



# 課 綱 Course Outline

## 自然資源與環境學系博士班

中文課程名稱 Course Name in Chinese	魚類生態學				
英文課程名稱 Course Name in English	Fish Ecology				
科目代碼 Course Code	NRESM0460	班 別 Degree	博士班 Ph. D.		
修別 Type	選修 Elective	學分數 Credit(s)	3.0	時 數 Hour(s)	3.0
先修課程 Prerequisite					
課程目標 Course Objectives					
The purpose of this course is to introduce the ecology of fishes by describing the inter-relationships between fishes and the aquatic habitats they occupy. Students in the course can build up a picture of the ecology of fishes living in various habitats, including lakes, rivers, coastal waters, and oceans.					
系教育目標 Dept.'s Education Objectives					
1	培養兼具國際視野與本土關懷的學生 To develop students who care about local issues and have an international perspective				
2	培養具備自然科學與社會科學知識的人才 To educate students to have knowledge of both the natural and social sciences				
3	培養具備環境倫理與人文素養的環境公民 To teach students to be environmental citizens (i.e., knowledgeable about environmental ethics and human issues)				
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	具備自然科學與社會科學的研究能力，並了解各種研究典範所蘊含的哲學基礎與世界觀 To prepare the students with the ability to understand the natural and social science theories and paradigms				
B	具備環境倫理與整全的生態哲思，並有能力轉化為思想論述與社會實踐 To instill comprehensive consideration of environmental ethics, ecological principles and social practice				

C	具備跨領域知識之整合能力，並能運用多元的策略落實於社會改革，以解決本土與全球的環境問題 To implement sustainable lifestyles based on environmental ethics and ecological principles	
D	能整合生態及社會文化的觀點，以獨立或團體動力方式評估環境議題，澄清相關的價值觀，並提出解決方案 To implement ecological and social perspectives as an individual or in groups to evaluate, clarify, and provide solutions for relevant environmental issues	
E	具備在大學、政府、企業、第三部門或研究機構進行研究、教學、與社會關懷的能力 The ability to do research, teach and encourage social concern in universities, governments, companies, NGO' s or institutes	

圖示說明Illustration：● 高度相關 Highly correlated ○ 中度相關 Moderately correlated

### 課程大綱 Course Outline

Understanding of fish ecology requires an awareness of the relationships between fishes and their environment. Fishes live in an aquatic world that is unfamiliar to human-being. Although we may make brief visits to the aquatic world using a snorkel, scuba or even more advanced diving equipment, we can never become a part of it. This course is designed for advanced students. It is assumed that the student will be familiar with the basic biology of fishes. This course covers the main themes of ecology, including habitat use, species interactions, migration, feeding, population dynamics, and reproduction in relation to the major habitats occupied by fishes. In addition, the course introduces applications of fish ecology, particularly the effects of human activities on the distribution and abundance of species of interest. At the end of this course, common statistical methods used in fish ecology are introduced, so that the student can apply to collect and analyze ecological data of fish for field researches.

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

Lecture  
Group Discussion  
Field Trip

### 其他 Miscellaneous

■ General Performance: 30%  
■ Final Report: 20%  
■ Homework and/or Assignments: 50%

Textbook & Other References (Title, Author, Publisher, Agents, Remarks, etc.)

Wootton, R. J. (1992) Fish Ecology. Chapman and Hall, New York. 212 pp.  
Wootton, R. J. (1990) Ecology of Teleost Fishes. Chapman and Hall, New York. 404 pp.  
Diana, J. M. (1995) Biology and Ecology of Fishes. Cooper Publishing Group LLC, Carmel, IN. 441 pp.  
Underwood, A. J. (1997) Experiments in ecology: their logical design and

interpretation using analysis of variance. Cambridge University Press, UK. 504 pp.  
Montgomery, D. C. (1997) Design and analysis of experiments. John Wiley & Sons, USA.  
704 pp.