



課 綱 Course Outline
生化暨分子醫學科學系碩士班國際組

中文課程名稱 Course Name in Chinese	癌症生物學				
英文課程名稱 Course Name in English	Cancer Biology				
科目代碼 Course Code	BMM_M0210	班 別 Degree	碩士班 Master' s		
修別 Type	選修 Elective	學分數 Credit(s)	3.0	時 數 Hour(s)	3.0
先修課程 Prerequisite					
課程目標 Course Objectives					
使從事癌症相關領域研究之學生對於癌症生物學之基本學理及分子機轉，有其初步的瞭解。					
系教育目標 Dept.' s Education Objectives					
1	培養從事生命科學及生物技術之專業人才。 Cultivating professionals engaged in biochemistry and molecular medicine.				
2	培育學生具有自我學習、獨立思考與創新之能力。 Fostering students to acquire the capabilities of self-learning, independent thinking, and innovation.				
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	具備生物技術相關學科之基礎知識。 Having a fundamental understanding of subjects related to biotechnological techniques.			○	
B	具備邏輯分析與解決問題的能力。 Having the capabilities of logical analysis and problem solving.			●	
C	具備資料整合、數據分析與書面及口頭報告能力。 Having the capabilities of data integration and analysis, and the skills of written and poster presentation.			●	
D	具備終生學習的能力。 Having the capability of lifelong learning.			●	

E	溝通協調能力與團隊合作之精神，及生物醫學工作人員專業倫理。 The spirit of communication, coordination, and teamwork, as well as professional ethics for biomedical workers.	
圖示說明Illustration：● 高度相關 Highly correlated ○ 中度相關 Moderately correlated		
課程大綱 Course Outline		
<ol style="list-style-type: none"> 1. Introduction to cancer biology 2. Tumor viruses 3. Cellular oncogenes 4. Growth factor receptors/tyrosine kinases/G-protein receptors 5. Cytoplasmic signaling in cancers: 6. Tumor suppressor genes 7. pRb and cell cycle regulation 8. p53 and apoptosis 9. Cell immortalization and tumorigenesis 10. Multi-hit tumorigenesis 11. Differentiation vs cancer; cancer stem cells 12. Microenvironment: blood supply (Angiogenesis) and other cells 13. Metastasis 14. Tumor immunology 15. Targeted therapeutics 		
資源需求評估（師資專長之聘任、儀器設備的配合．．．等） Resources Required (e.g. qualifications and expertise, instrument and equipment, etc.)		
現有合宜專任師資；購置與訂閱癌症生物學相關圖書及期刊，提供數位資訊講桌、單槍投影機等教學輔具。		
課程要求和教學方式之建議 Course Requirements and Suggested Teaching Methods		
其他 Miscellaneous		