



教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	高階細胞培養技術	學年/學期 Academic Year/Semester	112/2
課程名稱(英文) Course Name in English	Cell Culture Application		
科目代碼 Course Code	MBT_56480	系級 Department & Year	碩士 Course-Offering Department
開課單位 Department	海洋生物研究所		
修別 Type	選修 Elective	學分數/時間 Credit(s)/Hour(s)	3.0/3.0
授課教師 Instructor	/呂美津		
先修課程 Prerequisite			
課程描述 Course Description			
<p>本課程是學生認識細胞培養方法及基本細胞實驗技巧，最後冷凍保存細胞，這些基本細胞實驗為研究天然物活性最基本之技術，更深入開設具有活性主題連貫性之課程，培育具備專業知識與紮實實作能力之生物科技人才，為十分重要的課程。</p>			
課程目標 Course Objectives			
<p>本課程是學生認識細胞培養方法及細胞實驗技巧，基本細胞實驗為研究天然物活性最基本之技術，更深入開設具有活性主題連貫性之課程，培育具備專業知識與紮實實作能力之生物科技人才。</p>			
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	Cell fates-Cells develop phenotypes that are determined by organized and regulated molecular processes and diverse fates including proliferation, differentiation, and apoptosis.		
2	Cell cycle regulatory cascades-The regulation of cell number is of major importance to both unicellular and multicellular organisms.		
3	Cell cycle inhibitory proteins-Studies on cell cycle control focus on the progression of cells through G1 into S phase. A particular group of proteins with important role controlling the decision of cells to exit the cell cycle are CDK-inhibitory proteins.		
4	Architectural organization of the regulatory machinery for transcription, replication, and repair: dynamic temporal-spatial parameters of cell cycle control-The process focuses on the accruing insights into nuclear architecture and cytoarchitecture and their contributions to the subcellular localization and activity of the regulatory machinery for replication, transcription and repair.		
5	Membrane receptors and signal transduction pathways in G1 The G1 phase of cell cycle is to regulate the passage of cell into and through G1-		
6	Onset of DNA synthesis and S phase-The identification and characterization of cyclins and CDKs are associated with entry into and progression through S phase.		
7	Chromatin remodeling and cancer-Misregulation of many of the chromatin remodeling enzymes has been associated with defects in cellular proliferation and tumorigenesis.		

8	Apoptosis signaling in normal and cancer cells-Understanding the molecular events that contribute to drug-induced apoptosis, and how tumors evade apoptotic death, provides a paradigm to explain the relationship between cancer genetics and treatment sensitivity and should enable a more rational approach to anticancer drug design and therapy.	
9	期中考試週 Midterm Exam	
10	Apoptosis signaling in normal and cancer cells-Understanding the molecular events that contribute to drug-induced apoptosis, and how tumors evade apoptotic death, provides a paradigm to explain the relationship between cancer genetics and treatment sensitivity and should enable a more rational approach to anticancer drug design and therapy.	
11	Mutagenesis, mutation, and repair-The process focus on the major DNA repair and maintenance pathways and their relevance to cancer.	
12	Oncogenesis-Oncogenesis is used to include any gene whose expression is associated with enhanced growth of tumor cells.	
13	Autophagosome and phagosome-Autophagy and phagocytosis are evolutionarily ancient processes functioning in capture and digestion of material found in the cellular interior and exterior, respectively.	
14	Fine structure of autophagosome-Detailed introductions are given for the preparation of cells for conventional electron microscopy and for the identification of autophagic vacuoles by morphology.	
15	Methods for assessing apoptotic cell death-The methods to assess the promotion and inhibition of apoptotic cell death via pharmacological and genetic manipulations.	
16	Methods for assessing autophagy and autiphagic cell death-The methods to assess the promotion and inhibition of autophagic cell death via pharmacological and genetic manipulations.	
17	Methods for assessing autophagy and autiphagic cell death-The methods to assess the promotion and inhibition of autophagic cell death via pharmacological and genetic manipulations.	
18	期末考試週 Final Exam	

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 Industry-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 General Performance	20%		✓						
期中考成績 Midterm Exam	30%		✓						
期末考成績 Final Exam	30%			✓					
作業成績 Homework and/or Assignments	20%		✓						
其他 Miscellaneous (_____)									

評量方式補充說明

Grading & Assessments Supplemental instructions

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.)

Cell Cycle and Growth: Biomolecular regulation and cancer, Edited by Gary S. Stein and Arthur B. Pardee. A John Willy&Sons., Publication

Apoptosis, Edited by Lawrence M. Schwarts and Jonathan D. Ashwell. Academic press.

Autophagosome and Phagosome, Edited by Vojo Deretic. Humana press.

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)