



## 11220LSMC642100 高等分子生物學 (Advanced Molecular Biology)

### COURSE IDENTIFICATION

生二217: Advanced Molecular Biology

Lecture: Fri 9:00-12:00

Lecturers: 李佳霖 (JL Lee) 張壯榮 (CR Chang) 王群超 (CC Wang)

### COURSE DESCRIPTION:

The goal of this course is to develop a thorough understanding of the basic fundamentals to 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.

### 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

- Molecular Biology is a rapidly advancing field with a constant flow of new information and cutting-edge developments that impact our lives. Lewin's GENES has long been the essential resource for providing the teaching community with the most modern presentation to this dynamic area of study. GENES XII continues this tradition by introducing the most current data from the field, covering gene structure, sequencing, organization, and expression. It has enlisted a wealth of subject-matter experts, from top institutions, to provide content updates and revisions in

their individual areas of study. A reorganized chapter presentation provides a clear, more student-friendly introduction to course material than ever before. - Updated content throughout to keep pace with this fast-paced field. - Reorganized chapter presentation provides a clear, student-friendly introduction to course material. - Expanded coverage describing the connection between replication and the cell cycle is included, and presents eukaryotes as well as prokaryotes.

### **ATTENDANCE:**

Students are expected to attend all lectures **AND BE ON TIME!** If you are perpetually late to this class it may result in the loss of points. Excuses should be prior to class in order to be accepted. (You can contact lecturers by email)

### **EXAMS:**

There will be three lecture exams.

### **SYLLABUS**

Feb.	23	CR Chang	Chap 7, 8, 17, 18, 24, 26, 27 and 28
Mar.	1		
	8		
	15		
	22		
Apr.	29	JL Lee	Chap 9, 10, 11, 12, 13, 14, 15 and 16 4/5 兒童節補假 (放假)
	5		
	12		
	19		
	26		
May	3		5/3 Second Exam
	10	CC Wang	Chap 19, 20, 21, 22, 23, 25, 29 and 30
	17		
	24		
Jun.	31		
	7		

### 生成式人工智慧倫理聲明

基於透明與負責任的原則，本課程鼓勵學生利用 AI 進行協作或互學，以提升本門課產出品質。根據本校公布之「大學教育場域 AI 協作、共學與素養培養指引」，本門課程採取有條件開放，說明如下

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Advanced Molecular Biology

學生須於課堂作業或報告中的「標題頁註腳」或「引用文獻後」簡要說明如何使用生成式 AI 進行議題發想、文句潤飾或結構參考等使用方式。若經查核使用卻無在作業或報告中標明，教師、學校或相關單位有權重新針對作業或報告重新評分或不予計分。