Montclair High School  
Course Syllabus

**Department:** Math  
**Course:** Introduction to Computer Science  
**Level:** Honors  
**Credits:** 2.5

**Course Description:**  
This course will teach students how computers think: how they perform calculations, make decisions, manipulate data and store information. Problem solving techniques, algorithm design and analysis, and logic play a big part. Memory modeling, algorithm design and analysis, and logic play a big part. This course will introduce them to the tools and techniques to write computer instructions and to design, develop, and test computer programs. A variety of programming platforms will be presented, including Python and Processing.

This course will prepare students for further coursework in computer science and programming, including AP Computer Science.

**Standards:**  
This course is an elective and is not covered by state standards.

**Anchor Text(s):**  
none

**Supplementary Materials:**  
- Presentations  
- Lab activities  
- Worksheets  
- Study guides

**Units of Study:**  
- Introduction to the field of Computer Science  
- Careers and Opportunities  
- Overview of hardware, software, and networks  
- The binary number system (binary, octal, hexadecimal representations)  
- Introduction to Computer Programming: Languages, Development Tools, Testing  
- Program Statements  
- Data Types and Variables  
- Methods and Functions  
- Flow Control: Conditionals and Loops  
- List and Arrays  
- Graphics and Color  
- Introduction to Objects
Proficiencies:
By the end of this course, students will:

- Understand the various components of a computer system
- Translate a process into a set of instructions
- Solve problems using computer commands
- Understand how information is stored in computers
- Understand how colors are represented by computers
- Write small methods/programs

Evaluation & Assessment:

- Projects/Activities: 3 – 4 per term 50%
- Quizzes 3 – 4 per term 40%
- Homework/Classwork: 3 – 5 per term 10%