國立東華大學

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	113/2
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	開課單位 Course-Offering 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

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。

課程目標 Course Objectives

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 cylcins and CDKs are associated with entry into and progression through S phase.	
7	Chromatin remodeling and cancer-Misregulation of many of the cromatin 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	Oncogenessis-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 bymorphology.	
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 autophgic 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 autophgic 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 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 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)