



教學計劃表 Syllabus

| | | | | | |
|--|--|-----------------------------|---------------------------------|--|------|
| 課程名稱(中文) Course Name in Chinese | 資料科學入門 | | 學年/學期 Academic Year/Semester | 112/1 | |
| 課程名稱(英文) Course Name in English | Introduction to Data Science | | | | |
| 科目代碼 Course Code | EC__34350 | 系級 Department & Year | 學三 | 開課單位 Course-Offering Department | 經濟學系 |
| 修別 Type | 學程 Program | 學分數/時間 Credit(s)/Hour(s) | 3.0/3.0 | | |
| 授課教師 Instructor | /李同穌 | | | | |
| 先修課程 Prerequisite | | | | | |
| 課程描述 Course Description | | | | | |
| Data Science is the study of the generalizable extraction of knowledge from data. Data scientist use those studies to make predictions and find insights from the data. In this class R is the primary tool to do the analytical works. I will introduce various methods in three major areas which are data manipulation and visualization. | | | | | |
| 課程目標 Course Objectives | | | | | |
| 這是一門資料科學入門課，提供給非理工科學生學習資料科學，因此比較強調應用面，教學生如何把複雜資料以敘述故事般讓客戶、聽眾或是觀眾容易瞭解。 | | | | | |
| 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 | 數理分析能力：應用數學與賽局理論分析與解決經濟議題的能力。Mathematical analysis skills: application of mathematical theories and game theory to analyze economic issues | | | ● | |
| B | 實證經濟分析能力：善用資訊科技進行資訊蒐集、資料統計與計量分析。Empirical analysis skills: application of statistics and econometrics in data collection and examinatio | | | ● | |
| C | 微觀經濟之闡釋能力：通曉個體經濟學相關的理論與應用。Microeconomic perspective: understanding of microeconomic theories and relevant application | | | ○ | |
| D | 宏觀經濟之闡釋能力：通曉總體經濟學相關的理論與應用。Macroeconomic perspective: understanding of macroeconomic theories and relevant application | | | ○ | |
| E | 自我調整適應社會之能力：具備適應現代社會的學養以及就業能力。Employment opportunities: capabilities of working on important policy and decision challenges in business and government | | | ○ | |
| 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 | Introduction | | | | |
| 2 | Python basics I | | | | |
| 3 | Python basics II | | | | |
| 4 | Data wrangling I | | | | |

| | | |
|----|---------------------------------------|--|
| 5 | No class, national holiday | |
| 6 | Data wrangling II | |
| 7 | MySQL: introductory | |
| 8 | MySQL I | |
| 9 | Midterm exam and project presentation | |
| 10 | MySQL II | |
| 11 | Power BI: Introductory | |
| 12 | Power BI Part I | |
| 13 | Power BI Part II | |
| 14 | Power BI Part III | |
| 15 | Power BI Part IV | |
| 16 | Power BI Part V | |
| 17 | Final exam | |
| 18 | Flexible class schedule | |

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 General Performance | 20% | | ✓ | | | | | | |
| 期中考成績 Midterm Exam | 30% | ✓ | | | | | | | |
| 期末考成績 Final Exam | 30% | ✓ | | | | | | | |
| 作業成績 Homework and/or Assignments | 20% | | ✓ | | | | | | |
| 其他 Miscellaneous (Project) | | | | | | | | | |
| 評量方式補充說明 Grading & Assessments Supplemental instructions | | | | | | | | | |
| Class etiquette: Experience indicates that students with regular attendance of class have higher grades than those who did not. Followings are basic class etiquette. No laptop computer, iPad and cellphone are allowed for use during lecture unless with special permission. Turn off your mobile phone before class. No loud chatting allowed in the class. Having food or drink in the class is not encouraged. If you are late for the class for more than 30 minutes, please do not enter the class room. If you miss more than three classes without any official excuses, your semester grade will be no more than C-, depending upon your severity of truancy. You have to take midterm and final exam, otherwise, you will fail this class. Any irrational behavior in the class will not be tolerated. Any violation of the class etiquette will be penalized by reduction in your grade. | | | | | | | | | |
| 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.) | | | | | | | | | |
| Recommended Textbook: Power BI 最強入門, 第二版, 洪錦魁, 深智出版社 圖解SQL 查詢的基礎知識 以MySQL為例, 坂下夕里 著, 許郁文 譯, 碁峰出版 MySQL新手入門超級手冊, 張益裕, 碁峰出版 | | | | | | | | | |
| Some of the teaching materials may not be in the recommended textbook, so students are required to pay attention to the lectures. | | | | | | | | | |
| Outside class readings: In addition to the recommended textbook, there are vast amount of data science materials available on the internet. | | | | | | | | | |
| 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.) | | | | | | | | | |
| 其他補充說明 (Supplemental instructions) | | | | | | | | | |