

## TIGP Bio 2024 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 2016)]  
**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/oK7vJzzrx9EvybbT9>

(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="#">2024/2/20</a> <a href="#">@Webex Only</a>	Genomics and Genome Analysis	Dr. Ueng-Cheng Yang	HW with a specified deadline: ▶ <b>March 5th</b> <b>(MUST CC mmtu0103@gmail.com)</b>	uyang@nycu.edu.tw
2	2024/2/27	NGS Analytics - Comparative and Evolutionary Genomics	Dr. I-Sheng Tsai	In-class exam on midterm exam date	ijtsai@gate.sinica.edu.tw
3	2024/3/5	Genome Assemblies and Annotations	Dr. I-Sheng Tsai		
4	2024/3/12	Epigenomics	Dr. Pao-Yang Chen	In-class exam on midterm exam date ( <a href="#">open-book</a> )	paoyang@gate.sinica.edu.tw
5	<a href="#">2024/3/19</a> <a href="#">@Webex Only</a>	Microbiome	Dr. Sen-Lin Tang	HW with a specified deadline: ▶ <b>April 30th</b> <b>(MUST CC BP office)</b>	sltang@gate.sinica.edu.tw
6	2024/3/26	Metagenomics	Dr. Sen-Lin Tang		
7	2024/4/2	Review Week (no class)	--	--	--
8	2024/4/9	Midterm Exam	--	--	--
9	<a href="#">2024/4/17 (Wed)</a> <a href="#">14:00-17:00</a> <a href="#">@Webex Only</a>	Medical Genomics	Dr. Tai-Ming Ko	HW with a specified deadline: ▶ <b>May 2nd</b>	taiming23@gmail.com
10	2024/4/23	Structural Bioinformatics in Pharmacogenomics	Dr. Jung-Hsin Lin	HW with a specified deadline: ▶ <b>June 4th</b>	jhlin@gate.sinica.edu.tw
11	2024/4/30	Population Genomics	Dr. Jen-Pan Huang	HW with a specified deadline: ▶ <b>by 5 PM on May 24th</b>	jphuang@gate.sinica.edu.tw
12	2024/5/7	Transcriptomics	Dr. Ho-Ming Chen	HW with a specified deadline: ▶ <b>by 11 PM on May 30th</b>	homing@gate.sinica.edu.tw
13	<a href="#">2024/5/14</a> <a href="#">@Webex Only</a>	Metabolomics	Dr. Yufeng Jane Tseng	HW with a specified deadline: ▶ <b>by 5 PM on May 30th</b>	yjtseng@csie.ntu.edu.tw
14	2024/5/21	Proteomics Informatics	Dr. Wailap Victor Ng	HW with a specified deadline: ▶ <b>June 4th</b>	wailap.ng@gmail.com
15	2024/5/28	Review Week (no class)	--	--	--
16	2024/6/4	Final Exam (take-home exams, no class)	--	--	--