

Introduction to Programming

Union County Magnet High School | Ms. Gerstein | 11th Grade Technology

About the Course

Computers are used by scientists, engineers, designers, and artists to work with data. Whether that data takes the form of text, images, video, or sound, the core concepts and logic remain the same. This course will present fundamental concepts and best practices of computer programming through the creation of data visualizations, useful tools, and games. We will be using Python, an open source language, in a hands-on environment. In developing your programs, you will learn to use version control, think like a programmer, and work collaboratively.

Course Goals and Objectives

Students will be able to:

1. Develop clear and useful flowcharts which can be used to describe software or business processes
2. Understand the binary number system and how it is used in computers
3. Develop pseudo code from flowcharts as an intermediate step to writing software
4. Work with Boolean logic
5. Understand how and why to apply comments in software
6. Work within an IDE to write, test, and debug code
7. Understand syntax, data types, variables, mathematical operations, and user input
8. Manipulate and visualize data
9. Apply software coding techniques to solve problems
10. Learn how to apply object oriented programming techniques
11. Use version control systems individually and as a collaborative tool

Course Materials

All work for this course can be performed on the school-issued Chromebooks. If students wish to install the software to work on other computers, setup guides can be provided. All work can be completed with free software. We will be using Python, Cloud9, Git, and Google Docs.

Classroom Guidelines

- Adhere to all MHS rules and policies
- Respect your classmates' opinions and contributions
- Take responsibility for your actions in and out of class
- Obtain all missed notes and assignments if you have been absent - this is your responsibility.
- Turn in all required work on time and in a professional manner
- Participate appropriately in class - contribute to discussions and activities and behave professionally
- If you need to use the restroom or get water, please sign the sign out sheet and take a bathroom pass. If the bathroom pass is not available, please wait until it is returned. Sign back in when you return. If you need to leave the room for other reasons, please ask permission and remember to sign out and sign back in.
- If you enter the room late, please enter quietly and give Ms. Gerstein your late pass before sitting down.
- You will be expected to behave professionally and will be treated accordingly. Seating will not be assigned unless necessary. As long as you are staying focused, you may talk with others near you and listen to music while doing independent work. This does not apply during class discussions, quizzes, or lectures.
- If you need assistance or have conflicts with other assignments, it is your responsibility to seek help in a timely manner. Do not wait until the day before a major project is due to ask for help with it.
- Please bring your Chromebook to class each day. You will need a computer to do your coursework.

General Grading Policy

Grading will be based on a mix of participation, classwork, quizzes, and projects. Rubrics will be given for major assignments. Grading is done using total points.

Assignment Submission

All assignments are to be submitted in the required format no later than the required date and time. Late submissions will be subject to a penalty of 10% of the total grade for each day they are late. In order to communicate effectively, proper spelling and grammar are required.

Acknowledgement

By signing this, I agree that I have read and understand the course description, classroom guidelines, and grading policy and will abide by these rules.

Student Name _____

Student Signature _____ Date: _____

Parent/Guardian Signature _____ Date: _____