Computer Science Pathway

Concentrator Course: Computer Science Principles (Python)

This course provides students with the fundamental knowledge of computer programming for solving applied problems. Topics covered include using various programming languages, protocols, language syntax, data structures, object-oriented concepts, interfaces, sorting and searching algorithms, and developing reports. Also covered, software testing, debugging, and improvement, integrated development using object-oriented programming and sensory information from robots to solve problems and meet challenges integrating STEM subjects. Students are introduced to programming (Python), the Internet, cybersecurity, and simulations. This course prepares students for the AP Computer Science Principles exam.

Capstone: Computer Science A (Java)

This course emphasizes object-oriented programming methodology with a concentration on problem solving and algorithm development. Students apply discrete programming skills to make a video game, a virtual pet, a sound editor, etc. and will explore careers in programming, including wireless applications for iPhone, Android, and applications. It also includes the study of data structures, design, and abstraction. Other topics might include developing databases and data modeling. Students learn programming in Java, including classes, arrays, and recursion. This course prepares students for the AP Computer Science A exam.