Molecular and Cellular Biology II, LS340100
Fall, 2022

Lecture: Tuesdays 13:20-14:10, Fridays, 13:20-15:10, Life Science Building II, Rm109

Instructors:

Dr. Jui-Chou Hsu (徐瑞洲), jchsu@life.nthu.edu.tw LS-I 523, ext. 42768

Dr. Mou-Chieh Kao (高茂傑), mckao@life.nthu.edu.tw LS-I 307, ext. 42472

Dr. Chung-Yu Lan (藍忠昱), cylan@life.nthu.edu.tw LS-I 405, ext. 42473

Teaching assistant:
稍後宣布

Course Description:

The first one third of the course will discuss protein targeting and sorting, signal transduction, growth control and cancer. The rest of the time will be devoted to various aspects of transcription in prokaryotes and eukaryotes. Many experimental results are illustrated to explain the control and regulation of those topics.

- **Students are urged to read the basic methodology section from chapter 1 to chapter 5 of the molecular biology textbook before attending the molecular biology part of the class.**
- **In addition, students are also encouraged to take the "Introduction to Molecular Biology Techniques, LS 243100" course offered in this semester.**

Text Books:

The world of cell, 7th ed., Becker, Benjamin Cummings
Molecular Biology, 5th ed., Robert F. Weaver. McGraw Hill（偉明圖書代理）

References:

The cell, 4th ed., Albert, 2002
Molecular Biology of the Gene, 5th ed., Watson et al., Pearson Benjamin Cummings

Teaching Methods:

The lectures will be aided by power point slides and closely follow the textbook. Students are encouraged to ask questions and discuss the area they have difficulties with the lecturers.

Syllabus:

- In cell biology part, lectures will be in the series of chapter 14, 18, 19, 22 and 24 in the book "The world of cell, 7th ed.".
- In molecular biology part, lectures will cover from chapter 6 to chapter 12 in the book "Molecular Biology, 5th ed.". Please refer to the following syllabus for a detailed schedule.

Week	date	Topics (chapter)	Instructor
1	9/13 9/16	Protein targeting and sorting (18, 22)	Hsu
2	9/20 9/23	Protein targeting and sorting (18, 22)	Hsu
3	9/27 9/30	Signal transduction mechanisms: II (14)	Hsu
4	10/4 10/7	Signal transduction mechanisms: II (14) Regulation of the cell cycle and cancer (19, 24)	Hsu
5	10/11 10/14	Regulation of the cell cycle and cancer (19, 24)	Hsu
6	10/18 10/21	Regulation of the cell cycle ad cancer (19, 24) **Examination I (lecture 9/13 ~10/18)**	Hsu
7	10/25 10/28	The mechanism of transcription in bacteria (6)	Kao
8	11/1 11/4	The mechanism of transcription in bacteria (6)	Kao
9	11/8 11/11	The mechanism of transcription in bacteria (6) Operons: fine control of bacterial transcription (7)	Kao
10	11/15 11/18	Operons: fine control of bacterial transcription (7)	Kao
11	11/22 11/25	Operons: fine control of bacterial transcription (7) Major shifts in bacterial transcription (8)	Kao
12	11/29 12/2	Major shifts in bacterial transcription (8) **Examination II (lecture 10/25 ~11/29)**	Kao
13	12/6 12/9	Eukaryotic RNA polymerases and their promoters (10)	Lan
14	12/13 12/16	Eukaryotic RNA polymerases and their promoters (10)	Lan
15	12/20 12/23	General transcription factors in eukaryotes (11)	Lan
16	12/27 12/30	General transcription factors in eukaryotes (11) Transcription activators in eukaryotes (12)	Lan
17	1/3 1/6	Transcription activators in eukaryotes (12)	Lan
18	1/13	**Final examination (lecture 12/6 ~1/6)**	Lan