



課 綱 Course Outline  
自然資源與環境學系學士班

|  |   |                  |                    |  |     |
|--|---|------------------|--------------------|--|-----|
| 中文課程名稱<br>Course Name in Chinese                     | 空間分析  |                  |                    |  |     |
| 英文課程名稱<br>Course Name in English                     | Spatial Analysis  |                  |                    |  |     |
| 科目代碼<br>Course Code                                  | NRES30170   | 班 別<br>Degree    | 學士班<br>Bachelor' s |  |     |
| 修別<br>Type   | 學程<br>Program   | 學分數<br>Credit(s) | 3.0                | 時 數<br>Hour(s)   | 3.0 |
| 先修課程<br>Prerequisite                                 | 地理資訊系統概論  |                  |                    |  |     |
| 課程目標<br>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<br>Dept.' s Education Objectives               |   |                  |                    |  |     |
| 1  | 培養兼具國際視野與本土關懷的學生<br>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<br>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<br>To teach students to be environmental citizens (i.e., knowledgeable about environmental ethics and human issues)              |                  |                    |  |     |
| 系專業能力<br>Basic Learning Outcomes                     |   |                  |                    | 課程目標與系專業能力相關性<br>Correlation between Course Objectives and Dept.' s Education Objectives |     |
| A  | 具備自然科學與社會科學的基礎知識<br>To be knowledgeable of fundamental theories in the natural and social sciences.   |                  |                    |  | ●   |
| B  | 具備觀察、理解、闡釋自然環境與人類社會互動及變遷關係的能力<br>To be able to observe, understand, and interpret the changing interactions of natural resources and human society. |                  |                    |  | ●   |

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|---|---|---|
| C | 具備多元資料收集策略、閱讀論文、撰寫環境報導及創意口頭報告的能力<br>To have the ability to collect data, understand scientific literature, and write and present environmentally related reports.                             | ○ |
| D | 能終身學習、對環境維持熱情、關懷、並願意做出對在地環境獻身的承諾<br>To cultivate the values of lifelong learning, to maintain enthusiasm and concern for the environment, and to develop commitment to the local environment. |   |
| E | 具備環境倫理觀、社會責任感與社會實踐力<br>To develop and implement environmental ethics and social responsibility.   |   |
| F | 具備獨立思考、溝通協調與團隊合作的能力<br>To think independently, to communicate effectively, and to cooperate with others as a team.  | ○ |
| G | 具備基本外國語文能力<br>The be able 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

資料的探索  
向量式資料的分析  
網格式資料的分析  
屬性資料的分析與描述  
點資料的分析描述  
形態的特徵  
線資料的分析描述  
形態的分析描述  
視覺化的分析

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  
Lowell K. and Jatton, A. (ed.) 1999 Spatal Accuracy Assessment: Land Information Uncertainty in Natural Resources, Sleeping Bear Press