

Course Syllabus and Information for BHC



Course Title: Principles of Computer Science Part 2 (Fall 2019)

Teacher: Stuart R. Brockwell

Grade range: 10-12 (9th by request)

Day(s) of the Week: Thursday Times: 10:00am - 11:30am

Minimum Number of Students required for class: 9 Maximum accepted: 16

Credit Level (high school): Half Credit Full Credit

Credit Determination:

½ Credit Course: Classes must meet a minimum of 16 weeks and contain 70 hours of course contact time which includes class meeting times plus at home assignments.

1 Credit Course: 32 weeks and 140 hours of course contact time which includes class meeting times plus at home assignments.

Costs

Total Tuition: \$250

- Deposit of \$50 secures student's spot in class (included in total cost).
- Remaining balance of \$200 to be paid on the first day of class in August or split into two payments of -- each which is due on the first day of class in August and in January.

Sibling Discount: Yes No

Amount of sibling discount (if applicable): _____

Payment Methods Accepted: Venmo Paypal Check/Cash

Payment Information: Venmo only for convenience and security. @SurgeTechnologies

Course Description

Building upon the foundations of the Principles of Computer Science, we will now begin to explore more advanced topics. Students will learn how the everyday devices and services that we use take advantage of the basic concepts of computer science. Intermingled with our discussion of these topics we will touch on current events wherever possible, relating our current class topics to the rapidly-changing world of technology.

To summarize, the spring class will focus on the following topics.

1. Networking and the Internet (what is it, how does it work, why was it created, etc.)
2. Encryption (how we protect digital information)
3. Databases (what defines a database, why are they used, how do they work, etc.)
4. Basic Programming (students will learn to write basic programs and manipulate data)
5. Applying technology to the real world

- This final unit is designed to lead into the major group project of this class. In it, students will work together to form fictional companies and come up with ways to use the concepts they've learned to solve a real-world type problem.

Course Requirements or Prerequisites

Computer Science:

As this is a "102" level class, students will be expected to have an understanding of the basic concepts of computer science (hardware, software, etc.). Students need not have taken Part 1 of this class in order to do well, but please feel free to call me beforehand if you have any doubts or questions about this requirement.

Physical Sciences and Math:

Students should have a strong understanding of the physical sciences. This course will build upon existing knowledge of electricity, atoms, molecules, and elements.

Students should understand Algebra and be able to perform simple equations.

Academic Ability:

This course is designed for students who are self-motivated and are capable of working both independently and with groups.

Student Responsibilities

There will be a heavy emphasis on hands-on experience and in-class activities. Students will be required to ask questions and participate in group conversation. Tests and quizzes will involve some memorization of facts, but will largely center around the understanding of concepts rather than blunt memorization. Homework will vary based on the current topic, but will require online research. Students will also participate in a major group project and presentation towards the end of the semester.

Tests and Grades

The course will include occasional quizzes, as well as a standard midterm and final. There will also be one major group project that will take place near the end of the year. This project will involve students working in teams to create, develop, and present a business-style PowerPoint presentation in front of the whole class.

Textbooks Required

There is no textbook required. However, every class will be recorded and uploaded to YouTube for students to use as a resource for review and study. These will be uploaded no later than the Sunday night following each class. For anyone concerned about privacy, rest assured that these videos will be marked as "private," and will not be searchable or accessible without the unique URL that I post in Google Classroom.

Supply list

- A laptop or portable computer running Windows 7 or later, or a Mac running MacOS version 10.9 (Mavericks) or later. Contact me for more information or questions.
- Office software (Microsoft Office, OpenOffice, Google Docs.)
- A notebook or non-digital means of taking notes.
- Internet Access at home for the purposes of research and group activities

Teacher Biographical Information

Stuart Brockwell is the owner and head technician of Surge Technologies, LLC., an IT firm operating in Birmingham. He is a former homeschool student and was taught by many of the teachers here at BHC. In 2015 he graduated Cum Laude at Samford University with a Bachelor's in Computer Science and a focus in Business.

Teacher Contact Information

Call/Text: 205-434-1788

Email: sbrockwell@surgetechnologies.net

Additional Information

My Goal:

By the end of the course, my desire is that students will walk away with a greater understanding of computers and the science behind them, as well as a greater appreciation for God and His infinite wisdom and power. Even through the collective millions of hours of research and development that have brought technology to where it is today, we cannot even begin to come close to the majesty of God's creation.