



課 綱 Course Outline  
生命科學系學士班

中文課程名稱 Course Name in Chinese	癌症生物學概論				
英文課程名稱 Course Name in English	Introduction of Cancer Biology				
科目代碼 Course Code	LF__33480	班 別 Degree	學士班 Bachelor' s		
修別 Type	學 程 Program	學分數 Credit(s)	3.0	時 數 Hour(s)	3.0
先修課程 Prerequisite					
課程目標 Course Objectives					
教導學生癌症生物學之基礎知識，通過基因突變、信號轉導和治療，介紹在幾個模型系統中對正常和異常細胞生長的控制。讓學生對癌症的產生、轉移、治療有進一步的了解。					
系教育目標 Dept.' s Education Objectives					
1	培養從事生命科學相關領域之人才 Cultivating talents engaged in life science				
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	具備生命科學相關學科之基礎知識 Having the basic knowledge of life science.			●	
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之能力 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.				
圖示說明Illustration : ● 高度相關 Highly correlated ○ 中度相關 Moderately correlated					
課程大綱					

## Course Outline

1. Profile of a cancer cell
2. Viral carcinogenesis
3. Cancer-related genes: oncogenes and tumor suppressor genes
4. Tumor progression: tumorigenesis, metastasis, and cancer stem cells
5. The signaling pathways in cancer
6. Cell cycle control and cell death in cancer
7. Microenvironment: growth factors, cytokines, cell-cell and cell-matrix interactions
8. Genome stability DNA repair and replication, chromosome stability, and epigenetic
9. Chemical carcinogens
10. Cancer metabolism
11. Cancer Immunology
12. Cancer therapy and resistance, immunology and cancer immunotherapy

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

本課程除主題講授外，適時進行癌症生物學領域代表性新發表期刊、學術論文之選讀與討論。

其他

Miscellaneous

Textbooks: The Biology of Cancer 2nd Edition. ISBN-13: 978-0815345299