國立中興大學教學大綱

課程名稱 (course name)	(中)　奈米生醫檢測				
	(Eng.)　Nano Biomedical Diagnostics				
開課系所班級 (dept. & year)		**學分 (credits)**		**授課教師 (teacher)**	吳秋賢
課程類別 (course type)	□必修　☑選修	**授課語言 (language)**	中文	**開課學期 (semester)**	
課程目標 (course objectives)	(中)本課程目標將由科學和技術上詳細討論奈米科技和其在生醫上的應用使已有學術訓練但對奈米生醫科技不甚熟悉的學生能深入了解奈米生醫科技。				
	(Eng.) The scope of this course includes scientific and technological details along with detailed discussions of nanotechnology and applications in biomedicine.				
課程簡述 (course description)	(中) 本課程，我們將探討目前將奈米技術應用於生醫的研究，主要有三部分，分別為:磁性奈米粒子的製造和在生醫應用的可行性，奈米藥物的傳輸和生醫診斷技術等。每一部份我們將進一步探討目前這些技術的最新的發展。				
	(Eng.) In this course, we present the state of the art nanotechnology research purposed for applications in biomedical technologies in three subfields: fabrication of magnetic nanoparticle and their applications in biomedical; nanodrugs and drug delivery inside the body; diagnostics technologies for laboratory use. For each of these three subfields, we discuss the recent developments in research.				

先修課程(prerequisites)	
課程名稱 (course name)	與課程銜接的重要概念、原理與技能 (relation to the current course)

教學模式 (teaching methodology) 【請勾選】	講授 (teaching)	討論/報告 (discussion & report)	實驗/參訪 (exp./fab visit)	遠距/網路教學 (remote/web teaching)
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授課內容（單元名稱與內容、習作/考試進度、備註）
(course content and homework/tests schedule)

Content

1. Introduction: Nanotechnology and Biomedicine

2. ImmunoMagnetic Reduction (IMR)
   - Conventional Immunoassay
   - Fabrication of Magnetic Nanoparticles
   - Magnetically Labeled Immunoassay
   - Characterization of IMR

3. Nanotechnology and Trends in Drug Delivery Systems
   - Features of nanoparticles for Drug Delivery
   - Interaction of nanoparticle with biological system
   - Nanoparticles for drug delivery system

4. Diagnostics
   - How to improve the diagnosis of diseases
   - How to improve the treatment of disease

5. Potential Risks and Remedies

學習評量方式
(evaluation)

1. Two tests
2. report

教科書&參考書目（書名、作者、書局、代理商、說明）
(textbook & other references)

1. Nanotechnology in Biology and Medicine: Methods, Devices, and Applications by Tuan Vo-Dinh, Publisher: ELSEVIER
2. Nanotechnology in Drug Delivery Publisher: Springer; 1 edition

課程教材（教師個人網址請列在本校內之網址）
(teaching aids & teacher's website)

課程輔導時間
(office hours)