



MATH106A
Computer Programming

Szu-Chi Chung

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Lectures

- ▶ Class hours: Fri. (9:10-12:00)
 - ▶ Classroom: 理 SC 2004
- ▶ Lecture: Szu-Chi Chung (鍾思齊)
 - ▶ Office: 理 SC 2002-4
 - ▶ Office hours: Mon. 16:00~18:00 and Wed. 16:00~18:00
- ▶ T.A.: 錢映伶
 - ▶ Office: 理SC 2003-3
 - ▶ Tutorial hours: Fri. 12:00~13:00 (at 理 SC 2004)
 - ▶ TA hour: Thur. 11:00~13:00 (at 理SC 2003-3)
- ▶ Math Runway
 - ▶ <https://math.nsysu.edu.tw/p/406-1183-302730,r2452.php?Lang=zh-tw>

Textbook and requirement

- ▶ The assignment and related material will be available on the course webpage.
Course website and Facebook group
 - ▶ <https://phonchi.github.io/nsysu-math106A/>
- ▶ Textbook: *Automate the Boring Stuff with Python, 2nd Edition*
 - ▶ Authors: Al Sweigart
 - ▶ <https://automatetheboringstuff.com/#toc>
- ▶ Beyond the Basic Stuff with Python
 - ▶ Authors: Al Sweigart
 - ▶ <https://inventwithpython.com/beyond/>
- ▶ SciPy lectures
- ▶ For the exercises of each chapter, the solution is at the companion website
 - ▶ <https://automatetheboringstuff.com/2e/appendixc/>

Grading policy

▶ Grading

- ▶ Homework 24% (8~10 assignments, both conceptual and coding parts (Python))
 - ▶ Participants: 6% (participates at least 10 times can get the full score)
 - ▶ Take home Quiz: 10% (2 times)
 - ▶ Midterm exam 30%
 - ▶ Final exam 30%
- ▶ Midterm (both conceptual and coding part):
- ▶ It will be held on **2023/04/07** at **理 SC 2004**
- ▶ Final (both conceptual and coding part):
- ▶ It will be held on **2023/06/02** at **理 SC 2004**

Grading policy

▶ Programming language: Python

- ▶ It is free and easy to learn
- ▶ Since it is one of the most popular languages and has a vibrant community support

1. Python basics

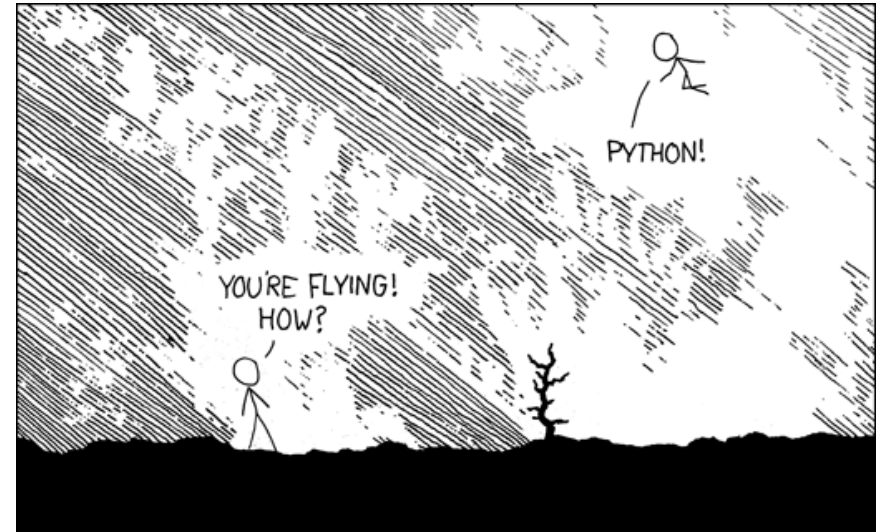
- ▶ Learn X in Y minutes
- ▶ Python for Everybody

2. Practicing

- ▶ Hackerrank
- ▶ W3C and More

3. Doing projects!

- ▶ <https://inventwithpython.com/>



<https://xkcd.com/353/>

<https://awesome-python.com/>

What we are going to study in this semester

- ▶ **Python fundamentals**
 - ▶ Introduction and Python Basics
 - ▶ Flow Control
 - ▶ Functions
 - ▶ Sequences: Lists and Tuples
 - ▶ Dictionaries
 - ▶ Manipulating Strings
 - ▶ Files and Exceptions
- ▶ **Advance topics**
 - ▶ Object-Oriented Programming and Classes
- ▶ **Scientific computing using Python**
 - ▶ Array-Oriented Programming with NumPy
 - ▶ High-level scientific computing with SciPy
 - ▶ Symbolic Mathematics in Python with SymPy
 - ▶ Plotting with Matplotlib
- ▶ **Not covered**
 - ▶ Regular expressions
 - ▶ Unit testing
 - ▶ Generators, decorators
 - ▶ Multiprocessing and serialization

Relate to other courses

- ▶ **Related courses**
 - ▶ Introduction to computer science
 - ▶ Data structures
 - ▶ Algorithms
 - ▶ Python and machine learning algorithms
- ▶ **Other courses**
 - ▶ Advance programming
 - ▶ Web programming
 - ▶ Network programming
 - ▶ Software engineering
 - ▶ Data science/Machine learning/Artificial intelligence