



## 課 綱 Course Outline

### 自然資源與環境學系碩士班

中文課程名稱 Course Name in Chinese	孢粉與環境				
英文課程名稱 Course Name in English	Pollen Diversity and Environmental Studies				
科目代碼 Course Code	NRES53810	班 別 Degree	碩士班 Master' s		
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					
學習孢粉形態之觀察、描述與鑑定，比較孢粉之調查採樣方法及資料之蒐集整理與分析，研討花粉出現種類數量與環境氣候變化之關係。					
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	能覺知多元的自然科學與社會科學理論並具備研究能力 To have knowledge of natural and social science theories			●	
B	具備自然資源與人類社會議題之調查分析、規劃與經營之能力 To be able to investigate, analyze, plan, and manage both natural resource and human social issues			●	
C	具備將環境倫理與生態思想落實於永續性生活型態的能力 To implement sustainable lifestyles based on environmental ethics and ecological principles			○	

D	能以整全式的觀點來解析環境問題，並具備發展系統性解決方案的能力 To resolve environmental issues and develop systematic solutions with a global perspective	○
E	具備系統分析、未來思考、溝通協調與團隊合作的能力 The ability to analyze, plan, communicate, and coordinate with others (teamwork)	○
F	具備終身學習、國際視野與外語溝通的能力 To instill the values of lifelong learning, an international perspective, and the ability to communicate in a foreign language	○

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

課程大綱  
Course Outline

1. 孢粉觀察材料之製備
2. 現生孢粉形態之觀察、測量與描述
3. 孢粉之鑑定
4. 植物花粉壁之構造功能與演化
5. 孢粉之調查採樣方法及資料之蒐集整理與分析
6. 空中孢粉與現代環境之研究
7. 地下孢粉與古環境之研究

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.)

- 1、孢粉蒐集與玻片製備之儀器及藥品材料
- 2、孢粉觀察用之光學(或電子)顯微鏡

課程要求和教學方式之建議  
Course Requirements and Suggested Teaching Methods

講述、分組報告、討論、花粉片之製備、觀察及實作

其他  
Miscellaneous

1. 黃增泉。1982。孢粉學大觀。國立編譯館。臺北市。
2. Huang, T.-C. 1972. Pollen Flora of Taiwan. 1st ed. Botany Dept. Nat. Taiwan Univ., Taipei, Taiwan, ROC. 297 pp. 177 pls., 10 test-figs.
3. Huang, T.-C. 1981. Spore Flora of Taiwan. 1st ed. Botany Dept. Nat. Taiwan Univ., 111 pp. 120 pls., 12 test-figs. Taipei, Taiwan, ROC.
4. Punt, W., P. P. Hoen, S. Blackmore, S. Nilson and A. Le Thomas. 2007. Glossary of pollen and spore terminology. Review of Palaeobotany and Palynology 143: 1-81.