國立東華大學

教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	奈米藥物傳遞系統			學年/學期 Academic Year/Semester	114/2
課程名稱(英文) Course Name in English	Nanoparticles as drug delivery system				
科目代碼 Course Code	BMM_D0100	系級 Department & Year	博士	開課單位 Course-Offering Department	生化暨分子醫學科學系
修別 Type	選修 Elective	學分數/時間 Credit(s)/Hour(s)	3.0/3.0		
授課教師 Instructor	/李佳洪				
先修課程 Prerequisite					

課程描述 Course Description

本課程旨在介紹奈米藥物傳遞系統之基本理論與應用原理，使學生理解奈米製劑設計概念、奈米顆粒藥物之控制釋放機制與體內傳輸行為。課程將探討不同奈米載體之特性及其在臨床藥物傳輸中的優缺點，並分析如何運用奈米科技提升藥物標靶性、降低副作用與改善治療效果。透過理論講解與實例說明，培養學生評估奈米藥物系統設計與應用潛力之能力，奠定未來從事生醫研究與藥物開發之基礎。

課程目標 Course Objectives

(1) Understand the latest nano formulations for drug delivery and the controlled release mechanisms of nanoparticle drugs.
(2) Understand the advantages and disadvantages from the clinical drug delivery and the use of nanotechnology can improve the side effects of traditional drug delivery.

	系專業能力 Basic Learning Outcomes	課程目標與系專業能力相關性 Correlation between Course Objectives and Dept.'s Education Objectives
A	具備執行生物醫學專業研究及解決問題的能力。Have the ability to conduct biomedical professional research and solve problems.	●
B	建立吸收新知、終身學習及創新應用能力。Establishing the ability to absorb new knowledge, engage in lifelong learning, and apply innovation.	●
C	具備專業領域的研究素養，並具有國際視野之科學涵養。Having expertise in the professional field of study and possessing a scientific cultivation with an international perspective.	○
D	具備計畫書與論文撰寫之能力。Possessing the ability to write project proposals and papers.	○

圖示說明Illustration ：● 高度相關 Highly correlated ○中度相關 Moderately correlated

授 課 進 度 表 Teaching Schedule & Content

週次Week	內容 Subject/Topics	備註Remarks
1	課程介紹	
2	Introduction to Nanotechnology	
3	Polymer micelles as drug carriers	
4	Lipid based nanoparticle drug delivery systems	
5	Protein & peptide based nanomaterials	

6	Bioconjugate techniques and applications	
7	Experiment I synthesis of organic nanoparticles	
8	Mesoporous silica nanoparticles for drug and gene delivery	
9	期中考試週 Midterm Exam	
10	Layered double hydroxide nanoparticles in gene and drug delivery	
11	Layered double hydroxide nanoparticles in gene and drug delivery	
12	Nanogold in cancer therapy and diagnosis	
13	Application of quantum dots based biotechnology in cancer diagnosis	
14	Experiment II: synthesis of inorganic nanoparticles	
15	Nanoparticles for oral drug delivery	
16	Nanoparticles for photodynamic therapy	
17	期末考試週 Final Exam	
18	學生自主學習	

教 學 策 略 Teaching Strategies

☐ 課堂講授 Lecture ☐ 分組討論Group Discussion ☐ 參觀實習 Field Trip

☐ 其他Miscellaneous:

教 學 創 新 自 評 Teaching Self-Evaluation

創新教學(Innovative Teaching)

☐ 問題導向學習(PBL) ☐ 團體合作學習(TBL) ☐ 解決導向學習(SBL)

☐ 翻轉教室 Flipped Classroom ☐ 磨課師 Moocs

社會責任(Social Responsibility)

☐ 在地實踐Community Practice ☐ 產學合作 Industy-Academia Cooperation

跨域合作(Transdisciplinary Projects)

☐ 跨界教學Transdisciplinary Teaching ☐ 跨院系教學Inter-collegiate Teaching

☐ 業師合授 Courses Co-taught with Industry Practitioners

其它 other: _____

學期成績計算及多元評量方式 Grading & Assessments									
配分項目 Items	配分比例 Percentage	多元評量方式 Assessments							
		測驗 會考	實作 觀察	口頭 發表	專題 研究	創作 展演	卷宗 評量	證照 檢定	其他
平時成績(含出缺席) General Performance (Attendance Record)									
期中考成績 Midterm Exam									
期末考成績 Final Exam	20%	✓							
作業成績 Homework and/or Assignments	30%				✓				
其他 Miscellaneous (出缺席與課堂表現)	50%								

評量方式補充說明
Grading & Assessments Supplemental instructions

學生出缺席情形將依實際狀況按比例折算當次出缺席成績，標準如下：
遲到：當次出缺席成績以 80% 計算（×0.8）。
請假且檢附正式證明文件者：當次出缺席成績以 60% 計算（×0.6）。
僅於學校系統完成請假登錄，但未檢附正式證明文件者：當次出缺席成績以 40% 計算（×0.4）。
違規點名（如冒名頂替、代簽到或其他不實點名行為）者，該次出席成績以零分計算。

教科書與參考書目（書名、作者、書局、代理商、說明）
Textbook & Other References (Title, Author, Publisher, Agents, Remarks, etc.)

課程教材網址(含線上教學資訊,教師個人網址請列位於本校內之網址)
Teaching Aids & Teacher's Website(Including online teaching information.
Personal website can be listed here.)

其他補充說明 (Supplemental instructions)