國立中正大學課程大綱

National Chung Cheng University Syllabus

課號 Course Code	2555137 / 2708066	**全英文授課 EMI**	**■是(Y)　□否(N)**
課程類別 Course Type	**■人文關懷課程　□競賽專題課程　■問題導向課程 □專題導向課程　□總整課程　□實作課程 □實習　□其他**		
課程名稱（中文） Course Name (zh)	生物物理化學特論		
課程名稱（英文） Course Name (en)	Biophysical Chemistry		
學年/學期 Academic Year / Semester	114/2	**學分 Credits**	3
學系（所） Department	Dept. of Biomedical Science / STEM in Science College	**必選修 Required / Selected**	**□必修　■選修**
上課時間 Class Hours	Friday 15:10-18:00	**上課地點 Classroom**	R534 in Science building II
教師 Instructor	Cheng-I Lee Chien Liang Fang	**教師 email Instructor's email**	biocil@ccu.edu.tw
助教 Teaching Assistant		**助教 email TA's email**	
先修科目或先備能力 Prerequisites			
課程概述 Course Descriptions	Exploring biological topics through physical and chemical methods, and some clinical applications.		
學習目標 Learning Objectives	Integrate foundational knowledge of physics and chemistry with innovative technologies to explore biological topics, fostering the ability to analyze problems and conduct scientific research.		
教科書及參考書 Textbooks and References	References 1. The Molecules of Life: Physical and Chemical Principles/ John Kuriyan, Boyana Konforti, David Wemmer (ISBN-13: 9780815341888) 2. Essentials of Chemical Biology-Structure and Dynamics of Biological Macromolecules/Andrew Miller and Julian Tanner (ISBN: 978-0-470-84531-8) 3. Physical Chemsitry for the Life Sciences/Peter Atkins and Julio dePaula (ISBN: 978-0-19-956428-6)		

教學要點概述	
教材編選 Teaching Materials	■自製簡報(ppt) ■課程講義 □自編教科書 □教學程式 □自製教學影片 □其他
教學方法 Teaching Methods	■講述 ■小組討論 ■學生口頭報告 ■問題導向學習 □個案研究 □其他
評量工具 Evaluation Tools	□期中考 □期末考 □隨堂測驗 □隨堂作業 □課後作業 ■期中報告 ■期末報告 □專題報告 □評量尺規 □其他
教學資源 Teaching Resources	■課程網站 ■教材電子檔供下載 □實習網站
教師 相關訊息 Instructor's Information	

每週課程內容 Weekly Scheduled Contents	
Week 01	Introduction & The Structure of Physical Chemistry (Lee and Fang)
Week 02	Thermodynamics of Transition; Chemical Equilibrium (Lee)
Week 03	The Kinetics of Life Processes (Lee)
Week 04	Biomolecular Structure Microscopic systems (Lee)
Week 05	Biomolecular Structure Macromolecules and Self-Assembly (Lee)
Week 06	Biochemical Spectroscopy I (Lee)
Week 07	Biochemical Spectroscopy II (Lee)
Week 08	Protein Folding and aggregation (Lee)
Week 09	Mid-term reports (Lee)
Week 10	Theory of photodynamic and photothermal therapies (Lee)
Week 11	Principles of nanomedicine (Lee)
Week 12	Clinical application of photodynamic and photothermal therapies (Fang and Lee)
Week 13	Clinical application of nanomedicine (Fang and Lee)
Week 14	Clinical application of wound healing (Fang and Lee)

Week 15	Clinical application of skin care (Fang and Lee)
Week 16	Review and discussion (Lee and Fang)
Week 17	Review and discussion (Lee and Fang)
Week 18	Final Reports (Lee)