

## TIGP Bioinformatics Program

### Programming (Python) (P1)

#### Fall 2025 Syllabus

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

Place: Room 308, Institute of Statistical Science, Academia Sinica

Time: Friday 10:00-12:00

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: Cai-Sian Liao Email: enelya2323@gmail.com

Office hours: Friday 12:00-14:00

Office location: Room 308, Institute of Statistical 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/OK/vjzzrx9Evyybb19>

(2) TIGP-BP Course Registration Consent Form

[https://idv.sinica.edu.tw/tigpbio/index/TIGP%20Bioinformatics\\_Class%20Registration%20Consent%20Form.docx](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 (Midterm/Final Exams)	Homework	Email
1	2025/9/5	Introduction to Python	Dr. John Wang	No exam. Points merged with Week 6.	Honor Code Form: Due by 2025/9/12 (no score)	johnwang@gate.sinica.edu.tw
2	2025/9/12	Basic Elements of Python	Dr. Ching-Fen Chang	Take-home exam with a specified deadline: ►2025/9/24	--	janechang.stev@gmail.com
3	2025/9/19	Basic statements I: branching programs and inputs	Dr. Ching-Fen Chang	Take-home exam with a specified deadline: ►2025/10/8	--	
4	2025/9/26	Basic statements II: iterative programs	Dr. Jen-Hung Wang	Take-home exam with a specified deadline: ►2025/11/7	Due by 2025/10/9	a04928@tmu.edu.tw
5	2025/10/3	Functions: scope rules and passing arguments	Dr. Jen-Hung Wang		Due by 2025/10/17	
6	2025/10/8 (Wed) 10:00-12:00	Modules, Files, and Exception Handling	Dr. Te-Chuan Chiu	Take-home exam with a specified deadline ►2025/10/22	--	theochiu@cs.nthu.edu.tw
6	2025/10/10	Holiday—Double Tenth Day (no class)	--	--	--	--
7	2025/10/17	Review Week (no class)	--	--	--	--
8	2025/10/24	Midterm Exam rescheduled to 10/27. Make-up Day Off for Retrocession Day (no class)	--	--	--	--
9	2025/10/27 (Mon) 14:00-16:00	Midterm Exam (take-home exams, no in-class exam)				
9	2025/10/31	Regular expressions	Dr. Ting-Wei Lin	Take-home exam with a specified deadline: ►2025/11/28	--	kevin99703012@gmail.com
10	2025/11/7	Object-oriented programming: classes	Dr. Ting-Wei Lin	Take-home exam with a specified deadline: ►2025/11/28	Due by 2025/11/28	
11	2025/11/14	Introduction to Biopython	Dr. Ching-Fen Chang	Take-home exam with a specified deadline: ►2025/12/7	--	janechang.stev@gmail.com
12	2025/11/21	Data analysis toolbox: NumPy, Pandas, Matplotlib	Dr. Ryandhimas Edo Zezario	Take-home exam with a specified deadline: ►2025/12/12	Due by 2025/12/5	ryandhimas@citi.sinica.edu.tw
13	2025/11/28	Machine learning I: scikit-learn	Dr. Ryandhimas Edo Zezario	Take-home exam with a specified deadline: ►2025/12/17	--	
14	2025/12/5	Machine learning II: scikit-learn & PyTorch	Dr. Ryandhimas Edo Zezario	Take-home exam with a specified deadline: ►2025/12/20	Due by 2025/12/17	
15	2025/12/12	Review Week (no class)	--	--	--	
16	2025/12/19	Final Exam (take-home exams, no in-class exam)	--	--	--	