COMPUTER SCIENCE

Did you know?

- There are more computing jobs than people to fill them?

- By 2020, there will be 1.4 million computer related jobs available and only 400 thousand qualified college graduates to take them?

- Computing jobs are among the highest starting salaries of any entry-level bachelor degree?

- Computing jobs have high satisfaction as they are interesting, intellectually challenging and creative?

- Exposing students to computer science education during their high school career gives them critical thinking skills needed for their success in the 21st century and for strengthening the workforce?

Technology is a rapidly advancing field that continues to grow at an exponential rate each and every day. There are several courses offered that help students become accustomed to the field of Computer Science and help them explore their creativity and thinking skills in a new and exciting way.

INTRODUCTION TO COMPUTER SCIENCE I – Fall Semester

Software has become an integral part of education and society over the past decade. From word processing to cell phone applications, the demand for programmers grows each and every day. This course serves as a platform for students to take an introductory look at how software is developed and to become familiar with a welcoming and user friendly coding language, Visual Basic. Students will explore the beginning aspects of how to read and write code, documentation, debugging, and working in teams to accomplish a common goal. The course also allows students to discuss many ethical dilemnas found in the Computer Science world, and learn what types of careers and jobs are available and best suit their interests. Special attention is given to creative thinking, out of the box, non-linear problem solving, and algorithm development. The course culminates in a final project where students will use everything they learned over the course of the semester to create an educational piece of software from scratch(Jeopardy, flashcards, etc.). This course can be taken for computer credit and satisfies the computer requirement for graduation.

½ unit of credit experience or basic algebra

Prerequisite(s): No previous programming computer skills required. Students should have knowledge.

INTRODUCTION TO COMPUTER SCIENCE II – Spring Semester

The concepts behind Computer Science help students to plan, think, process, and create. Being able to understand these overarching conceptual themes will unlock many different areas of Computer Science for exploration. The primary coding language in use today is Java, developed by Sun Microsystems. Java is the backbone of everything you see today, from applications to video games. In this course, we will study the beginning conceptual elements required to succesfully understand and use Java. Students will be introduced to such concepts as object oriented programming, algorithm development, and class hierarchies.

½ unit of credit Science I. Students

Prerequisite(s): Introduction to Computer should also have basic algebra knowledge.

ADVANCED PLACEMENT COMPUTER SCIENCE A – Full Year Course

What is the most efficent way to sort a list of ten thousand names in the shortest amount of time? How can we continue to maintain a programs life span without excessive use of reusing code? These are the types of complicated yet intriguing questions that will be answered in AP Computer Science. This course takes students deep into the infrastructure of the Java langauge, including memory efficency, searching and sorting, data structures, and polymorphism. Students will work on challenging real world lab activities that simulate classic Computer Science problems and mimic actual work enviroments which provides valuable insight and experience. In May, students will be required to take the AP Exam, which can qualify them for college credits.

Students interested in this course should:

- Be familiar with mathematical notation and concepts, preferably through the Algebra 2 level.
- Have experience in problem solving/coding.
- Be able to structure and develop a given topic/problem solution in a logical manner.

<u>Every student will be expected to devote time outside of the classroom setting to work on programming assignments.</u>

1 unit of credit
Science I and II and a
require

Prerequisite(s): Introduction to Computer
recommendation from the teacher. Exceptions
permission from the Department Chairperson.

AP COMPUTER SCIENCE PRINCIPLES

In contrast to AP Computer Science, AP Computer Science Principles is an alternative study of the computer science field that focuses on using and understanding technology and programming as a means to develop problem solving techniques. The course does not focus on a particular programming language or have any programming prerequisites with the intent to make the course more welcoming to a broader student population. Special focus will be given to algorithm development, a detailed understanding of the inner workings of the Internet & date transfer, social and ethical implications of technology, and software engineering. It will also allow students to embrace their creative side with assignments and projects during the year that will factor into their AP Exam grade along with the traditional written exams. A summer assignment prior to the start of the class is required.

Prerequisite: Successful completion of Geometry

1 unit of credit

9TH GRADE TECHNOLOGY – ½ Year Course

This course teaches ninth grade students to navigate various online resources and to utilize technology skills necessary for academic success. Topics covered in this course are information literacy skills, digital citizenship, word processing, spread sheets, and ipad applications that support work flow and curriculum.