Course: Harvard CS50 AP (AP CSP) **Year:** Fall 2023 - Spring 2024
Teacher: Cmdr. Raymond Schenk, Ph.D., US Navy (ret) **Email**: schenkr@fultonschools.org
Website: http://www.hawkeyedriver.com **Room #**: 302

Microsoft Teams and Canvas:
We will continue to use Microsoft Teams as our hub for all course materials. All notes, handouts, resources, announcements and assignments will be disseminated and collected through Teams. While there is a web-based version of Teams, it is easier to use the app. (You can download the app to your computer, tablet, and/or phone). Please also get the OneNote app.

However, Canvas is our new Learning Management System that teachers are beginning to implement over the course of this year and next year. Be on the lookout for more information related to the use of this new tool.

Communication will also occur regularly through your school email address (studentid#@fcstu.org) which you should check multiple times a day.

Textbook: Students will be expected to purchase an approved AP Computer Science preparation handbook. Information will be provided to students in class with respect to timing and where to purchase this preparation guidebook. These manuals are critical for test preparation.

AP Classroom: (Only applicable for AP teachers. Add class codes)
Log on to https://myap.collegeboard.org with your regular College Board log on.
AP Classroom Join Codes are posted in the classroom for students to join the class.

Course Description:

This is CS50 AP

Johns Creek High School is proud to be teaching the Harvard University CS50 AP version of AP-CSP. Our AP scores once again at the top of Fulton County. We will be covering the very same information that Harvard Freshman tackle in their CS50 class every fall semester. We will have the entire year to complete the program, and it will provide outstanding preparation for the AP Exam. The goal of AP Computer Science Principles is comparable to introductory courses offered for all majors in many college and university computer science departments.

It is not expected that all students in this class will major in computer science. This class is intended to serve as an introduction course for all majors, and as a course for people who will major in other disciplines and want to be informed citizens in today's technological society.

This class is taught at the college freshman level, assuming no programming experience beforehand.

Course Goals

By the end of this course, students will be able to:

- Program visually in Scratch (First project only)
- Use fluently, correct algorithmic and technical vocabulary used in modern computer science.

- Perform fundamental software design in ANSII C using an online Linux based Integrated Development Environment (IDE).
- Submit two in-course artifacts to the College Board as part of their overall AP Evaluation Score.
- Perform fundamental software design in Python, using class and object data structures.
- Perform algorithmic analysis and design pursuant to the intellectual enterprise of computer science.
- Communicate fluently about emerging technologies in computer science.
- Perform embedded programming in C and Python on Internet of Things (IoT) devices.
- Properly understand the common data structures, algorithms, sorting, memory usages, and design planning criteria used in modern software design.
- Apply critical thinking to the design and use of technology for business.

Standards

CR1a Students are provided with opportunities to meet learning objectives connected to Computational Thinking Practice P1: Connecting Computing.
CR1b Students are provided with opportunities to meet learning objectives connected to Computational Thinking Practice P2: Creating Computational Artifacts. AP-CS-3 Program Analysis (Testing, De-bugging, Exception Handling, Code/Memory Analysis)
CR1c Students are provided with opportunities to meet learning objectives connected to Computational Thinking Practice P3: Abstracting. AP-CS-5 Standard Operations and Algorithms
CR1d Students are provided with opportunities to meet learning objectives connected to Computational Thinking Practice P4: Analyzing Problems and Artifacts.
CR1e Students are provided with opportunities to meet learning objectives connected to Computational Thinking Practice P5: Communicating.
CR1f Students are provided with opportunities to meet learning objectives connected to Computational Thinking Practice P6: Collaborating.
CR2a Students are provided with opportunities to meet learning objectives within Big Idea 1: Creativity. Such opportunities must occur in addition to the AP Computer Science Principles Performance Tasks.
CR2b Students are provided with opportunities to meet learning objectives within Big Idea 2: Abstraction. Such opportunities must occur in addition to the AP Computer Science Principles Performance Tasks.
CR2c Students are provided with opportunities to meet learning objectives within Big Idea 3: Data and Information. Such opportunities must occur in addition to the AP Computer Science Principles Performance Tasks.
CR2d Students are provided with opportunities to meet learning objectives within Big Idea 4: Algorithms. Such opportunities must occur in addition to the AP Computer Science Principles Performance Tasks.
CR2e Students are provided with opportunities to meet learning objectives within Big Idea 5: Programming. Such opportunities must occur in addition to the AP Computer Science Principles Performance Tasks.
CR2f Students are provided with opportunities to meet learning objectives within Big Idea 6: The Internet. Such opportunities must occur in addition to the AP Computer Science Principles Performance Tasks.

CR2g Students are provided with opportunities to meet learning objectives within Big Idea 7: Global Impact. Such opportunities must occur in addition to the AP Computer Science Principles Performance Tasks.
CR3 Students are provided with the required amount of class time to complete the AP Through-Course Assessment *Explore – Impact of Computing Innovations* Performance Task.
CR4 Students are provided with the required amount of class time to complete the AP Through-Course Assessment *Create – Applications from Ideas* Performance Task.

Class Units and Topics

	Topic	**Class Periods**
0	Computers and Computing	**10**
1	Building Blocks of Programming	**17**
2	Putting the Blocks Together	**17**
3	Advanced C Programming	**19**
4	Thinking Computationally	**17**
5	Transitioning to Python	**16**
6	**AP-CSP CREATE**	**18**
7	Design, Elegance and Efficiency, Networking and the Internet	**18**
8	Capstone Projects and Course Review	**15**
9	Master Project, AP Exam Prep	**21**

Course Expectations

Much of what we do in this class will emulate the real world. This is designed to help prepare students to be more productive, trusted and valued as employees. Participation and a positive attitude is expected of every student. Independence and on-task behavior is expected.

Professionalism is expected at all times. Teamwork and group cooperation is a necessity. All students are expected to act as young professionals in the classroom. Students will treat each other with respect and dignity. Failure to act responsibility can result in disciplinary action and expulsion from the computer science lab.

This course is the gateway to the AP Computer Science Courses offered here at Johns Creek. Completion of this course gives priority to limited seats in those courses based on performance and intent to complete pathway. Top performing students will be recommended for advancement into AP Computer Science Principles as the second step in the pathway of Computer Science.

Grading Scale

90-100 A **80-89** B **70-79** C **0-69** F

Grading Rules –
All grades are available to students and families through Infinite Campus.

Grading Categories Weights (2023 Policy)

Major Assessments	55%
Minor Assessments	35%
Practice Assessments	10%
Total	100%

Late work/ make up work policy:

What happens when a student misses work due to being absent (excused/unexcused)?

- Students will have an equal number of days they were absent to make-up their major assessment. For missed major assessments, students will communicate with their teacher to develop a make-up plan. If the major assessment is not made up by the deadline of the agreed upon plan discussed between the teacher and student a zero will be entered. At this time, the student may enter the recovery process for a maximum grade of a 75. For example, if a student misses a major assessment due to being absent on Tuesday, upon their return on Wednesday they will be expected to take the make-up assessment unless they communicate and develop a make-up plan with their teacher.
- For practice and minor assessments after the deadline of an equal number of days a student was absent, teachers will deduct 10% from a late or missing assignment. After this, teachers will deduct 25%.
- If a student fails to turn in a late or missing practice or minor assessment by the end of the unit, teachers will enter a zero for the assessment in the gradebook.

What happens when a student is present in-class but does not turn in an assessment by the due date?

- Teachers will deduct 10% of the late or missing assessment grade for the first day it is late. After this the teacher will deduct 25%.
  If a student fails to turn in a late or missing assessment by the end of the unit, teachers will enter a zero in the gradebook.

Final Graded Experiences:

- Professional Learning Communities (PLCs) will administer their final graded experience during the last regular scheduled week (full school days) of each semester. The graded experience will count as a major assessment.
- PLC's will have the flexibility to determine if these graded experiences will be cumulative or not.
- These graded experiences will count as one major assessment and will be completed within one allotted class period.
- Final cumulative graded experiences will not be administered second semester if the course has a state- mandated End-of-Course (EOC) exam or national Advanced Placement (AP) exam.
- Students are limited to one recovery attempt as outlined above in the recovery section. The graded experience recovery will take place during the last three days of school (half-days).

Recovery:

- Students are limited to one recovery attempt per major assessment if they scored below 75% on the initial assessment. Recovery will not be provided for minor or practice assessments.
- Students can earn a maximum grade of 75% on the recovered major assessment. Students who earn between 75 – 100 on the recovered assessment will receive a 75%. Students who earn below a 75 on the recovered assessment will receive the grade earned or the original grade; whichever is higher.
- The original score will be noted in the comment section of the grade book when a student recovers a major assessment.

- Recovery must be requested by the student and completed prior to the due date of the next major assignment/assessment.
- Professional Learning Communities (PLC's) may require a student to complete any missing assessments, remediation activities, and/or attend extra-help sessions prior to recovery opportunities.

Honor Code: Integrity is a core value of the Johns Creek High School community. Johns Creek students are expected to demonstrate honesty and integrity in all endeavors. All student work submitted must be the student's own work. The Honor Code applies to all students and to all assignments (classwork, homework, quizzes, exams, papers, projects, labs, etc.) Collaborating, copying, plagiarizing etc. all constitute attempts to present another's work as though it was one's own and will not be tolerated. This includes, but is not limited to:

- Any form of collaboration on any assignment unless explicitly allowed by the teacher
- Copying the work of another student
- Sharing one's own work with another student
- Sharing the content of an assessment or exam with another student
- Using information/resources on an assignment that are not explicitly allowed by the teacher
- Using electronic devices to aid on an assignment when not explicitly allowed by the teacher
- Plagiarism or the unauthorized use or close imitation of the language or thoughts of another and representing them as one's own. This includes copying or cutting-pasting (even with minor revisions) from any source without proper citation.
- Note that this list is not exhaustive and other actions may violate the spirit of the Honor Code

All electronic devices should be in the student's bag or away from their desk during all assessments unless explicitly allowed by the teacher. If a student is in possession of a phone or electronic device that can transmit or record information during a major it will result in automatic academic dishonesty. This means the student will receive a zero on the major with no option to recover. The student will not be eligible to bring this claim to the academic dishonesty panel.

Note that JCHS students enrolled in any courses with non-JCHS institutions (Fulton Virtual, Georgia Virtual, Dual Enrollment, etc.) are subject to the JCHS Honor Code policy as well as the Honor Code policies of the other institution. Johns Creek has no control over the decisions of other non-JCHS institutions.

Suspected violations of the honor code on major assignments will be referred to an Honor Code panel consisting of one teacher, one counselor, and one administrator who have no connection to the specific case. The panel will provide due process to determine if, in fact, the Honor Code has been violated. If the panel determines that a student has violated the Honor Code: *1st Offense* results in the student being assigned a 0% on the assignment with no possibility of recovery; *2nd Offense* results both in the 0% without possibility of recovery and an Honor Code Violation entered on the student's official record.

Honor code violations may also jeopardize membership in honor societies and any honors recognitions as well as a student's ability to represent Johns Creek High School.

Extra Credit Policy

No grades will be given for nonacademic assignments.

Extra Help

Extra help Is routinely available most days before and after school. Flex periods and even lunch period 4 are often available by appointments.

Proper use of technology

In grades 6 through 12, the use of Personal Communication Devices (PCDs) is not allowed during instructional time and will only be allowed when explicitly instructed to do so by a teacher or other school staff member. Teachers will either have a visual cue or will verbally notify students when they are allowed to have their cell phones out during the class period.

Please note: Use of (or participating in using) personal or school technology resources to distribute, display, or record inappropriate material is a serious, **Tier III violation of the Fulton Schools Student Code of Conduct.** Inappropriate material does not serve an instructional or educational purpose and includes, but is not limited to, the following:

- is profane, vulgar, lewd, obscene, offensive, indecent, or threatening
- advocates illegal or dangerous acts
- causes disruption to the Fulton County School District, its employees or students
- advocates violence
- contains knowingly false, recklessly false, or defamatory information
- is otherwise harmful to minors as defined by the Children's Internet Protection Act

The use of cell phones and other PCDs for noneducational purposes, including but not limited to, recording staff and/or students without permission or other inappropriate content is strictly prohibited.

Any report of inappropriate virtual conduct will be investigated by the Johns Creek High School administration and offenders will be subject to disciplinary consequences in line with the Fulton Schools Student Code of Conduct, **up to and including permanent expulsion from Fulton County Schools.**

Computer Science Lab Specific Instructions

It is very important for students to arrive on time, and to **maintain a continuous attendance routine**. Our class content builds rapidly, and missing class makes keeping up with the pace of class significantly harder.

With specific prior permission, and only in very extenuating situations, the teacher may authorize some projects to be submitted via email. **These rare situations are the only circumstances in which email collection is accepted.**

Printing of all projects or assignments shall be completed *prior to the due date*. If projects are not available for collection on arrival on their due dates, they will be penalized as late.

Computer Science-Specific Plagiarism and Hacking Policy

The computer science teacher has scanning tools to determine code and programmatic cheating, as well as artificial intelligence generation of code. These activities are considered plagiarism and will be handled according to the above stated policies. It typically takes less than .7-1.3 seconds for these tools to identify students turning in non-original code. These tools allow the teacher to rule out any false positives, so students doing their own work are never at risk.

Students are forbidden to bring any hacking tools on their computers to school. Use of programs such as Jack-and-Jill or other network penetration or scanning tools will not be tolerated and will subject students to referral for disciplinary action.

Computer Science Portal – We now have an online portal for our computer science classes, that will provide real-time blog information, all content presented in classes, assignments, and other information germane to each class. The blog is visible to anyone at http://www.hawkeyedriver.net.

Students are expected to routinely: Be in attendance of Teams classes, check the Team & portal for their assignments and feedback, and to be active in their educational process.

If we have any digital learning days due to inclement weather, all assignments will be given via the course pages and the blog.