



課 綱 Course Outline

海洋生物研究所碩士班生物多樣性及演化組

中文課程名稱 Course Name in Chinese		低溫生物學			
英文課程名稱 Course Name in English		Cryobiology			
科目代碼 Course Code		MBT_55600	班 別 Degree	碩士班 Master' s	
修別 Type		選修 Elective	學分數 Credit(s)	2.0	時 數 Hour(s) 2.0
先修課程 Prerequisite					
課程目標 Course Objectives					
本課程授課目標在於建立學生對於低溫生物學基礎知識的認識，進而瞭解相關低溫環境對於生物系統的反應及影響。					
系教育目標 Dept.'s Education Objectives					
1	研究具有本土特色與國際競爭優勢的海洋生物多樣性及演化課題 Studying the topics of marine biodiversity and evolution with both local and international significance.				
2	培養具備海洋生物多樣性知識與研發能力以及國際觀的專業人才 Training professionals with knowledge, research capability, and global perspective in marine biodiversity.				
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	培養海洋生物多樣性及演化的認知及專業能力。 Professional knowledge and skills in marine biodiversity and evolution research.				
B	具備海洋生態保育及環境保護的概念。 Concepts of conservation of marine ecology and environment.				
C	具備獨立思考邏輯思辨及問題解決能力。 Capability of thinking independently and logically and solving problems.				
圖示說明Illustration：● 高度相關 Highly correlated ○ 中度相關 Moderately correlated					
課程大綱 Course Outline					

1 Introduction of cryobiology 2 Chilling injury 3 Freezing injury 4 Cryoprotective agents 5 Permeability 6 Controlled slow freezing 7 Vitrification 8 Freeze-drying 10 Applications of cryopreservation 11 Current status of sperm cryopreservation 12 Current status of oocyte cryopreservation 13 Current status of embryo cryopreservation 14 Current status of cell and tissue cryopreservation 15 The effect of cryopreservation on genome (I) 16 The effect of cryopreservation on genome (II) 17 The effect of cryopreservation on genome (III)
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.)
課程要求和教學方式之建議 Course Requirements and Suggested Teaching Methods
其他 Miscellaneous