



## 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	110/2	
課程名稱(英文) Course Name in English	Text Mining				
科目代碼 Course Code	FIN_52700	系級 Department & Year	碩士	開課單位 Course-Offering Department	財務金融學系
修別 Type	選修 Elective	學分數/時間 Credit(s)/Hour(s)	3.0/3.0		
授課教師 Instructor	/林金龍				
先修課程 Prerequisite					
課程描述 Course Description					
<p>As there exist voluminous text information over the Internet and are accumulating at an amazing speed, mining useful information from text becomes increasingly more important. Knowledge extracted from text are essential for marketing, finance, social behavior analysis and many other fields.</p> <p>This course will cover important topics in text mining including basic natural language processing techniques, document representation, text categorization and clustering, document summarization, sentiment analysis, probabilistic topic models, text visualization and financial applications.</p> <p>I shall emphasize applying text mining for financial analysis. Real examples will be provided.</p> <p>I choose R as the main software as it is free, powerful and very popular for text analytics. Yet, as Python has gained increasing popularity in text mining and in other fields of big data analytics, I shall also used it as the second programming software.</p>					
課程目標 Course Objectives					
<p>教導學生文字探勘的理論與演算法，內容包含關鍵字抽取、關鍵字權重計算、向量空間模型、二元獨立模型、貝氏分類器、Rocchio分類器、nearest neighbor、k-means分群法與階層式分群法，學生得以用之分析財經資訊。</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	具備財務金融的分析能力			○	
B	具備企業財務管理專業能力			○	
C	具備英語閱讀溝通協調等能力			●	
D	具備獨立研究之技能，以進行財金議題研究			●	
E	具備個人投資理財能力			●	
F	具備電腦程式運算及設計能力			●	
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	Overview of Text Mining (Silge and Robinson chap 1; Kwartler chap 1; Weiss, Indurkha, and Zhang chap 1; )	
2	Software for text mining: R, Python, tmsk, nktext (Silge and Robinson chap 1; Kwartler chaps 2,3;)	
3	From Textual Information to Numerical Vectors (I)	
4	From Textual Information to Numerical Vectors (II)	
5	Using Text for Prediction	
6	Information Retrieval and Text Mining	
7	Finding Structure in a Document Collection	
8	Looking for Information in Documents	
9	期中考試週 Midterm Exam	
10	Text clustering	
11	Text mining for Chinese (I)	
12	Text mining for Chinese (II)	
13	Text mining for Chinese (III)	
14	Applying text mining for financial prediction	
15	Case Studies (I)	
16	Case Studies (II)	
17	Presentation	
18	期末考試週 Final Exam	

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			✓						
期中考成績 Midterm Exam									
期末考成績 Final Exam									
作業成績 Homework and/or Assignments	50%								
其他 Miscellaneous (期末報告)	50%								

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.)

Main textbooks: Julia Silge and David Robinson (2017) Text Mining 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:

Ted Kwartler (2017), Text Mining in Practice with R, John Wiley: 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)

Sholom M. Weiss, Nitin Indurkha, and Tong Zhang (2015) Fundamentals of Predictive Text Mining, 2nd ed.

Springer. E-book available at [\url{http://www.springer.com/us/book/9781447125655}](http://www.springer.com/us/book/9781447125655)

Christopher D. Manning, Prabhakar Raghavan and Hinrich Schutze (2009), Introduction to Information Retrieval, Cambridge University Press,

E-bok available at [\url{http://nlp.stanford.edu/IR-book/pdf/irbookonlinereading.pdf}](http://nlp.stanford.edu/IR-book/pdf/irbookonlinereading.pdf).

Sanjiv Ranjan Das (2014) Text and Context: Language Analytics in Finance, Now Publishers. E-book available at

[http://srdas.github.io/Papers/Das\\_TextAnalyticsInFinance.pdf](http://srdas.github.io/Papers/Das_TextAnalyticsInFinance.pdf)

Ronen Feldman and James Sanger (2007), *The Text Mining 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. Berry and Jacob Kogan, *Text Mining 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)