

## 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 (homming@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](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    | <a href="#">2026/2/24</a><br><a href="#">@Google Meet Only</a>                     | Genomics and Genome Analysis                     | Dr. Ueng-Cheng Yang   | Take-home exam with a specified deadline:<br><a href="#">▶2026/3/10</a>             | uyang@nycu.edu.tw               |
| 2    | <a href="#">2026/3/3</a><br><a href="#">@Google Meet Only</a>                      | Metabolomics                                     | Dr. Yufeng Jane Tseng | Take-home exam with a specified deadline:<br><a href="#">▶2026/3/17</a>             | yjtseng@csie.ntu.edu.tw         |
| 3    | <a href="#">2026/3/10</a><br><a href="#">@Google Meet Only</a>                     | Epigenomics                                      | Dr. Jer-Young Lin     | Take-home exam with a specified deadline:<br><a href="#">▶2026/4/2</a>              | jeryoung@gate.sinica.edu.tw     |
| 4    | 2026/3/17                                                                          | Comparative and Evolutionary Genomics            | Dr. Chuan Ku          | Take-home exam with a specified deadline:<br><a href="#">▶2026/4/1</a>              | chuanku@gate.sinica.edu.tw      |
| 5    | 2026/3/24                                                                          | Metagenomics                                     | Dr. Sen-Lin Tang      | Take-home exam with a specified deadline:<br><a href="#">▶2026/4/30</a>             | 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 (take-home exams, no in-class exam) | --                    | --                                                                                  | --                              |
| 9    | 2026/4/21                                                                          | Population Genomics                              | Dr. Jen-Pan Huang     | Take-home exam with a specified deadline:<br><a href="#">▶ 2026/5/5, at 5:00 PM</a> | jphuang@gate.sinica.edu.tw      |
| 10   | <b>2026/4/27 (Mon)</b><br><b>14:00-17:00</b>                                       | Structural Bioinformatics                        | Dr. Lee-Wei Yang      | Take-home exam with a specified deadline:<br><a href="#">▶2026/5/21</a>             | lwyang@life.nthu.edu.tw         |
| 10   | 2026/4/28                                                                          | Class rescheduled to 4/29                        | --                    | --                                                                                  | --                              |
| 10   | <a href="#">2026/4/29 (Wed)</a><br>9:00-12:00<br><a href="#">@Google Meet Only</a> | Medical Genomics                                 | Dr. Tai-Ming Ko       | Take-home exam with a specified deadline:<br><a href="#">▶2026/5/20</a>             | taiming23@gmail.com             |
| 11   | 2026/5/5                                                                           | Class rescheduled to 5/19                        | --                    | --                                                                                  | --                              |
| 12   | 2026/5/12                                                                          | <a href="#">Introduction of Proteomics</a>       | Dr. Chuan-Chih Hsu    | In-class exam on final exam date                                                    | cchsu@gate.sinica.edu.tw        |
| 13   | 2026/5/19                                                                          | Transcriptomics                                  | Dr. Hung-Hsin Chen    | Take-home exam with a specified deadline:<br><a href="#">▶2026/6/12</a>             | hunghsinchen@ibms.sinica.edu.tw |
| 14   | 2026/5/26                                                                          | High throughput image analysis                   | Dr. Jian-Geng Chiou   | Take-home exam with a specified deadline:<br><a href="#">▶2026/6/9</a>              | jchiou@gate.sinica.edu.tw       |
| 15   | 2026/6/2                                                                           | Review Week (no class)                           | --                    | --                                                                                  | --                              |
| 16   | 2026/6/9<br><b>10:00-12:00</b>                                                     | Final Exam                                       | --                    | --                                                                                  | --                              |