On Programming Literacy

“Computers and networks finally offer us the ability to write. And we do write with them on our websites, blogs, and social networks. But the underlying capability of the computer era is actually programming—which almost none of us knows how to do. We simply use the programs that have been made for us, and enter out text in the appropriate box on the screen.”

—Douglas Rushkoff
Algorithm
Algorithm

A set of rules
An operation
A procedure
A process
A recipe
Precise step-by-step instructions
Programming Languages

High-level programming languages are closer to real syntax

Low-level programming languages are closer to “machine language”

High-level languages are abstracted and therefore require interpretation

We’ll be working with a high-level language
Course Outline
Understanding the fundamentals of computer programming

Class 1
Introduction and Overview

- Algorithms and computation
- Data types and variables
- Writing programs
- Control structures
- Repetition structures
- Text processing
- Functions and modules
- Programming graphics
- Lists and dictionaries
Python
A general purpose, cross-platform programming language

Python 3
Conceptual and technical foundation
Freely available
Clear syntax
Robust programming language
Python in use

Google
• YouTube
• Groups
• Gmail
• Maps

Reddit social news site

Ableton Live API

Scientific computing

Mathematics

Natural language processing
Introduction to Computer Programming
CSCI-UA 2-005

Class 1
Introduction and Overview

Context
Historical/technological

Modern computing
Hardware
Operating system
Software
Scripts
Jacquard Loom, Invented by Joseph Marie Jacquard in 1801
Difference Engine, proposed by Charles Babbage in 1822
Fortran punched card, Developed by IBM in the 1950s
Prerequisites

A gentle introduction

No prior experience assumed

3 years of high school math required

For students considering a Computer Science major

For students considering or pursuing a Computer Science minor

For students interested in programming

C or better is required to take further CS classes as a major
Course Textbooks

Required Textbook
*Python: Visual QuickStart Guide*

Optional Textbook
*How to Think Like a Computer Scientist: Learning with Python 3*

More resources listed on the class site
Joshua Clayton
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Office Hours
Tuesday and Thursday
1:00–2:00
About You

Name

Where you’re from

Describe your computer literacy

Why you’re interested in programming
Introduction to Web Design & Computer Principles
CSCI-UA 4-005

Administrative

Class 1
Introduction and Overview

Schedule
Attendance
Assignments
Computers
Collaboration
Policy on lateness
Syllabus
Introduction to Web Design & Computer Principles
CSCI-UA 4-005

Class 1
Introduction and Overview

Grading

Assignments (9)
25%

Midterm exams (2)
20% each

Final exam
35%
Support

Tutors
Office hours
NYU community

Please let me know if you need help and I’ll be happy to work with you!
For Next Class

Get access to textbook

Review class site

We’ll go over installing Python