

Introduction to Programming and Thinking with Python

Instructor Information

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Class Overview

This class will teach students how to code in Python as well as get students to start thinking about the questions programmers face. No previous programming experience is required.

Each class will usually be half lecture followed by discussion or practice. There will be discussion time every class, so ***every student should have their camera on during class, have a functioning microphone, and also be present.***

The classes last from June 15 until August 17. There will be two classes per week, one on Sunday and another on Thursday, each class lasting 1 hour. The class will be from 12 pm to 1pm.

Prerequisites and Technology Expectations

Students should have either a personal Windows, MacOS, or Linux computer. Chromebooks or school computers are NOT RECOMMENDED. Phones or tablets CANNOT be used. If you do not know which computer you have, or have a school computer, please contact the instructor.

No coding experience is needed. However, students should be familiar with their computer and should know how to do basic tasks.

This includes:

- Knowing how to use their file explorer (open it, change folders, make new files)
- Knowing how to use a web browser and go to websites
- Knowing how to download and install programs

The instructor will send instructions on how to get other free and required software (Python interpreter, code editor) before the class starts.

Topics Covered and Workload

The classes last from June 15 until August 17. There will be two classes per week, one on Sunday and another on Thursday, each class lasting 1 hour. The class will be from 12 pm to 1pm.

Dates and times for each class may sometimes change. If dates need to be changed, I will work with students to determine the best alternative time.

Homework will be assigned to students, but students will check the homework on their own. Students are encouraged to do the homework and play around with what they learned.

Topics Covered

1. What is programming, Setting up code editor, First program
2. Variables and Data Types
3. Changing and Converting Data
4. Booleans and If-statements
5. Loops
6. Lists
7. Functions
8. Recursion
9. Dictionaries
10. Reading and Writing Files
11. How do we write faster programs?
12. Sets, 2D Arrays
13. Modules
14. Basic Object Oriented Programming
15. Building a todo list app: How do we plan and then create projects?