms**
  - a. Computational Thinking
  - b. Flowcharting
  - c. Pseudo code
3. **Big Idea: Programming, Abstraction**
  - a. Introduction to block programming
  - b. Days 1-4: Maze Game—Teacher guided and pair programming collaboration
  - c. Days 5-8: Collaborative project enhancement to develop levels, start, and finish to game
  - d. Days 9-10: Project demonstrations and presentations
4. **Big Idea: The Internet**
  - a. Introduction to the Internet
  - b. History of technology
  - c. Timeline of innovation, devices, and usage
  - d. Systems of the Internet
  - e. URL and IP address scavenger hunt
  - f. HTML: The language of the web; NOTE: Students will be encouraged to work on Code Academy HTML lessons for supplementary work in coding
  - g. Levels of abstraction on the Internet
5. **Big Ideas: Programming, Abstraction**
  - a. Introduction to Block Programming ◊ Days 1-4: Teacher guided doodle app
  - b. Days 5-8: Collaborative projects
  - c. Days 9-10: Project demonstrations and presentations
  - d. NOTE: Students will be required to submit code printed with red (algorithm) and blue (abstraction) rectangles indicating use of programming components
6. **Big Ideas: The Internet, Global Impact, Data and Information**
  - a. The Impact of The Internet and Data
  - b. Cyber security
  - c. What is at risk?
  - d. Who keeps the data gate?
  - e. Hardware and software related to security
  - f. Cryptography
  - g. Caesar cipher
  - h. Huffman coding activity
  - i. Public key encryption ◊ Models and Simulations
  - j. Connecting data to how devices and systems collect, feed, and use data
  - k. Data models used for decision making
  - l. Simulations used for predicting and anticipating errors
7. **Big Ideas: Programming, Abstraction**
  - a. Introduction to Text Programming
  - b. Days 1-4: Teacher guided simple programs with much direction on use of editor
  - c. Days 5-10: Student projects
  - d. Variables
  - e. Types, integers, and real numbers
  - f. Self-defining
  - g. Using to create algorithms
  - h. Operators [ +, -, /, \*, =
  - i. Boolean
  - j. Conditional statements
  - k. Abstraction and Algorithm Use
  - l. Basic calculator project

8. Big Ideas: Data and Information, Global Impact
  - a. Data Systems
  - b. Collection
  - c. Storage
  - d. Management on devices
  - e. Management on systems
  - f. Management on cloud
  - g. Evaluate need for scalability of systems
  - h. Ethical issues related to data
  - i. Legal requirements (HIPAA, FERPA, copyright, Creative Commons)
  - j. Impact of data
9. Big Ideas: Data and Information, Global Impact
  - a. Mock Explore Performance Task
  - b. Possible topics may include: Google glass
  - c. Police body cameras
  - d. 3D printer technology
  - e. Tesla car
10. Big Ideas: Data and Information, Global Impact
  - a. Explore PT
11. Big Idea: Programming
  - a. Advanced Programming Concepts
  - b. Loops/Iteration
  - c. ESPN song in Snap!
  - d. Revise calculator file from Unit 7 to include a loop feature
12. Big Idea: Programming
  - a. Java Programming
  - b. Introduction to hybrid structure of Java
  - c. Introduction to object-oriented programming (OOP)
  - d. Classes and methods
  - e. Data types
  - f. Review of programming concepts in Java syntax
  - g. Graphic programming using applets
  - h. Inheritance
13. Big Ideas: Abstraction, Programming
  - a. Advanced Programming Concepts ◊ Layers of abstraction
  - b. Program design
  - c. Algorithms
  - d. Collaborative troubleshooting
  - e. Libraries and APIs
14. Big Ideas: Creativity, Abstraction, Algorithms, Programming
  - a. Mock Create Performance Task
  - b. Possible topics may include: Rock-paper-scissors project
  - c. Advanced calculator project
  - d. Hangman game (Snap! or AI)
15. Big Ideas: Creativity, Abstraction, Algorithms, Programming
  - a. Create Performance Task
  - b. Weeks 10-11: Collaborative portion
  - c. Weeks 12-13: Individual portion
16. Big Ideas: Creativity, Abstraction, Data and Information, Algorithms, Programming, The Internet, Global Impact
  - a. Review of AP CSP Concepts, all learning objectives, essential knowledge statements, and vocabulary units

**HS Competencies and Skill Requirements** - *At the conclusion of this course, the student should be able to:*

- Program and rapidly prototype small applications both to solve problems and to satisfy personal curiosity
- Understand how the Internet works and its impact on society
- Collect, analyze, visualize, and program data to gain insight and knowledge
- Evaluate the beneficial and harmful effects to people and society brought on by computing innovations

**HS Course Measurement Methods** (*include any industry certification or licensure*):

Passing of AP Exam or problem solving exercises; written reports; examinations; skills-based assessments; class and individual projects, online projects and tests.

**HS Sample Textbooks or Other Support Materials** (*including Software*):

- Textbook: Dale, Nell and John Lewis. Computer Science Illuminated. 6th ed. Burlington, MA: Jones & Bartlett Learning, 2016. (CS Illuminated)
- Online resources
- Compilers

**Agreed-Upon Evaluation Method for Credit by Examination:**

AP Performance Task (Create Applications from Ideas)








AP Performance Task Explore (Computing Innovations)

A 4 or 5 on the AP Principles of Computer Science exam will allow the student to earn credit for CS 902 Honors

**Additional Articulation Requirements**

- College credit will be granted only if the student completes all HS course work and examination(s) with a grade of "A" or "B",
- Completes the WLAC application, submits the signed K-12 parent approval form and obtains a student identification number.

**College and High School Signatures**

WLAC Department Faculty		Date: 5-25-18
WLAC Division Chair:		Date: 5-25-18
WLAC Academic Dean:		Date: 5/25/18
WLAC Articulation Officer:		Date: 6/12/18
WLAC Curriculum Chair:		Date: 6/18/18
HS Department Faculty:		Date: 5/25/2018
HS Administrator:		Date: 5/25/18

*Office Use Only*

College TOP Code: 0707.10

HS Code:

Note: This agreement should be renewed every two years or sooner if curriculum is changed by either the HS or the college.