

TIGP Bio 2026 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 | 2026/2/24 @Google Meet Only | Genomics and Genome Analysis | Dr. Ueng-Cheng Yang | Take-home exam with a specified deadline | uyang@nycu.edu.tw |
| 2 | 2026/3/3 @Google Meet Only | Metabolomics | Dr. Yufeng Jane Tseng | Take-home exam with a specified deadline | yjtseng@csie.ntu.edu.tw |
| 3 | 2026/3/10 | Epigenomics | Dr. Jer-Young Lin | TBA | jeryoung@gate.sinica.edu.tw |
| 4 | 2026/3/17 | Comparative and Evolutionary Genomics | Dr. Chuan Ku | Take-home exam with a specified deadline | chuanku@gate.sinica.edu.tw |
| 5 | 2026/3/24 | Metagenomics | Dr. Sen-Lin Tang | Take-home exam with a specified deadline | sltang@gate.sinica.edu.tw |
| 6 | 2026/3/31 | Microbiome | Dr. Sen-Lin Tang | | |
| 7 | 2026/4/7 | Review Week (no class) | -- | -- | -- |
| 8 | 2026/4/14 | Midterm Exam | -- | -- | -- |
| 9 | 2026/4/21 | Population Genomics | Dr. Jen-Pan Huang | TBA (was take-home exam with a specified deadline) | jphuang@gate.sinica.edu.tw |
| 10 | 2026/4/27 (Mon) 14:00-17:00 | Structural Bioinformatics | Dr. Lee-Wei Yang | Take-home exam with a specified deadline | lwyang@life.nthu.edu.tw |
| 10 | 2026/4/28 | Class rescheduled to 4/29 | -- | -- | -- |
| 10 | 2026/4/29 (Wed) 9:00-12:00 @Google Meet Only | Medical Genomics | Dr. Tai-Ming Ko | Take-home exam with a specified deadline | taiming23@gmail.com |
| 11 | 2026/5/5 | Transcriptomics | Dr. Hung-Hsin Chen | TBA (was take-home exam with a specified deadline) | hunghsinchen@ibms.sinica.edu.tw |
| 12 | 2026/5/12 | Introduction of Proteomics | Dr. Chuan-Chih Hsu | In-class exam on final exam date | cchsu@gate.sinica.edu.tw |
| 13 | 2026/5/19 | Class rescheduled to 4/27 | -- | -- | -- |
| 14 | 2026/5/26 | High throughput image analysis | Dr. Jian-Geng Chiou | TBA | jchiou@gate.sinica.edu.tw |
| 15 | 2026/6/2 | Review Week (no class) | -- | -- | -- |
| 16 | 2026/6/9 | Final Exam | -- | -- | -- |