



教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	環境經濟特論			學年/學期 Academic Year/Semester	114/1
課程名稱(英文) Course Name in English	Special Topics on Environmental Economics				
科目代碼 Course Code	NRES71040	系級 Department & Year	博士	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	/李俊鴻				
先修課程 Prerequisite					
課程描述 Course Description					

Today's environmental experts have a wide range of tools at their disposal for the design and evaluation of local, state, regional, and national policies. Many of these tools were developed at Resources for the Future (RFF), and the organization's contribution to the field of environmental economics remains one of its greatest legacies. Policymakers use a variety of methods, or instruments, to achieve certain goals. RFF experts evaluate the efficiency and cost-effectiveness of those instruments, and often identify novel approaches for policy design and implementation that help balance economic and environmental impacts. Valuation is the putting of a monetary price on nonmarket factors, such as health outcomes and ecosystem services. Research by RFF experts on this topic covers both stated and revealed preference approaches and incorporates recent advances in emerging fields, such as behavioral economics. Environmental regulations can correct harmful market failures, but almost always come with a price. Policymakers often conduct benefit-cost analyses to help balance environmental goals with economic growth. Experts at RFF have produced a rich body of work on the measuring of both benefits and costs, as well evaluating how such analyses are conducted in practice.

<https://www.rff.org/environmental-economics-topics/policy-instruments-and-evaluation/>

1. Policy Design Tools

Today's environmental experts use a wide range of tools at local, state, regional, and national levels.

Many of these tools were pioneered or refined at Resources for the Future (RFF).

RFF's greatest legacy is its contribution to the field of environmental economics.

2. Policy Instruments and Evaluation

Policymakers employ a variety of instruments to achieve environmental and economic goals.

RFF experts assess the efficiency and cost-effectiveness of these instruments.

They also propose novel approaches that help balance economic development with environmental protection.

3. Valuation of Non-Market Goods

Valuation assigns a monetary value to non-market factors (e.g., health outcomes, ecosystem services).

RFF's research covers:

Stated preference methods (e.g., surveys, choice experiments).

Revealed preference methods (observed market behavior).

Behavioral economics as an emerging field shaping valuation approaches.

4. Costs, Benefits, and Trade-Offs

Environmental regulations address market failures, but they impose costs.

Policymakers use benefit-cost analysis (BCA) to weigh trade-offs between environmental goals and economic growth.

RFF contributes to:

Measuring both benefits and costs.

Evaluating how BCAs are applied in practice.

環境經濟特論主要在自然資源與環境經濟、生態經濟及非市場財貨經濟分析的基礎上，探討自然的生態系統、環境與自然資源系統和人類的經濟活動之間的相互作用與影響，並進而探究能夠維繫自然資源與環境永續、經濟效率與公平間的長期動態關係。有鑑於經濟發展與生態環境的密切關聯性，奠定了這個新近快速發展領域的研究基礎，本課程目標在於介紹此一領域之基本概念與研究課題，重要者諸如自然資源、環境、生態資源的價值、生態與環境資源的評估方法、環境價值、環境倫理、永續發展及綠色產出等。

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	具備自然科學與社會科學的研究能力，並了解各種研究典範所蘊含的哲學基礎與世界觀To prepare the students with the ability to understand the natural and social science theories and paradigms	●
B	具備環境倫理與整全的生態哲思，並有能力轉化為思想論述與社會實踐To instill comprehensive consideration of environmental ethics, ecological principles and social practice	●
C	具備跨領域知識之整合能力，並能運用多元的策略落實於社會改革，以解決本土與全球的環境問題To implement sustainable lifestyles based on environmental ethics and ecological principles	●
D	能整合生態及社會文化的觀點，以獨立或團體動力方式評估環境議題，澄清相關的價值觀，並提出解決方案To implement ecological and social perspectives as an individual or in groups to evaluate, clarify, and provide solutions for relevant environmental issues	●
E	具備在大學、政府、企業、第三部門或研究機構進行研究、教學、與社會關懷的能力The ability to do research, teach and encourage social concern in universities, governments, companies, NGO's or institutes	●

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	The Introduction Economic Evaluation on Natural Resources and Environmental Conservation 1. Why methods matter in environmental policy 2. Policy instruments: choosing the right tool for the job 3. Valuing non-market outcomes: the core toolkit 4. Pricing and evaluating the climate impacts and natural resources management 5. Bringing it together in Benefit-Cost Analysis 6. Evaluating policy performance: causal inference and ex-post learning 7. Practical design tips for analysts and policymakers 8. Concluding remarks	See Haab T. C., McConnell, K.E., 2002. "Valuing environmental and natural Resources-the econometrics of nonmarket valuation," Edward Elgar Press, Cheltenham, UK& Northampton, MA, USA
2	Principle of environmental economics Welfare Economics for Non-market Valuation (1)	
3	Welfare Economics for Non-market Valuation (2) Parametric Models for Contingent Valuation Student	Student Report and Discussion (1)
4	No Class-National Holiday	
5	No Class-National Holiday	
6	Parametric Models for Contingent Valuation	

7	Modeling the Demand for Recreation Single Site Demand Estimation	Student Report and Discussion (2)
8	Hedonic Price Equations and the Model	
9	Contingent behavior Approach (1)	
10	Contingent behavior Approach (2)	Student Report and Discussion (3)
11	New Directions in Non-market Valuation References	
12	Choice experiment (I)	
13	Choice experiment (II)	Student Report and Discussion (4)
14	Pricing and evaluating the climate impacts	
15	Bringing it together in Benefit - Cost Analysis	
16	Evaluating policy performance: causal inference and ex-post learning	Student Report and Discussion (5)
17	Practical design tips for analysts and policymakers	
18	Final report and discussions	

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:

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(含出缺席) General Performance (Attendance Record)	20%			✓	✓				
期中考成績 Midterm Exam	0%								
期末考成績 Final Exam	30%		✓	✓	✓				
作業成績 Homework and/or Assignments	50%		✓	✓	✓				
其他 Miscellaneous (_____)									
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.)									
Haab T. C., McConnell, K.E., 2002. "Valuing environmental and natural Resources-the econometrics of non-market valuation," Edward Elgar Press, Cheltenham, UK& Northampton, MA, USA https://web.p.ebscohost.com/ehost/detail/detail?vid=0&sid=ca72d822-13cc-45dc-be90-2f2ad75ea002%40redis&bdata=Jmxhbmc9emgtDHcmc210ZT1laG9zdC1saXZl									
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.)									
Providing the reading materials for the course discussions.									
其他補充說明 (Supplemental instructions)									
More interaction between students and teacher, and learn from each other.									