



## 課 綱 Course Outline

### 自然資源與環境學系學士班

中文課程名稱 Course Name in Chinese	森林生態學				
英文課程名稱 Course Name in English	Forest Ecology				
科目代碼 Course Code	NRES30210	班 別 Degree	學士班 Bachelor' s		
修別 Type	學程 Program	學分數 Credit(s)	3.0	時 數 Hour(s)	3.0
先修課程 Prerequisite					
課程目標 Course Objectives					
<p>森林生態學為植物生態學中之一分科，亦是應用生態學內的一部門。它除闡明森林生態系的構造及功能外，對於農業、林業及畜牧的經營，遊樂區的設計與建造，都市與鄉鎮的美化，環境汙染的清除，以及國家整體的優美景緻等，甚是眾要。森林生態學所涉及之生物包括林內之動植物及微生物，生命現象涵蓋個體、族群與社會，同時與周遭物理環境亦有系統關係存在，其內容包羅萬象。本課將闡釋人類與森林以及林學的發展的關係、生態演替階段與過程、生物多樣性、種群和群落的生物過程、生態系統管理和景觀生態學，以及探索人類如何運用知識解決林業爭論的焦點問題。最後，透過介紹臺灣森林現況說明，瞭解森林資保育及永續經營之重要性。使學生瞭解在地球環境變遷及溫室效應日益嚴重的時代，森林所能扮演的角色，提供他們對環境生態保育的正確認知，進而激發愛護環境、珍惜地球資源之情操。</p>					
系教育目標 Dept.' s Education Objectives					
1	<p>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</p>				
2	<p>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</p>				
3	<p>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)</p>				
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	<p>具備自然科學與社會科學的基礎知識 To be knowledgeable of fundamental theories in the natural and social sciences.</p>				●

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 To be able to observe, understand, and interpret the changing interactions of natural resources and human society.	●
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 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 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 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 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 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

1. I. People and forests - (1) the problem of human population growth
2. I. People and forests - (2) development of forestry and forest ecology
3. II. Ecosystem as the basic unit of forest ecology - (1) ecology and the ecosystem concept
4. II. Ecosystem as the basic unit of forest ecology - (2) production ecology and biogeochemistry
5. III. Ecological diversity and the ecological stage - (1) the sustainable forest management and ecological role of solar radiation
6. III. Ecological diversity and the ecological stage - (2) temperature, wind, water, soil, and fire
7. IV. Biological diversity - (1) population ecology
8. IV. Biological diversity - (2) community ecology
9. IV. Biological diversity - (3) genetic and evolutionary aspects of ecosystems
10. V. Temporal diversity - (1) ecological succession
11. V. Temporal diversity - (2) understanding and emulating natural forest disturbance
12. VI. Spatial diversity - (1) ecosystem management and landscape ecology
13. VI. Spatial diversity - (2) the role of ecology in the management of the ecological play
14. VII. Application of ecological knowledge in the management of forest ecosystems - models, sustainability, and implications
15. Forest ecology in Taiwan

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.)

森林研究領域專長教師，投影機、電腦、網路、多媒體教學系統、麥克風。

#### 課程要求和教學方式之建議

#### Course Requirements and Suggested Teaching Methods

課程內容解說、多媒體教學、課堂討論、戶外教學

其他  
Miscellaneous

期中考(40%)、期末考(40%)、課堂參與及出席率(20%)

1. Kimmins, J. P. 2003. Forest Ecology (3rd edition). Benjamin Cummings, San Francisco.
2. 曹福亮編譯。2005。森林生態學。中國林業出版社，北京。