



## 教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	文字探勘		學年/學期 Academic Year/Semester	112/2
課程名稱(英文) Course Name in English	Text Mining			
科目代碼 Course Code	EC_34360	系級 Department & Year	學三	開課單位 Course-Offering Department
修別 Type	學程 Program	學分數/時間 Credit(s)/Hour(s)	3.0/3.0	
授課教師 Instructor	/林金龍			
先修課程 Prerequisite				
課程描述 Course Description				
<p>As the internet hosts an immense volume of textual information, accumulating at an astonishing pace, the extraction of valuable insights from text has become increasingly crucial. Knowledge derived from textual data plays a vital role in various domains such as marketing, finance, social behavior analysis, and economic analysis. This course aims to delve into key aspects of text mining, encompassing fundamental natural language processing techniques, document representation, text categorization and clustering, documents summarization, sentiment analysis, probabilistic topic models, text visualization, and applications in finance and economics.</p> <p>Special emphasis will be placed on applying text mining techniques in economic and financial contexts. The course will provide real-world examples to illustrate concepts and applications. For the implementation of text mining, I have chosen R as the primary software due to its accessibility, robustness, and widespread popularity in text analytics. However, recognizing the growing prominence of Python in text mining and other facets of big data analytics, I will also incorporate it as the secondary programming language. This dual-language approach ensures a comprehensive exploration of text mining tools and techniques, catering to a broader spectrum of learners.</p>				
課程目標 Course Objectives				
<p>教導學生文字探勘的基本理論與演算法，內容包含關鍵字抽取、關鍵字權重計算、文件詞彙矩陣，詞嵌入，主題模型，文件分類，文件聚類與情緒分析，學生得以用之分析財經資料。注重實際資料實作分析與文字探勘在經濟與金融方面的應用，以R為主要程式語言。</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	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 examination			●
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		
2		
3		
4		
5		
6		
7		
8		
9	期中考試週 Midterm Exam No class this week	
10	Guest speaker this week	
11		
12		
13		
14		
15		
16		
17		
18	期末考試週 Final Exam Last lecture	

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 General Performance	10%								出席與課堂討論
期中考成績 Midterm Exam									
期末考成績 Final Exam									
作業成績 Homework and/or Assignments	40%								
其他 Miscellaneous (term paper)	50%								

評量方式補充說明

Grading & Assessments Supplemental instructions

Homework, class attendance and discussion 50%, Project 50%

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.)

textbook:

Julia Silge and David Robinson(2017) TextMining with R: A Tidy Approach, 1st Edition manuscript available at <https://github.com/dgrtwo/tidy-text-mining>. Codes are available at <https://github.com/PBrad/text-mining>

Reference books:

TedKwartler(2017), TextMining in Practice with R, JohnWiley: available at <https://onlinelibrary.wiley.com/doi/book/10.1002/9781119282105>.

Github Repo available at [https://github.com/kwartler/text\\_mining](https://github.com/kwartler/text_mining)

- Benjamin Bengfort, Rebecca Bilbro and Tony Ojeda(2018), Applied Text Analysis with Python: Enabling Language-Aware Data Products with Machine Learning, O' Reilly

- Matthew L. Jockers and Rosamond Thalken (2020) Text Analysis with R: For Students of Literature (Quantitative Methods in the Humanities and Social Sciences) 2nd ed. Springer

- Sholom M. Weiss, Nitin Indurkha, and Tong Zhang (2105) Fundamentals of Predictive TextMining, 2nded. Springer.

E-book available at <http://www.springer.com/us/book/9781447125655>

- Christopher D. Manning, Prabhakar Raghavanand Hinrich Schutze(2009), Introduction to Information Retrieval, Cambridge UniversityPress, E-bok available at

<http://nlp.stanford.edu/IR-book/pdf/irbookonlinereading.pdf>.

- Sanjiv Ranjan Das(2014) Text and Context: Language Analytics in Finance, Now Publishers

- Ronen Feldman and James Sanger(2007), TheTextMining Handbook: Advanced Approaches in Analyzing Unstructured Data, Cambridge University Press.

E-book available at [http://srdas.github.io/Papers/Das\\_TextAnalyticsInFinance.pdf](http://srdas.github.io/Papers/Das_TextAnalyticsInFinance.pdf)

- Michael W. Berryand and Jacob Kogan, TextMining Applications and Theory, John Wiley 2010.

- Jiawei Han, Micheline Kamber, and Jian Pei, Data Mining: Concepts and Techniques, 3rd edition, Morgan Kaufmann Publishers, , 2012.

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)