Syllabus

Week 1

July 16 - 20 Introduction to Python

Using Learn to Program for Python.

1. Getting Started: Installing Python on Windows, Mac
2. Numbers
3. Letters
4. Variables and Assignment
5. Mixing It Up
6. More About Functions and Methods
7. Flow Control
8. Arrays and Iterators
9. Writing Your Own Functions
10. Classes
11. There is nothing new in the chapter (recursion)
12. Beyond This Tutorial

Week 2

July 23 - 27 Advanced Python

Using Python the Hard Way we will go as far as possible in a week.

- Exercise 0: The Setup
- Exercise 1: A Good First Program
- Exercise 2: Comments And Pound Characters
- Exercise 3: Numbers And Math
- Exercise 4: Variables And Names
- Exercise 5: More Variables And Printing
- Exercise 6: Strings And Text
- Exercise 7: More Printing
- Exercise 8: Printing, Printing
- Exercise 9: Printing, Printing, Printing
- Exercise 10: What Was That?
- Exercise 11: Asking Questions
- Exercise 12: Prompting People
- Exercise 13: Parameters, Unpacking, Variables
- Exercise 14: Prompting And Passing
- Exercise 15: Reading Files
- Exercise 16: Reading And Writing Files

- Exercise 17: More Files
- Exercise 18: Names, Variables, Code, Functions
- Exercise 19: Functions And Variables
- Exercise 20: Functions And Files
- Exercise 21: Functions Can Return Something
- Exercise 22: What Do You Know So Far?
- Exercise 23: Read Some Code
- Exercise 24: More Practice
- Exercise 25: Even More Practice
- Exercise 26: Congratulations, Take A Test!
- Exercise 27: Memorizing Logic
- Exercise 28: Boolean Practice
- Exercise 29: What If
- Exercise 30: Else And If
- Exercise 31: Making Decisions
- Exercise 32: Loops And Lists
- Exercise 33: While Loops
- Exercise 34: Accessing Elements Of Lists
- Exercise 35: Branches and Functions
- Exercise 36: Designing and Debugging
- Exercise 37: Symbol Review
- Exercise 38: Doing Things To Lists
- Exercise 39: Dictionaries, Oh Lovely Dictionaries
- Exercise 40: Modules, Classes, And Objects
- Exercise 41: Learning To Speak Object Oriented
- Exercise 42: Is-A, Has-A, Objects, and Classes
- Exercise 43: Gothons From Planet Percal #25
- Exercise 44: Inheritance Vs. Composition
- Exercise 45: You Make A Game
- Exercise 46: A Project Skeleton
- Exercise 47: Automated Testing
- Exercise 48: Advanced User Input
- Exercise 49: Making Sentences
- Exercise 50: Your First Website
- Exercise 51: Getting Input From A Browser
- Exercise 52: The Start Of Your Web Game

Week 3

July 30 - August 3 Natural Language Processing with Python

Using the NLTK book probably only covering chapters 0-4 during the week.

1. Preface
2. Language Processing and Python
3. Accessing Text Corpora and Lexical Resources

4. Processing Raw Text
5. Writing Structured Programs
6. Categorizing and Tagging Words
7. Learning to Classify Text
8. Extracting Information from Text
9. Analyzing Sentence Structure
10. Building Feature Based Grammars
11. Analyzing the Meaning of Sentences
12. Managing Linguistic Data
13. Afterword: Facing the Language Challenge

Week 4

August 6 - 10 Artificial Intelligence with Python & Tensorflow

Using Machine Learning Crash Course from Google.

Week 5

August 13 - 17 Introductory JavaScript

We will repeat Learn to Program this time for JavaScript.

1. Getting Started: Installing Python on Windows, Mac
2. Numbers
3. Letters
4. Variables and Assignment
5. Mixing It Up
6. More About Functions and Methods
7. Flow Control
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Additionally Chapters 1-7 from Professional JavaScript™ for Web Developers.

1. What is JavaScript
2. JavaScript in HTML
3. Language Basics
4. Variables, Scope and Memory
5. Reference Types
6. Object-Oriented Programming
7. Function Expressions

Week 6

August 20 - 24 Advanced JavaScript

Using the Advanced JavaScript open courseware from NYW.

Week 7

August 27 - September 1

Self-care week

No classes, but our chat server and community is running. Great time to catch up or just rest. :)

Week 8

September 3 - 7

August 27 - 31 Mobile Prototyping (UI/UX) in InvisionApp

Using Invision's Getting Started guides.

1. Introduction to InvisionApp
2. Boards
3. Building Projects
4. Working Together
5. Feedback and Development

Week 9

September 10 - 14 Blockchain

Tentative: Using Oxford BlocSoc's intro to Blockchain course

Alternative is a Solidity intro course

- https://solidity.readthedocs.io/en/v0.4.24/
- https://codeburst.io/build-your-first-ethereum-smart-contract-with-solidity-tutorial-94171d6b1c4b

Week 10

September 17 - 21 Virtual Reality

Using Facebook VR stack

- 3D Posts Create immersive 3D posts and content for the Facebook News Feed.
- Facebook 360 Create and share immersive stories, places and experiences.
- Oculus Create compelling VR experiences and reach passionate VR audiences.
- Quill A VR illustration and animation tool built to help empower artists and creators.
- React 360 Use web tech to create content for audiences across mobile, web and VR.

Week 11

September 24 - 28 Augmented Reality

Visual programming in Facebook AR Studio this is Mac only. We need a Windows alternative until AR Studio comes out for Windows.

Week 12

October 1 - 5

A gentle introduction to collaboration using GitHub

Has this ever happened to you? Trying to use Git but not so clear on how to learn?

In the words of a GitHub Labs learner:

I have been trying to learn Git + GitHub to start teaching at the school. Without understanding the correct use, and potential problems that we could face when using this technology I am not so confident to do it. Yet, I have finished the Udacity course, a course with a campus expert, and again and again the problem is the nature of the examples. At some point, they lose attention to the learning curve and start using complex examples that does not make any sense at all, thus the problem is not about using GitHub but to figure out where an error or diff is present.

Therefore, this week we will go through every click, every screen, from the moment of signing up for a GitHub account to setting up our Git software, to contributing regularly.

Week 13

October 8 – 12

Mobile App Development with React.JS

Using the Facebook React.JS tutorial and Learning JavaScript Design Patters