

# 國立中正大學課程大綱

## National Chung Cheng University Syllabus

課號 course code	2605237	全英文授課 EMI	<input type="checkbox"/> 是 <input checked="" type="checkbox"/> 否
課程類別 course type	<input type="checkbox"/> 人文關懷課程 <input type="checkbox"/> 專題導向課程 <input type="checkbox"/> 實習	<input type="checkbox"/> 競賽專題課程 <input type="checkbox"/> 總整課程 <input checked="" type="checkbox"/> 其他	<input type="checkbox"/> 問題導向課程 <input type="checkbox"/> 實作課程
課程名稱 ( 中文 ) Chinese course name	生化分子		
課程名稱 ( 英文 ) English course name	Biomolecules		
學年/學期 academic year /semester	Spring 2026	學分 credits	3
學系 ( 所 ) department	Chemistry and Biochemistry	必選修 required/selected	<input type="checkbox"/> 必修 <input checked="" type="checkbox"/> 選修
上課時間 class hours	Tuesday, 09:10AM - 12:00noon	上課地點 classroom	化生館 502 教室
教師 instructor	朱延和	教師 email Instructor's email	cheyhc@ccu.edu.tw
助教 teaching assistant		助教 email TA's email	
先修科目或 先備能力 prerequisites	<p><i>Undergraduate Organic chemistry and/or Biochemistry</i> with pass grades are the prerequisite for this course. A firm understanding of organic chemistry and biochemistry discussed in those courses is expected and needed to understand the topics discussed in this advanced course.</p>		
課程概述 course descriptions	Protein biotechnology; bacterial quorum sensing; antibiotics and their mechanisms of action.		
學習目標 learning objectives	1. A firm introduction and discussion on Protein biotechnology; 2. An introduction and discussion on bacterial quorum sensing; 3. An introduction and discussion on antibiotics and their mechanisms of action.		
教科書及參考書 textbooks and references	<p>Latest papers on subjects of biomolecules from professional journals.</p> <p>Biochemistry, 5<sup>th</sup> ed., J. M. Berg, J. L. Tymoczko, L. Stryer, W. H. Freeman and Company, New York, New York, 2002.</p> <p>Antibiotics: Actions, Origins, Resistance by C. T. Walsh; ASM Press, Washington, D.C., 2003.</p>		
教學要點概述			

教材編選 teaching materials	<input checked="" type="checkbox"/> 自製簡報(ppt) <input type="checkbox"/> 教學程式	<input type="checkbox"/> 課程講義 <input type="checkbox"/> 自製教學影片	<input type="checkbox"/> 自編教科書 <input type="checkbox"/> 其他
教學方法 teaching methods	<input checked="" type="checkbox"/> 講述 <input checked="" type="checkbox"/> 個案研究	<input type="checkbox"/> 小組討論 <input type="checkbox"/> 其他	<input checked="" type="checkbox"/> 學生口頭報告 <input checked="" type="checkbox"/> 問題導向學習
評量工具 Evaluation tools	<input type="checkbox"/> 期中考 <input type="checkbox"/> 課後作業 <input type="checkbox"/> 評量尺規	<input type="checkbox"/> 期末考 <input type="checkbox"/> 期中報告 <input checked="" type="checkbox"/> 其他	<input type="checkbox"/> 隨堂測驗 <input type="checkbox"/> 期末報告 <input checked="" type="checkbox"/> 隨堂作業 <input checked="" type="checkbox"/> 專題報告
教學資源 teaching resources	<input type="checkbox"/> 課程網站	<input type="checkbox"/> 教材電子檔供下載	<input type="checkbox"/> 實習網站
教師 相關訊息 instructor's information	請尊重智慧財產權，不得非法影印教師指定之教科書籍		

**每週課程內容**  
**weekly scheduled contents**

Week 1 Protein primary structures

Week 2 Protein secondary and tertiary structures

Week 3 Protein quaternary structures

Week 4 Protein technology, an introduction

Week 5 Protein purification: salting out, dialysis (centricon), and gel filtration and ion exchange chromatography

Week 6 Protein purification: ion exchange and isoelectric focusing chromatography

Week 7 Protein purification: affinity chromatography and an introduction on gel electrophoresis

Week 8 Protein analysis: SDS-polyacrylamide gel electrophoresis

Week 9 Protein analysis: native gel electrophoresis and affinity gel electrophoresis

Week 10 Protein analysis: isoelectric focusing gel electrophoresis

Week 11 Protein analysis: two-dimensional gel electrophoresis and proteomics

Week 12 Protein analysis: an introduction on antigen and antibody

Week 13 Protein analysis: antibody technology

Week 14 An introduction on bacterial quorum sensing

Week 15 A continuous discussion of bacterial quorum sensing focused on small-molecule autoinducers

Week 16 Antibiotics: an introduction and their mechanisms of action

Week 17 Students oral presentation

Week 18 Students oral presentation

**核心能力**  
**core competencies**

核心能力 Core competency	本課程與核心能力關聯強度 Degrees of related to core competencies				
	1	2	3	4	5
專業能力 Specific competency	專業能力 1			■	
	專業能力 2			■	
	專業能力 3			■	
	專業能力 4			■	
	專業能力 5			■	
共通能力 General Competence	共通能力 1			■	
	共通能力 2			■	
	共通能力 3			■	
	共通能力 4			■	
	共通能力 5			■	

註：關聯強度以五點量表標示，1 表示沒有關聯，5 表示非常有關聯。