AP Computer Science (Online)

Course Description:
The AP Computer Science A course is an introductory computer science course. A large part of the course involves developing the skills to write programs or parts of programs that correctly solve specific problems. The course also emphasizes the design issues that make programs understandable, adaptable, and when appropriate, reusable. At the same time, the development of useful computer programs and classes is used as a context for introducing other important concepts in computer science, including the development and analysis of algorithms, the development and use of fundamental data structures, and the study of standard algorithms and typical applications. In addition, an understanding of the basic hardware and software components of computer systems and the responsible use of these systems are integral parts of the course.

Who can enroll in the class?:
Seniors or juniors who have scored an 80% or better on the New York State Regents Algebra and Geometry exams, or 85% in their Algebra and Geometry classes, or by special appointment.

What materials are needed?:
Students should invest in a 3-ring notebook for notes, a working computer, Internet access and may be asked to purchase a book or two during the course.

Which topics will be covered?
The goals of the AP Computer Science course are comparable to those in the introductory sequence of courses for computer science majors offered in college and university Computer Science Departments. Students completing the AP Computer Science course will be able to:

> o Design and implement computer-based solutions to problems in a variety of application areas.
> o Use and implement commonly-used algorithms and data structures.
> o Develop and select appropriate algorithms and data structures to solve problems.
> o Code fluently in an object-oriented paradigm using the programming language Java. Students will be familiar with and be able to use standard Java library classes from the AP Java subset.
> o Read and understand a large program consisting of several classes and interacting objects. Students will be able to read and understand a description of the design and development process leading to a program.
> o Identify the major hardware and software components of a computer system, their relationship to one another, and the roles of these components within the system.
> o Recognize the ethical and social implications of computer use.

How do I get college credit for this course?:
Students passing the AP Exam in Computer Science with a score of '3' or better may gain college credit provided that the university the student attends will accept these credits.

Is there summer work?:
Students are expected to attend an informational meeting or "boot camp" in the summer where materials will be discussed and disseminated to students enrolling in the course. Information about online learning and tips and advice on how to succeed in an online environment will be discussed.

What use is a Virtual Advanced Placement program in Computer Science?:
Students are given practical experience in problem solving, analysis, and online curriculum that will give them a distinct advantage in college and college admissions.