

# 11310LSMC642100 Advanced Molecular Biology

Instructors:

Pin-Chao Liao (廖品超), I-Ju Lee (李以如), Wei-Ching Chen (陳韋靜)

Time: F2F3F4 (Fri 9:00-12:00)

Room: LSII R217

## 一、課程說明 (Course Description)

The goal of this course is to develop a thorough understanding of the basic fundamentals of advanced molecular biology both from the perspective of known molecular mechanisms for regulating fundamental processes in a cell, and also from a theoretical applied perspective for using molecular biology as a laboratory tool. Molecular biology deals with nucleic acids and proteins and how these molecules interact within the cell to promote proper growth, division, and development. It is a large and ever-changing discipline. This course will emphasize the molecular mechanisms of DNA replication, repair, transcription, protein synthesis, and gene regulation in different organisms. In addition, we will take an in-depth look at some rapidly evolving fields, including chromatin structure and function, RNA polymerase dynamics, and regulation of gene expression by different types of RNAs.

## 二、指定用書 (Textbook)

Lewin's GENES XII. ISBN-13: 978-1-284-10449-3

Author(s): Jocelyn E. Krebs, PhD, Professor, University of Alaska, Anchorage;  
Elliott S. Goldstein, PhD, Associate Professor, Arizona State University;  
Stephen T. Kilpatrick, PhD, Associate Professor, University of Pittsburgh at  
Johnstown

## 三、參考書籍 (References)

Other materials will be uploaded to eclass.

## 四、教學方式 (Teaching method)

Lectures and 3 exams

## 五、教學進度(Syllabus)

Week	Date	Chapter	Instructor
1	9/6	Ch 9, 10	I-Ju Lee
2	9/13	Ch 11, 12	I-Ju Lee
3	9/20	Ch 13, 14	I-Ju Lee

4	9/27	Ch 15, 16	I-Ju Lee
5	10/4	First exam	I-Ju Lee
6	10/11	Ch 7, 8	Pin-Chao Liao
7	10/18	Ch 17, 18	Pin-Chao Liao
8	10/25	Ch 24, 26	Pin-Chao Liao
9	11/1	Ch 27, 28	Pin-Chao Liao
10	11/8	Second exam	Pin-Chao Liao
11	11/15	Ch 19, 20	Wei-Ching Chen
12	11/22	Ch 21, 22	Wei-Ching Chen
13	11/29	Ch 23, 25	Wei-Ching Chen
14	12/6	Ch 29, 30	Wei-Ching Chen
15	12/13	Final exam	Wei-Ching Chen
16	12/20	No class	

四、計分方式 (Evaluation)

33% for each section

**This course does not involve the use of Artificial Intelligence (AI)**