

國立清華大學課程大綱

科號 Course Number		學分 Credit		人數限制 Class Size	
中文名稱 Course Title	研究方法-量化研究				
英文名稱 Course English Title	Research Methods-Quantitative research				
任課教師 Instructor	姚在府 (Zai-Fu Yao)				
上課時間 Time		上課教室 Room			

課程簡述(必填) (最多 500 個中文字) 本欄位資料會上傳教育部課程網

本課程的內容概括介紹量化研究的基本學理與重要概念，希望學生在進入實務操作之前，依循科學研究的概念與邏輯，能夠建立一套量化研究的基本架構，以協助發展適切的研究系統，順利銜接後續的資料處理與分析，主要的研究方法包括了調查、測驗與實驗法。

Brief Course Description (required) (50-200 words, if possible, up to 1000 letters)

This course will cover all the stages of quantitative research: from choosing the method to be employed, through the aspects of design, conduct, and analysis, to reporting the results of the research. I expect this course provides an overview of the methods which allow students to employ in their research but concentrates on the practice of quantitative methods.

請輸入課程內容「中文暨英文關鍵字」至少 5 個，每個關鍵字至多 20 個中文，以半形逗點分隔 (必填)

Please fill in at least 5 course keywords (up to 40 letters for each keyword) and use commas to separate them.(required)

中文關鍵字: 研究問題，研究假設，研究設計，研究分析，研究結果

Keywords: Research Question, Research Hypothesis, Research Design, Research Analysis, Research Findings

課程大綱 Detailed Course Syllabus

Throughout this course, I aim to guide to prepare students for conducting high-quality research in the quantitative tradition. Highlighting the complementary nature of quantitative and qualitative research, they effectively explain the fundamental structure and purposes of design, measurement, and statistics within the framework of a research report, (including a dissertation). This course encourages the student to see quantitative methodology for what it is, a process for systematically discovering new knowledge that can help describe, explain, and predict the world around us.

● 課程說明(Course Description)

This course provides a general introduction to completing quantitative research. Taking students step-by-step through the process of conducting a quantitative research project, it provides guidelines on:

- How to formulate a research question
- Conducting literature reviews and meta-analysis
- Designing an experimental study, specifying a target population, and acquiring data
- Choosing an appropriate method and analyzing your findings

● 指定用書(Text Books)

● 參考書籍(References)

Title	Quantitative Methods in Educational Research: The Role of Numbers Made Easy <i>Quantitative Methods in Educational Research: The Role of Numbers Made Easy</i>
Author	Stephen Gorard
Edition	illustrated, reprint
Publisher	A&C Black, 2001
ISBN	0826453074, 9780826453075
Length	200 pages

Title	Beginning Quantitative Research <i>The SAGE Quantitative Research Kit</i>
Authors	Malcolm Williams , Richard Wiggins , W. Paul Vogt , Paul R. Vogt
Publisher	SAGE, 2022
ISBN	1529710774, 9781529710779

Title	Quantitative Psychological Research: The Complete Student's Companion
Author	David Clark-Carter
Edition	4, illustrated
Publisher	Routledge, 2018
ISBN	1315398133, 9781315398136

● 教學方式(Teaching Method)

In this course, the student will study quantitative and qualitative research on the methods and uses of educational measurement, evaluation, and statistics to address practical problems. This course offers a practical introduction to quantitative methods, taking a project-based approach. The lecture would be ensured that students are steered through the

process step-by-step, from developing research questions and preparing data for analysis to explaining how to present data in appropriate formats, avoid bias, and write up results and reports. Students are encouraged to follow practice analyses as they go, with examples given in R, SPSS, and Excel, and templates are provided for students' research. In addition to covering the research project, each course also covers the essential mathematical and statistical analyses that are a logical consequence of posing a quantitative research methods question. There would be group discussions on the quantitative methods of selected papers.

在本課程中，學生將學習有關教育測量、評估和統計的方法，並初步理解量化和質性研究的用途，用以解決實際問題。本課程預期以完成一個研究計劃的方式，對量化研究方法進行實用介紹。確保學生逐步完成整個過程，從提出研究問題和準備分析數據，再到如何以適當的格式呈現數據，解釋結果避免偏見，以及撰寫結果和報告。鼓勵學生隨時進行實踐分析，並提供 SPSS 和 Excel 中的範例，並提供模板供學生自己研究。除了涵蓋研究項目外，每門課程涵蓋基本的數學和統計分析，用以回答量化研究方法的問題背後的邏輯及意義。本課程就指定文章進行小組討論其量化方法。

● 教學進度(Syllabus)

週次 (Week)	課程大綱(Syllabus)	週次 (Week)	課程大綱(Syllabus)
1	導論 Course Introduction	10	統計學的基礎數學原理

			Basic Mathematics Behind the Statistics
2	研究問題到變項 From Research Question to Variables	11	資料輸入及處理 Data Entry and Data Handling
3	實證研究的基本觀念 Basic Concepts of Empirical Research	12	資料敘述及分析 Basic Concepts of Data Description and Analysis
4	文獻回顧及統合性分析 Literature Reviews and Meta- Analyses	13	選擇統計分析方法I Choosing Statistical Analysis
5	研究設計及資源取得 Research Design and Research Resources	14	選擇統計分析方法II Choosing Statistical Analysis
6	資料蒐集在教育學領域應用 Data Collection in Education	15	了解量化資料及R語言 Understanding Quantitative Data and R
7	描述性統計及資料表徵 Descriptive Statistics and Data Representation	16	資料呈現及繪製 Presentation and Illustration of Data
8	樣本及採樣 Sample and Sampling	17	量化研究報告撰寫 Writing Up Research
9	創造資料:調查及問卷導論 Creating Data: An Introduction to Surveys and Questionnaires	18	期末評論報告 Opinion essay

● 成績考核(Evaluation)

1. 小組討論(group discussion)30%: 學生經由自身研讀對討論主題有透徹的了解, 具批判性和創造性思維, 傾聽且尊重他人的意見, 學生利用他人的資訊加以討論 (不只是說出自己的觀點和知識) 。The student displays a thorough knowledge of the topic gained through research; Critical and creative thinking is evident;

The student is respectful of others and listens in turn; the student makes use of the information given by others in the discussion (does not simply speak their own opinion and knowledge).

2. 課堂表現(attendance and performance)25%: 學生課堂出席及互動、討論積極性與邏輯思辯能力。Interaction during class, active participation in discussion, and constructive criticism in a way of logic.

3. 期末評論報告(opinion essay)45%: 繳交一篇針對社會科學領域的最新研究(一年內發表)進行評論。一篇評論觀點文章主要三個評分重點: 對所評論的研究中所涉及的主題和問題的簡短概述; 對主要發現的描述; 並簡要解釋統計分析邏輯。報告簡潔扼要1500字以內。Submit an essay to provide a scholarly review of recent studies in the social science field (publication within a year). An opinion essay should have three components: a short overview of the topic and questions addressed in the reviewed paper; a description of the key findings; and a brief explanation of why the statistical analysis is adequate. I encourage critical reviews, but comments must be accurate, well-reasoned, and diplomatic. Moreover, the focus on what was learned, and what might have been done differently is also encouraged.

Submissions must be concise and should be limited to 1,500 words.

● 可連結之網頁位址 相關網頁(Personal Website)