Fundamentals of Computer Science

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Conference Time: 4th period
Tutoring Times: Tuesday 7:50-8:15am and 3:40-4:00

Course Overview

Fundamentals of Computer Science is an introductory computer science course that empowers students to create authentic artifacts and engage with computer science as a medium for creativity, communication, problem solving, and fun. This course counts as high school credit if when successfully completed.
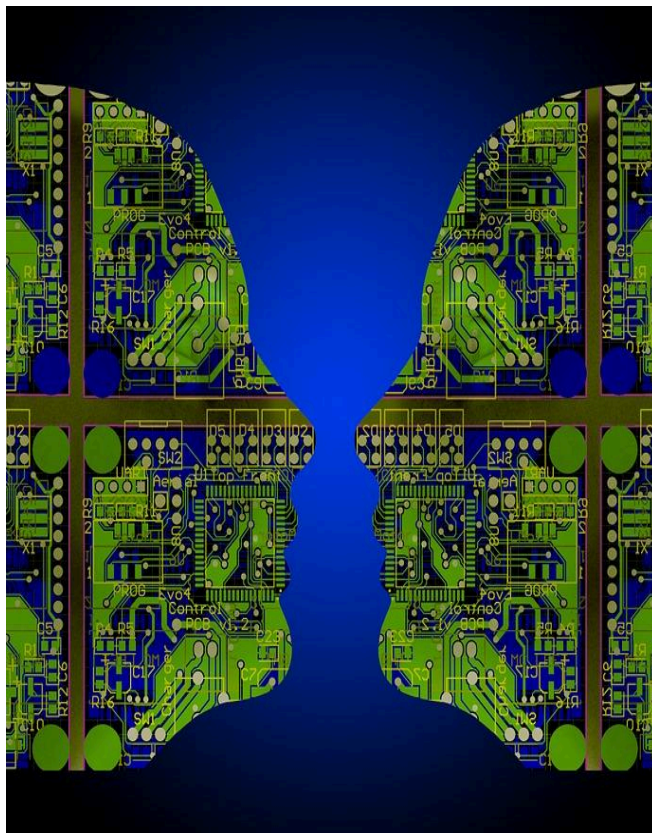
Assignment Information
Will be linked in my Google Classroom

Grading Policy
Classwork: 25%
Quizzes: 25%
Assessments/Projects: 50%

Attendance Information for H.S. Credit classes:
Absences: If a student is absent for more than 10% of class sessions, the student will not earn credit for the course unless the student makes up the time before the end of the course. Absences noted as extenuating circumstances and other specially noted circumstances are not a factor when calculating the 90% attendance rule. Students can make up lost time through Saturday school.

Late Work Policy
Grade reduction of 20% for all late assignments.
Late work will not be accepted after the unit test for that topic or the unit project due date.

Semester 1

Unit 1: A highly interactive and collaborative introduction to the field of computer science, as framed within the broader pursuit of solving problems. You'll practice using a problem solving process to address a series of puzzles, challenges, and real world scenarios. Next, you'll learn how computers input, output, store, and process information to help humans solve problems. The unit concludes with a project in which you design an application that helps solve a problem of your choosing.

Unit 2: Learn how to create and share the content on your own web pages. After deciding what content you want to share with the world, you'll learn how to structure and style your pages using HTML and CSS. You'll also practice valuable programming skills such as debugging and commenting. By the end of the unit, you'll have a personal website that you can publish to the Internet.

Unit 3: Build on your coding experience as you program animations, interactive art, and games in Game Lab. The unit starts off with simple shapes and builds up to more sophisticated sprite-based games, using the same programming concepts and the design process computer scientists use daily. In the final project, you'll develop a personalized, interactive program.

Semester 2

Unit 4: Introduces the broader social impacts of computing. Through a series of design challenges, you will learn how to better understand the needs of others while developing a solution to a problem. The second half of the unit consists of an iterative team project, during which teams have the opportunity to identify a need that they care about, prototype solutions both on paper and in App Lab, and test solutions with real users to get feedback and drive further iteration.

Unit 5: Learn the importance of data in solving problems and how computers can help in this process. The first chapter explores different systems used to represent information in a computer and the challenges and tradeoffs posed by using them. In the second chapter you'll learn how collections of data are used to solve problems, and how computers help to automate the steps of this process. The chapter concludes by considering how the data problem solving process can be applied to an area of your choosing.

Unit 6: Explores the role of hardware platforms in computing and how different sensors can provide more effective input and output than the traditional keyboard, mouse, and monitor. Using App Lab and Adafruit's Circuit Playground, you'll develop programs that utilize the same hardware inputs and outputs that you see in the smart devices, looking at how a simple rough prototype can lead to a finished product. The unit concludes with a design challenge to use the Circuit Playground as the basis for an innovation of your own design.