

Department: Science / Math

Course Name: Computer Programming in Java

Course Description:

This year-long class introduces Java based computer programming. This class is offered as an online course through Project Stem. Computer programming is a self-paced class requiring 5-7 hours of work per week and requires a dedicated block for this course. According to the provider, Project Stem, *“in Computer Programming, students will learn the fundamentals of computer science using the Java programming language. Java is a modern, object-oriented programming language used to create professional software. The course will explore systematic problem-solving strategies that can be applied to real world problems. The focus will be first on programming basics and then on writing full classes and the logic and structures around building them.”* Grades will be assessed through projects, quizzes, exams, and classroom work. Class is offered as either a math or science elective. There is fee of approximately \$100 for this class.

Content:

Intro to Java
Conditionals and Loops
Strings and One-Dimensional Arrays
Methods
User-Defined Classes
Advanced Classes
Algorithms
Two Dimensional Arrays

Skills:

Design and implement solutions to problems by writing, running, and debugging computer programs.
Use and implement common algorithms and data structures.
Develop and select appropriate algorithms and data structures to solve problems.
Code fluently using the programming language Java.
Participate in an online course

Text and Materials:

MOOC through Project Stem

Methods of Instruction:

online Lectures and in class lectures
Videos
Guided practice
Projects

Methods of Evaluation:

Tests(both online and traditional)
Quizzes(both online and traditional)
Class projects
Homework
Class work