Objectives:

Students will be able to:

- design and implement solutions to problems by writing, running, and debugging computer programs
- use and implement commonly-used algorithms and data structures
- develop and select appropriate algorithms and data structures to solve problems
- code fluently in an object-oriented paradigm using the programming language Java, and be familiar with and be able to use standard Java library classes
- read and understand a large program consisting of several classes and interacting objects, and read and understand a description of the design and development process leading to such a program
- recognize the ethical and social implications of computer use

Prerequisites:

AP Computer Science is intended for students who have successfully completed Algebra II.

FAQ's

Q: Can I take the class if I have no programming experience?

A: Yes. The course is designed for students with no prior experience.

Q: What is Java?

A: Java is a widely used object-oriented programming language. From laptops to datacenters, game consoles to scientific supercomputers, cell phones to the Internet, Java is everywhere!

Q: Why should I take the class if I am not planning on majoring in Computer Science in college?

A: Technology is everywhere! Computing experience will provide you with a foundational knowledge of problem solving and logical thinking that will give you an advantage in any career you choose.

Q: Since the dot-com bubble burst, isn't there a decline in computer science positions?

A: By 2020, there will be 1,000,000 more computer science jobs than students. Computer Science is the **highest paid college degree** and computer programming jobs are growing at 2X the national average.

*Sources: Bureau of Labor Statistics, Association for Computing

AP Computer Science A

Visit AP Central at apcentral.collegeboard.com for a complete description of the course curriculum.

Visit code.org for more information on computing.

Contact instructor Stephanie Allen at sallen@eduhsd.net for more information.

OAK RIDGE HIGH SCHOOL

AP Computer Science A

"Everybody in this country should learn how to program a computer because it teaches you how to think."

— Steve Jobs, the Lost Interview

- Creative
- Relevant
- Innovative
- Challenging
- Rewarding

Oak Ridge High School
1120 Harvard Way
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(916) 933-0910

What is AP Computer Science A?

AP Computer Science A emphasizes object-oriented programming methodology using Java, with a concentration on problem solving and algorithm development and is meant to be the equivalent of a first-semester college-level course in Computer Science. *The course is designed for students with no prior computing experience.*

The goals of AP Computer Science are comparable to those in the introductory sequence of courses for computer science majors offered in college and university computer science departments. Receiving a score of 3 or higher on the AP exam can result in college credit for an introductory computer science course, which is a core requirement for other majors, such as business, math, engineering, and science, at most colleges and universities.

It is not expected that all students who take AP Computer Science will major in computer science at the college or university level. The study of computer science benefits all students by providing a foundation that fosters rigor of thought and an analytical approach to solving problems; skills also sought in such areas as law and business, where clear thinking and analysis are indispensable.

Top 5 Reasons to Study Computing.

1. Computing enables you to make a positive difference in the world.

Computer technology is part of just about everything we do, from the cars we drive to the movies we watch, to the ways businesses deal with us. In fact, computing drives invention in fields as diverse as engineering, business, entertainment, education, the arts, and the sciences (human genome project, vaccine research, environmental monitoring and protection to mention a few).

2. Computing offers many types of careers.

Computing careers include designing new products, enhancing a wide range of existing products and services, creating innovative websites, research into future technologies, network or systems analysis or advancing other fields.

3. Computing has space for both collaborative work and individual effort.

Computing is often about being part of a team that requires people with many different kinds of skills. Yet there is also plenty of space for individual flair and imagination.

4. Computing offers great opportunities for creativity and innovation.

Innovation is everywhere, from the iPhone™ to robots to social networking to business innovations. Designing high-quality solutions is a highly creative activity, and computing supports original work in many other fields. The best solutions in computing exhibit high levels of elegance and beauty. Creativity and innovation are two reasons that computing careers are among the highest paid and the highest job satisfaction.

5. Opportunities have no boundaries.

Computing is a field where it is often impossible to predict what will happen next. Expertise in computing can increase the excitement and reward in your life's work. Computing experience will provide you with a foundation of knowledge that will serve as a competitive advantage for you in whatever field you choose.

*Adapted from the ACM website, http://computingcareers.acm.org/.