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國立東華大學

課　　綱　Course Outline

海洋生物研究所碩士班生物科技組

中文課程名稱 Course Name in Chinese	生物技術原理與應用				
英文課程名稱 Course Name in English	Principle and Application of Biotechnology				
科目代碼 Course Code	MBT_56750	班 別 Degree	碩士班 Master’s		
修別 Type	必修 Required	學分數 Credit(s)	3.0	時 數 Hour(s)	3.0
先修課程 Prerequisite					

課程目標
Course Objectives

讓就讀海洋生物研究所生物科技組的學生得以認識了解生物技術相關的實驗原理與儀器操作，並進一步讓學生熟悉如何運用這些現代化生物科技的實驗技術與儀器，來討探海洋生物學的基礎與應用研究。藉由此課程可讓學生學習到海洋生物學的基礎知識、實驗操作原理，更可培育出學生的獨立操作與獨立執行研究之能力。

系教育目標
Dept.’s Education Objectives

1	培育海洋生命科學領域之研究人才 Nurture an international outlook of marine biotechnology research talent.
2	培養基礎理論與應用研究兼備之人才 Cultivation of biotechnology industry specific skills and research talent.
3	培養具國際觀之海洋生物科技研究人才 Cultivation of marine life sciences research talent.
4	培養生物科技產業所需之技術或研究人才 Basic training in both theory and applied research talent.
5	培養團隊合作能力之研究人才 Develop teamwork skills of research talent.

	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	具備海洋生命科學的基礎知識 Basic knowledge of marine life science is needed.	
B	具備獨立、創新及執行研究的能力 Independent innovation and the research ability are needed.	

C	具備邏輯思考、問題分析與問題解決的能力 Logical thinking, problem analysis and problem-solving abilities are needed.	
D	具備領導、溝通協調與團隊合作的能力 Good team communication, coordination and leadership skills are needed.	
E	具備國際視野以及外語溝通的能力 International vision and ability to communicate in foreign languages.	
F	善用資訊科技進行資訊蒐集、資料分析與統整 Use of information technology for information collection, analysis and integration.	
G	對於學術倫理及專業倫理有正確的認知與堅持 For professional ethics and academic responsibility have a correct understanding and persistence.	

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
2. Pure Water System and Water Quality Assessment
3. Flow Cytometry
4. Real-time PCR
5. Optical Microscopy
6. Fluorescent Microscopy
7. Electron Microscopy
8. Lipid Extraction and Content Analysis
9. Western Blotting
10. Midterm Seminar
11. 2D Gel Electrophoresis
12. Cryogenic Equipment and Analyzer
13. Fermentor and Natural Products
14. High-performance Liquid Chromatography
15. Nuclear Magnetic Resonance Spectroscopy
16. Evaluation of Natural Products for Commercial Application
17. Overall Review and Discussion
18. Final Report

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