TIGP Bioinformatics Program
Programming (Python) (P1)
Fall 2024 Syllabus

Latest syllabus: https://idv.sinica.edu.tw/tigpbio/

Place: Room 308, Institute of Statistical Science, Academia Sinica
Time: Friday 10:00am-12:00pm
Chair: Dr. John Wang (johnwang@gate.sinica.edu.tw)
Outline: This course introduces basic aspects of programming language and its application in bioinformatics. First, fundamental programming techniques in Python are introduced. After that, this course focuses on the practical implementation of programs to analyze various biological data. The use of existing available resources from the Internet is also incorporated. Finally, the students implement bioinformatics projects (i.e., motif finding, pattern matching, sequence alignment, biomedical database analysis, etc.)
Textbook:
Python for Biologists: A complete programming course for beginners (Martin Jones)
Advanced Python for Biologists (Martin Jones)
(Reference) Python for Everybody - Exploring Data In Python 3 (Charles Russell Severance)
TA: Shang-Kok Ng (shangkok@gmail.com)
Office hours: Friday 17:00 pm-19:00pm
Office location: Room 416, Institute of Information Science, Academia Sinica
Grades: Midterm exam 25%. Final exam 30%. Homework 35%. Class performance 10%.

【For Non-BP student】

For Non-BP student to register/sit-in any BP course, it is required to gain course chair's permission:

(1) Basic Enrollment Information form https://forms.gle/oK7vJzzrx9EvybbT9
(2) TIGP-BP Course Registration Consent Form
https://idv.sinica.edu.tw/tigpbio/index/TIGP%20Bioinformatics_Class%20Registration%20Consent%20Form.docx

※ Deadline: **the 4th week** of each semester.
※ Signature of the course chair should be collected before submission. Incomplete form will not be accepted.
※ Course grade will NOT be given (even class enrollment is completed at school) if fail to follow the above procedures.

Week	Date	Topics/Brief Description	Lecturers	Evaluation Method	Email
1	2024/9/6	Introduction to Python	Dr. John Wang	No exam. Points merged with Week 6.	johnwang@gate.sinica.edu.tw
2	2024/9/13	Basic Elements of Python	Dr. Ching-Fen Chang	Take-home exam with a specified deadline: ▶ Nov. 6th	janechang.stev@gmail.com
3	2024/9/20	Basic statements I: branching programs and inputs	Dr. Ching-Fen Chang		
4	2024/9/27	Basic statements II: iterative programs	Dr. Jen-Hung Wang	Take-home exam with a specified deadline: ▶ Nov. 11th	a04928@tmu.edu.tw
5	2024/10/4	Functions: scope rules and passing arguments	Dr. Jen-Hung Wang		
6	2024/10/11	Modules, Files, and Exception Handling	Dr. Te-Chuan Chiu	Take-home exam with a specified deadline: ▶ Oct. 25th	theochiu@cs.nthu.edu.tw
7	2024/10/18	Review Week (no class)	--		
8	2024/10/25	Midterm Exam (take-home exams, no class)	--		
9	2024/11/1	Regular expressions	Dr. Chih-Ming Chen	Take-home exam with a specified deadline: ▶ Dec. 6th	changecandy@gmail.com
10	2024/11/8	Object-oriented programming: classes	Dr. Chih-Ming Chen		
11	2024/11/15	Introduction to Biopython	Dr. Chih-Ming Chen		
12	2024/11/22	Data analysis toolbox: NumPy, Pandas, Matplotlib	Dr. Ryandhimas Edo Zezario	Take-home exam with a specified deadline: ▶ Dec. 13th	ryandhimas@citi.sinica.edu.tw
13	2024/11/29	Machine learning I: scikit-learn	Dr. Chih-Cheng Chang	Take-home exam with a specified deadline: ▶ Dec. 20th	ccchang12@iis.sinica.edu.tw
14	2024/12/6	Machine learning II: scikit-learn & PyTorch	Dr. Chih-Cheng Chang		
15	2024/12/13	Review Week (no class)	--		
16	2024/12/20	Final Exam (take-home exams, no class)	--		