MATH106A
Computer Programming

Szu-Chi Chung

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Lectures

- 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
- Class hours: Wed. (9:10-12:00)
  - Classroom: 理 SC 2004
- T.A.: 廖廣筑
  - Office:理SC 1011-3
  - Tutorial hours: Mon. 12:10~13:00 (at 理 SC 2004)
  - TA hour: Fri. 13:00~14:00 (at 理SC 1011-3)
- Math Runway
  - https://hackmd.io/@jephianlin/math-runway-2024

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% (Computer-based exam, reference materials are allowed, but internet access is not permitted)
  - Final exam 30% (Computer-based exam, reference materials are allowed, but internet access is not permitted)
- Midterm (both conceptual and coding part):
  - It will be held on 2025/04/09 at 理 SC 2004
- Final (both conceptual and coding part):
  - It will be held on 2025/06/04 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/

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
  - Plotting with Matplotlib
  - Symbolic Mathematics in Python with SymPy
- 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