

TIGP Bio 2015 Spring Syllabus

Programming (Python) (P1)

Place: **Room 108**, New Building of the Institute of Information Science, Academia Sinica.

Time: Friday, 10:00am-12:00pm

Chair: Dr. Wu, Kun-Pin (BP)

Dr. Wang, Chih-Yu (SNHCC)

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.)

Lecturers: SHNCC-Dr. Wang, Chih-Yu; Dr. Chen, Kung;

BP-Dr. Wu, Kun-Pin; Dr. Wang, John; Dr. Tsai, Huai-Kuang/ Dr. Lin, Chan-Hsien (Eric).

Textbook: Introduction to Computation and Programming Using Python (revised and expanded edition) by John V. Guttag, 2013, The MIT Press (滄海圖書代理)

TA: Jerome Penaflor Panibe (杰羅姆)

Office hours: by appointment

Grades: Midterm exam 25%. Final exam 30%. Homework 35%. Class performance (10%)

Wee k	Date	Topics/Brief Description	Lecturers
1	2015/02/24 (Tue)	Introduction to Python 12:00-14:00	Dr. Wu, Kun-Pin
2	2015/03/06	Basic Elements of Python I	Dr. Wu, Kun-Pin
3	2015/03/13	Basic Elements of Python II	Dr. Wu, Kun-Pin
4	2015/03/20	Basic statements I: branching programs and inputs	Dr. Wang, John
5	2015/03/27	Basic statements II: iterative programs	Dr. Wang, John
6	2015/04/01 (Wed)	Functions: scope rules and passing arguments	Dr. Wang, John
7	2015/04/10	Modules, Files, and Structured Types	Dr. Wang, Chih-Yu
8	2015/04/17	Exception handling	Dr. Wang, Chih-Yu
9	2015/04/24	Review week	
10	2015/05/01	Midterm exam	
11	2015/05/08	Introduction to Biopython	Dr. Lin, Chan-Hsien (Eric)
12	2015/05/15	Regular expressions	Dr. Lin, Chan-Hsien (Eric)
13	2015/05/22	Object-oriented programming: classes	Dr. Lin, Chan-Hsien (Eric)
14	2015/05/29	Data analysis toolbox	Dr. Chen, Kung
15	2015/06/05	Data analysis toolbox, Web programming	Dr. Chen, Kung

16	2015/06/12	Web programming	Dr. Chen, Kung
17	2015/06/17 (Wed)	Review week	
18	2015/06/26	Final exam	