Montclair High School
Course Syllabus

Department: Math
Course: AP Computer Science A
Level: Advanced Placement
Credits: 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. Students will learn how to take complex problems and break them down into smaller parts. They will learn how to model a process and test a solution. This course will introduce them to the tools and techniques to design, develop, and test computer programs. Students will learn the object-oriented methodology (using the Java programming language). This course will prepare students for further coursework in computer science and programming

This rigorous course reflects the content of a typical introductory college course in computer science. It provides students with the skills and proficiencies necessary to successfully perform on the Advanced Placement exam as prescribed by the College Board.

Standards:
This course meets all requirements as specified by the AP College Board.

Anchor Text(s):

Text Title	Publisher/Author	Year/Edition	ISBN	Text Distribution
Java Software Solutions for AP Computer Science	Pearson/ Lewis, Loftus, Cocking	2011/3rd Edition	0-13-137469-9	To students

Supplementary Materials:
- AP Lab Student Manuals (Magpie Lab, Picture Lab, and Elevens Lab)
- AP practice exams in accordance with College Board guidelines
- Worksheets, study guides and Java Class guides

Units of Study:
- Introduction: Hardware, software, networks and the binary number system
- Data: Objects and Primitives
- Program Statements and Flow Control
- Writing Classes
- Enhancing Classes and Using Interfaces
- Arrays
- Search and Sort Algorithms
- Inheritance
- Recursion
- Exceptions and Error Handling

Proficiencies:

By the end of this course, students will:
- Understand the various components of a computer system
- Write modules, classes and programs in Java
- Interpret the output of a block of code or module
- Test/debug a program
- Create and interpret algorithms
- Create and interpret a class hierarchy
- Perform successfully on the AP Computer Science A exam

Evaluation & Assessment:

Tests/Projects: 2 per term   50%
Quizzes/Labs: 3 – 5 per term   40%
Homework: 2 – 3 times per week   10%

The Final Grade will consist of each marking period (22.5% each), the midterm exam (5%) and the final project (5%)