

TIGP Bio 2025 Spring Syllabus

Basic Molecular Biology II (B2)

For the latest syllabus, please visit the BP website: <https://idv.sinica.edu.tw/tigpbio/>

Place: Room 308, Institute of Statistical Science, Academia Sinica Time: Tuesday 09:00-12:00 Chair: Dr. Ho-Ming Chen (homing@gate.sinica.edu.tw) Aim: Introduce key concepts and methods to manage, integrate and analyze bio big data in the era of post-genomics life sciences Outline: Big Data in Bioinformatics - From Data-Driven Analysis to Knowledge Textbook: (Reference books, not required) 1. Scalable Big Data Analytics for Protein Bioinformatics [Publisher: Springer; 1st ed. 2018 edition (September 26, 2018)] 2. Computational Intelligence and Big Data Analytics: Applications in Bioinformatics [Publisher: Springer; 1st ed. 2019 edition (September 9, 2018)] 3. Big Data in Omics and Imaging [Publisher: Chapman and Hall/CRC; 1 edition (June 19, 2018)] 4. Big Data Analytics in Genomics [Publisher: Springer; Softcover reprint of the original 1st ed. 2016 edition (April 25, 2018)] TA: N/A (Please refer to the lectures respectively shall you have any questions for each class) Grades: Midterm exam 50%. Final exam 50%.

【 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/oK7vJzrx9EvybbT9 (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 procedures.

Week	Date	Topics/Brief Description	Lecturers	Evaluation Method	Email
1	2025/2/18 @Webex Only	Genomics and Genome Analysis	Dr. Ueng-Cheng Yang	Take-home exam with a specified deadline:	uyang@nycu.edu.tw
2	2025/2/25	Genome Assemblies and Annotations	Dr. I-Sheng Tsai	In-class exam on midterm exam date	ijtsai@gate.sinica.edu.tw
3	2025/3/4	Epigenomics	Dr. Pao-Yang Chen	TBA (was in-class exam on midterm exam date: open-book)	paoyang@gate.sinica.edu.tw
4	2025/3/11	Comparative and Evolutionary Genomics	Dr. I-Sheng Tsai	In-class exam on midterm exam date	ijtsai@gate.sinica.edu.tw
5	2025/3/18	Microbiome	Dr. Sen-Lin Tang	Take-home exam with a specified deadline:	sltang@gate.sinica.edu.tw
6	2025/3/25	Metagenomics	Dr. Sen-Lin Tang		
7	2025/4/1	Review Week (no class)	--	--	--
8	2025/4/8	Midterm Exam	--	--	--
9	2025/4/15	Population Genomics	Dr. Jen-Pan Huang	Take-home exam with a specified deadline:	jphuang@gate.sinica.edu.tw
10	2025/4/23 (Wed) 9:00-12:00 @Webex Only	Medical Genomics	Dr. Tai-Ming Ko	Take-home exam with a specified deadline:	taiming23@gmail.com
11	2025/4/29	Transcriptomics	Dr. Hung-Hsin Chen	To Be Announced: in-class or take-home exam	hunghsinchen@ibms.sinica.edu.tw
12	2025/5/6	Proteomics Informatics	Dr. Chuan-Chih Hsu	To Be confirmed: take-home exam	cchsu@gate.sinica.edu.tw
13	2025/5/13	Structural Bioinformatics	Dr. Lee-Wei Yang	Take-home exam with a specified deadline: ▶ May 29th	lwyang@life.nthu.edu.tw
14	2025/5/20	Metabolomics	Dr. Yufeng Jane Tseng	TBA (was take-home exam with a specified deadline)	yjtseng@csie.ntu.edu.tw
15	2025/5/27	Review Week (no class)	--	--	--
16	2025/6/3	Final Exam	--	--	--