



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	空間分析專題				
英文課程名稱 Course Name in English	Advanced Spatial Analysis				
科目代碼 Course Code	NRES53400	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	地理資訊科學				
課程目標 Course Objectives					
本課程介紹如何使用地理資訊系統，對時間或空間的資訊，進行量化之型態判識、變化趨勢、或模擬等分析研究方法。					
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

從一維的傳統統計到二維的空間統計
屬性資料描述器
向量式資料的空間分析
點資料分析模式與形態描述
線資料分析模式與形態描述
面資料分析模式與形態描述
網格式資料的空間分析
視覺性分析
非線性模式空間資料探勘與知識探索

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.)

GIS專用教室

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

本課程配合理論與應用軟體實務，介紹GIS常用的空間統計與量化研究方法。

其他
Miscellaneous

教科書

Lee, J. and Wong D. W. S. 2005 Statistical Analysis of Geographic Information With ArcView GIS and ArcGIS John Wiley & Son
Rogerson, P. A. 2001 Statistical Methods for Geography, Sage
Clark, I. and Harper, W. V. 2001 Practical Geostatistics, Ecosse North America Llc
Morain, S. (ed.) 1999 GIS Solutions in Natural Resource Management—Balancing the Technical-Political Equation, OnWord Press
Lowell K. and Jatton, A. (ed.) 1999 Spatal Accuracy Assessment: Land Information Uncertainty in Natural Resources, Sleeping Bear Press
Sally, R. 2006 GIS for Environmental Management, ESRI