



## 教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese		生態系生態學		學年/學期 Academic Year/Semester		112/2	
課程名稱(英文) Course Name in English		Ecosystem Ecology					
科目代碼 Course Code		NRES53960	系級 Department & Year	碩士	開課單位 Course-Offering Department	自然資源與環境學系	
修別 Type		選修 Elective	學分數/時間 Credit(s)/Hour(s)		3.0/3.0		
授課教師 Instructor		/張世杰					
先修課程 Prerequisite							
課程描述 Course Description							
本課程的進行方式為依據教科書，依序授課。學生必須於課前預習，並於上課時參與討論。除了教科書，學生也必須閱讀相關科學期刊論文，於課堂上報告與討論。							
課程目標 Course Objectives							
生態系生態學基於系統的概念，探討生態系的結構與功能，以及其時空變異。課程內容將著重生態系能量、水分、以及各種營養元素的儲存與通量介紹，並以國內外重要生態系研究樣區為例，使學生瞭解研究進展。							
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							
授課進度表 Teaching Schedule & Content							
週次Week		內容 Subject/Topics				備註Remarks	
1		2024/02/19 Course Introduction					
2		2024/02/26 Ecosystem Energy Budget				Chapters 2 + 4	
3		2024/03/04 Ecosystem Soil Functions				Chapter 3	
4		2024/03/11 Paper Presentation (1): Energy, Soil					

5	2024/03/18 Ecosystem Carbon Budget (1)	Chapters 5-7
6	2024/03/25 Ecosystem Carbon Budget (2)	Chapters 5-7
7	2024/04/01 Paper Presentation (2): Carbon	
8	2024/04/08 Spring Festival, no class	
9	2024/04/15 Practice: Soil Carbon Flux Measurement	
10	2024/04/22 Ecosystem Water Budget	Chapter 4
11	2024/04/29 Paper Presentation (3): Water	
12	2024/05/06 Ecosystem Nutrient Cycling	Chapters 8 + 9
13	2024/05/013 Paper Presentation (4): Nutrient	
14	2024/05/20 Field Excursion	
15	2024/05/27 Ecosystem Modelling	
16	2024/06/03 Practice: Forest Growth Simulation by BIOME-BGC	
17	2024/06/10 Dragon Boat Festival, no class	
18	2024/06/17 General discussion by arrangement	

#### 教學策略 Teaching Strategies

- ☒ 課堂講授 Lecture
 ☒ 分組討論 Group Discussion
 ☒ 參觀實習 Field Trip
- ☐ 其他 Miscellaneous:

#### 教學創新自評 Teaching Self-Evaluation

##### 創新教學 (Innovative Teaching)

- ☐ 問題導向學習 (PBL)
 ☐ 團體合作學習 (TBL)
 ☐ 解決導向學習 (SBL)
- ☐ 翻轉教室 Flipped Classroom
 ☐ 磨課師 Moocs

##### 社會責任 (Social Responsibility)

- ☐ 在地實踐 Community Practice
 ☐ 產學合作 Industry-Academia Cooperation

##### 跨域合作 (Transdisciplinary Projects)

- ☐ 跨界教學 Transdisciplinary Teaching
 ☐ 跨院系教學 Inter-collegiate Teaching

- ☐ 業師合授 Courses Co-taught with Industry Practitioners

其它 other:

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學期成績計算及多元評量方式 Grading & Assessments									
配分項目 Items	配分比例 Percentage	多元評量方式 Assessments							
		測驗 會考	實作 觀察	口頭 發表	專題 研究	創作 展演	卷宗 評量	證照 檢定	其他
平時成績(含出席) General Performance (Attendance Record)	40%								Participation and discussion
期中考成績 Midterm Exam	0%								
期末考成績 Final Exam	0%								
作業成績 Homework and/or Assignments	40%			✓					4 times paper presentation
其他 Miscellaneous (_____)	20%		✓						Field excursion and practices
評量方式補充說明 Grading & Assessments Supplemental instructions									
教科書與參考書目(書名、作者、書局、代理商、說明) Textbook & Other References (Title, Author, Publisher, Agents, Remarks, etc.)									
Chapin, FS, Matson, PA & Vitousek, PM (2011) Principles of Terrestrial Ecosystem Ecology, Second Edition, Springer.  Relevant scientific journals from which the presentation papers should be searched: - Ecosystems: <a href="https://www.springer.com/journal/10021">https://www.springer.com/journal/10021</a> - Global Change Biology: <a href="https://onlinelibrary.wiley.com/journal/13652486">https://onlinelibrary.wiley.com/journal/13652486</a>									
課程教材網址(含線上教學資訊,教師個人網址請列位於本校內之網址) Teaching Aids & Teacher's Website(Including online teaching information. Personal website can be listed here.) 線上教學: <a href="https://meet.google.com/wer-jecy-tyh">https://meet.google.com/wer-jecy-tyh</a>									
其他補充說明 (Supplemental instructions)									