國立中正大學企業管理研究所課程教學大綱
114 學年度第 2 學期

編　　號：5206213_01　　授課老師：黃正魁
科目名稱：大數據分析與管理專題研討　　研究室：管院 4563
英文譯名：Seminar on big data analysis and management
網站：https://sunfloweroil.synology.me/　　電話：34319
修別 / 學分數：選修 / 3　　E-mail：bmahck@ccu.edu.tw

這是一門結合問題邏輯思考、演算法數據分析、運用資料講故事、生成式 AI 協作、電腦套裝軟體運用，進行資訊技能、企業管理與理論結合之課程。本課程也以授課教師歷年來協助許多企業輔導、產學合作實際解決問題的經驗，所規劃出來的教學內容，且也以管理者思維所設計出來的教材(非資訊工程導向的教學)。修習完本課後，同學們將獲得邏輯思考訓練、說故事、實戰能力、動手做的一技之長，對未來職場、繼續自我學習以及人工智慧 AGI 威脅的面對將有助益。

The course corresponds to the following SDG (Sustainable Development Goals):
Goal 1: No Poverty
Goal 4: Quality Education
Goal 8: Decent Work and Economic Growth
Goal 9: Industry, Innovation and Infrastructure
Goal 10: Reduced Inequalities
Goal 12: Responsible Consumption and Production
Goal 16: Peace, Justice and Strong Institutions

Instructional objective:
Big data has emerged as a powerful force, revolutionizing the business landscape both internally and externally. The term "big data" has gained immense popularity, akin to its predecessor, cloud computing. It can trace back to 1998 when John Mashey of Silicon Graphics Inc. prominently mentioned it. In 2010, big data garnered significant attention from managers and researchers, and in 2012, The New York Times featured a column titled "The Age of Big Data," heralding the arrival of the big data era. Data originates not only from structured databases within organizations but also from unstructured sources and external datasets. The avenues for data collection extend beyond enterprises themselves and include social network platforms, Internet of Things sensors, and government open data.

As its name suggests, big data refers to datasets that exceed the processing capacity of traditional database systems. Within this vast sea of data, we can harness the potential of data analytics, empowered by data mining algorithms, artificial intelligence, ChatGPT, and visualization tools, to unveil hidden correlations, uncover patterns, and discern market trends.

In this course, students will have the opportunity to delve into the realm of big data analysis and management. They will not only acquire knowledge of data mining and statistical approaches but also develop a keen understanding of analyzing data's business significance. With the aid of artificial intelligence and ChatGPT, students will explore how to leverage big data for strategic decision-making, data-driven storytelling, and gain valuable insights that drive business success.

Course introduction with videos:

https://www.youtube.com/watch?v=saH9KV289CM

https://www.facebook.com/watch/live/?ref=watch_permalink&v=406142471542702

Syllabus:

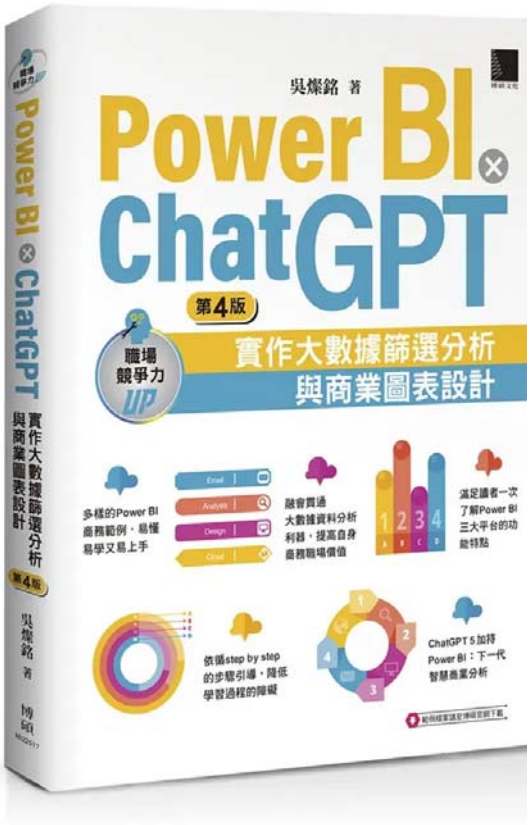
The course is going to discuss the following topics for studying big data:

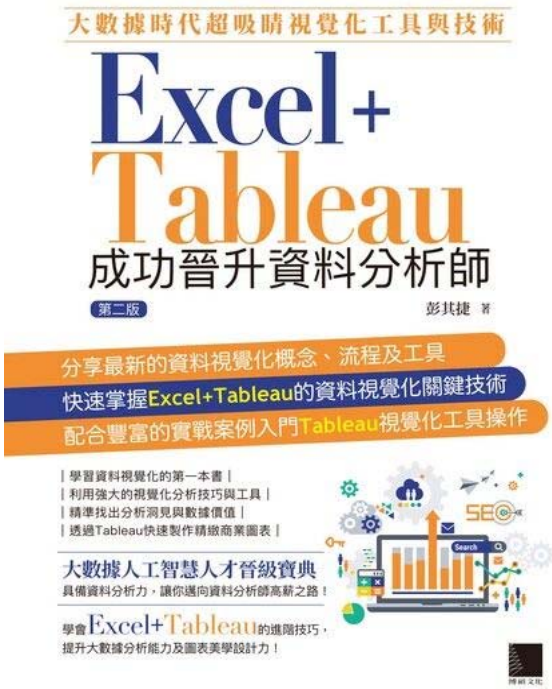
1. Introduction to big data
2. Introduction to machine learning and ChatGPT
3. Visualization from the discovery of big data
4. How to manage data from the business perspective
5. Big data analysis in practice
6. Research papers with respect to big data and business analytics
7. Practice part 1: Information demonstration with Microsoft Power BI Desktop / Excel Power BI and Tableau
8. Practice part 2: data mining algorithms and statistic approaches with SPSS Clementine:
   (1) Association rules;
   (2) Sequential patterns;
   (3) Classification;
   (4) Artificial neural network (Deep learning) (Optional);
9. In addition, the expert(s) of big data will be invited to share their big data experience on this course.
10. We are going to have capstone projects for big data with enterprise cooperation to complete two assignments: (1) presentation for the study of practical issues and (2) draft of the study of practical issues.

The grading breakdown of this course is as follows:

1. Class participation **10%**;
2. Reflection of book reading **20%** (see the list of reading books and choose one of them);
3. Reflection of BA Blink & Chat listening **10%**;
4. Oral presentation for the study of practical issues and draft **30%**;
5. Final examination with watching documentary **30%**.

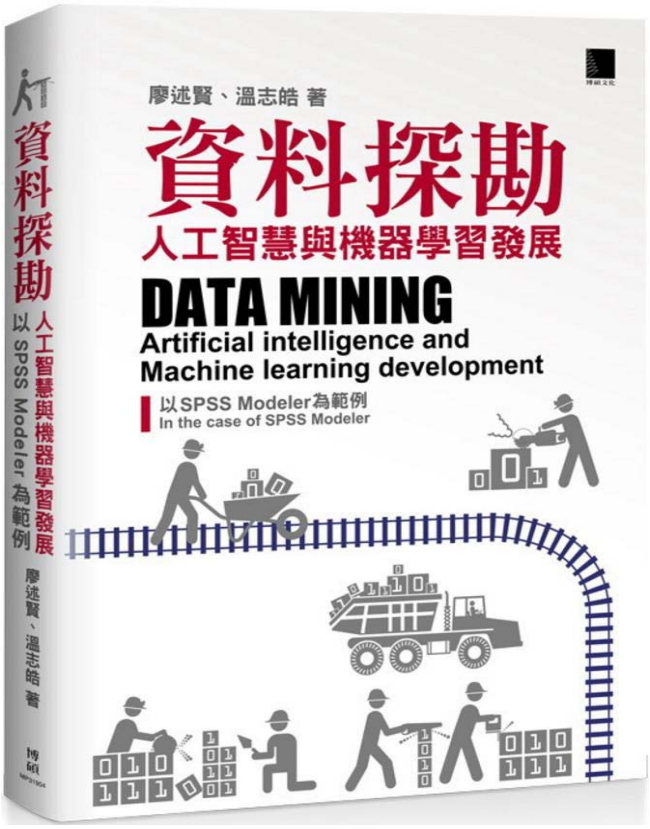
Textbooks:

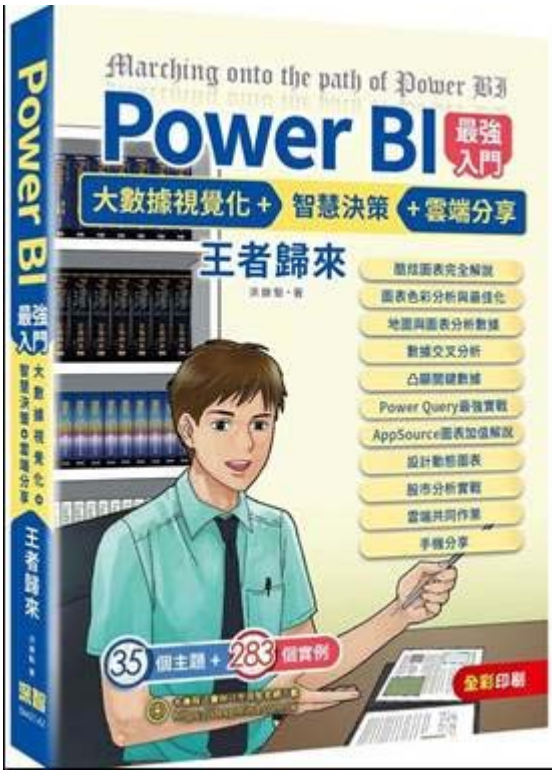




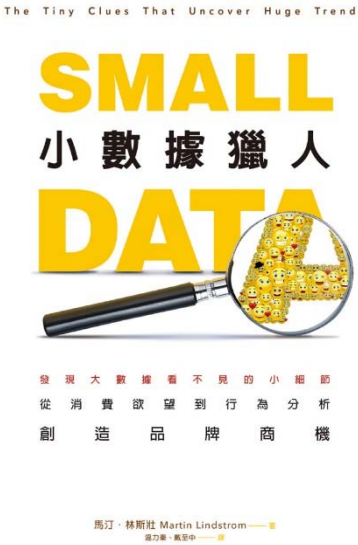
大數據時代超吸睛視覺化工具與技術：Excel+Tableau 成功晉升資料分析師(第二版)

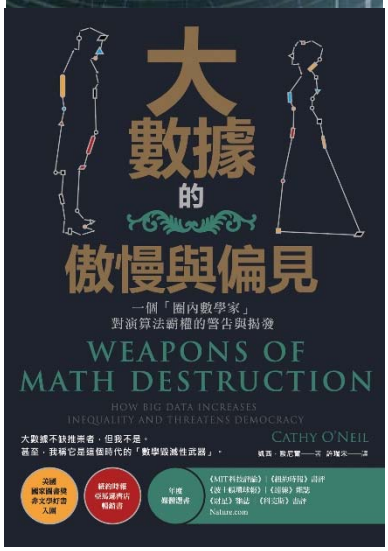
Reference Books:

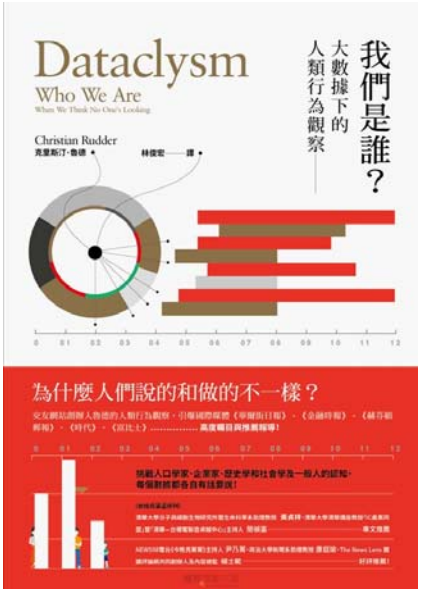


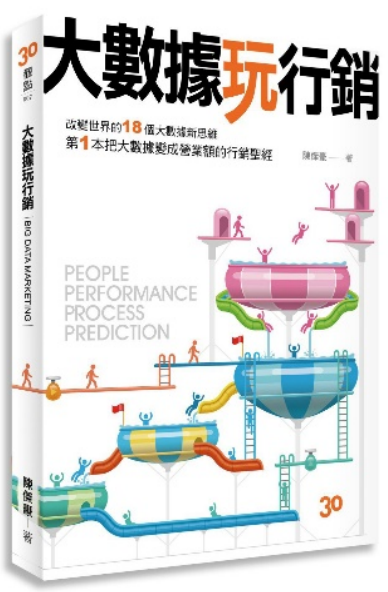


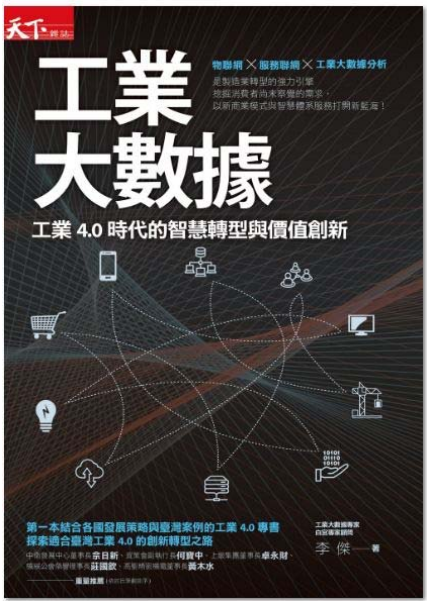
Reading books:







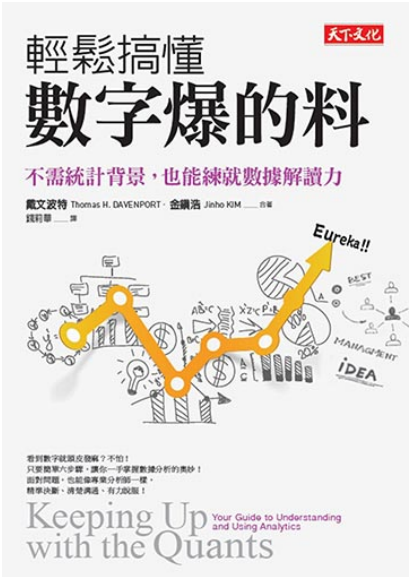

大數據玩行銷
改變世界的18個大數據奇思維
第1本把大數據變成營業額的行銷聖經
PEOPLE
PERFORMANCE
PROCESS
PREDICTION
30


工業大數據
工業 4.0 時代的智慧轉型與價值創新
物聯網×服務聯網×工業大數據分析
第一本結合各國發展策略與臺灣案例的工業 4.0 專書
探索適合臺灣工業 4.0 的創新轉型之路
李傑

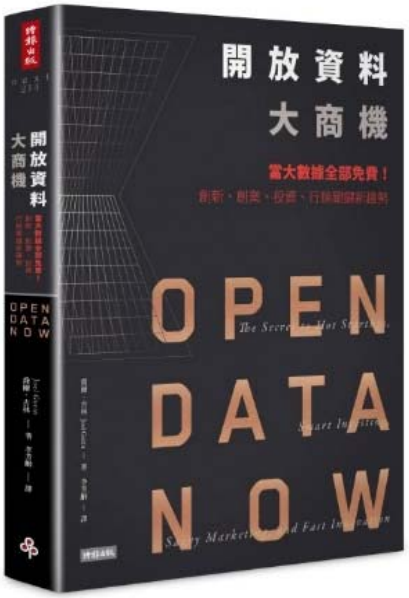

醫療大數據
Big Data and Health Analytics
Edited by
Katherine Marconi and Harold Lehmann

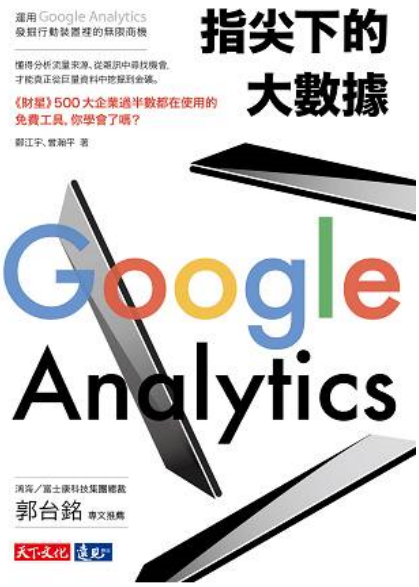

城田真琴 Makoto SHIROTA
鍾慧真、梁世英
大數據的獲利模式
圖解・案例・策略・實戰
BIG DATA
ビッグデータの衝撃
分析現狀還不夠，預測未來更重要！

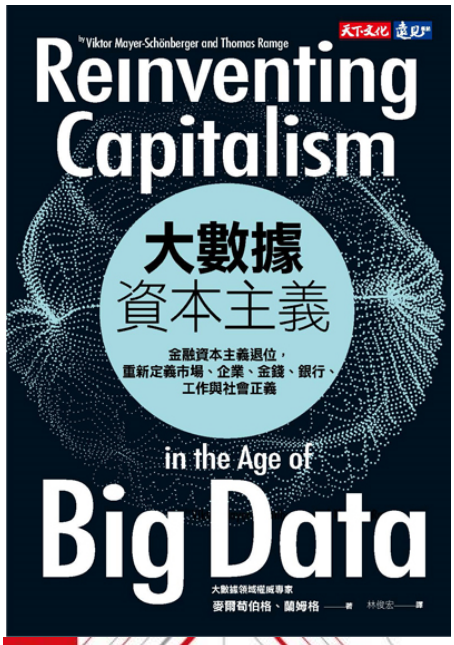

找出資料的價值、萃取可用的資訊，
就能將大數據化為商業智慧（BI）！
與其相信一個人的直覺，不如相信數千萬人的數據。
Facebook、Google、Amazon都在用的資料淘金術！
陳志仁 吳世鈺 徐子涵 楊千 詹宏志 翟本喬 劉奕成 鄭緯筌


輕鬆搞懂
數字爆的料
不需統計背景，也能練就數據解讀力
戴文波特 Thomas H. DAVENPORT・金鎮浩 Jinho KIM
Eureka!!
Keeping Up with the Quants
Your Guide to Understanding and Using Analytics


Competing on Analytics
魔鬼都在數據裡
成功獲利的秘密：檢視分析法
把紅海變藍海的世紀競爭策略

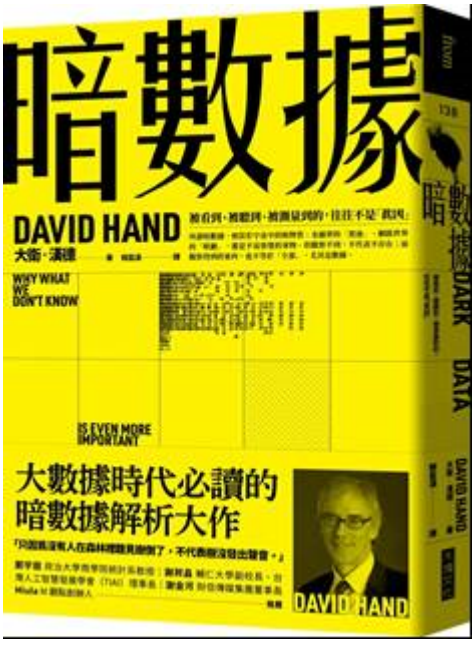

開放資料
大商機
當大數據全部免費！
OPEN
DATA
NOW


運用 Google Analytics
發掘行動裝置裡的無限商機
指尖下的
大數據
《財星》500大企業過半數都在使用的
免費工具，你學會了嗎？
Google
Analytics
郭台銘 專文推薦

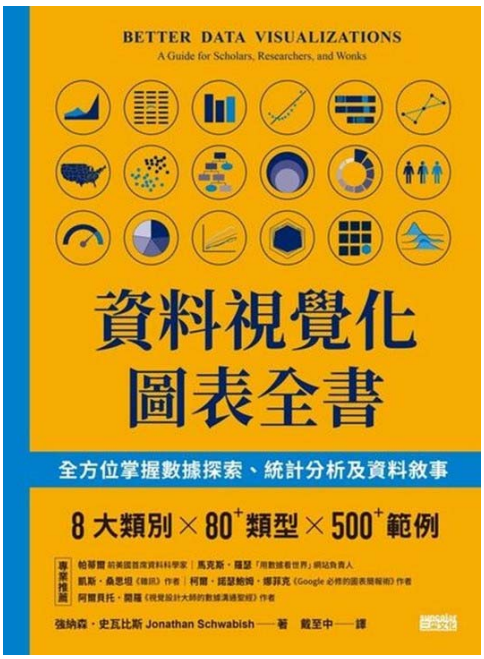

by Viktor Mayer-Schönberger and Thomas Ramge
Reinventing
Capitalism
大數據
資本主義
金融資本主義退位，
重新定義市場、企業、金錢、銀行、
工作與社會正義
in the Age of
Big Data

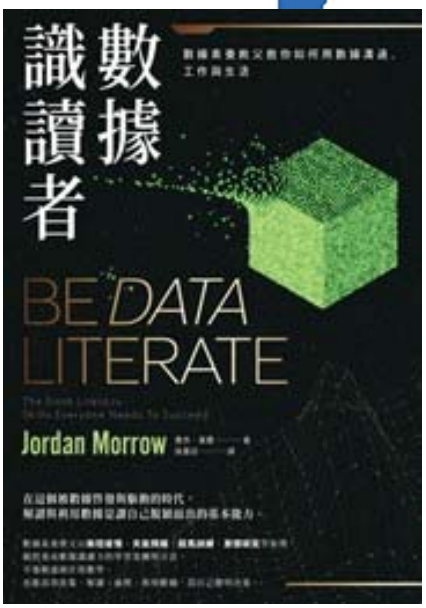

數據的
商戰策略
建立以數據驅動為核心的營運關鍵
從行動網路到5G時代，
企業欠缺的再也不是數據，
而是一套符合商業目標的大數據策略，實現數據變現。


增訂版
大數據的
關鍵思考
行動×多螢×碎片化時代的商業智慧
數據力決定競爭力！
進入數據驅動的商業世界，
「數據思考」是每個工作人的必備能力！
增訂3萬字全新內容，揭示大數據近未來的6大趨勢與5大觀戰重點

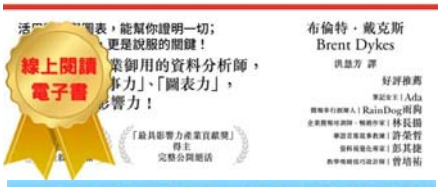

暗數據
DAVID HAND
WHY WHAT WE DON'T KNOW
IS EVEN MORE IMPORTANT
大數據時代必讀的
暗數據解析大作
DARK DATA


Fake
數據識讀是深度偽造時代最重要的思辨素養，
聰明決策不被操弄
數據的假象
Carl Bergstrom Jevin West
卡爾·伯格斯特姆，杰文·威斯特——著
高度量化時代，數字絕對更會騙人，騙更大！
CALLING BULLSHIT
THE ART OF SKEPTICISM IN A DATA-DRIVEN WORLD


BETTER DATA VISUALIZATIONS
A Guide for Scholars, Researchers, and Wonks
資料視覺化圖表全書
全方位掌握數據探索、統計分析及資料敘事
8 大類別 × 80+類型 × 500+範例
Jonathan Schwabish——著 戴至中——譯


數據讀者
BE DATA LITERATE
Jordan Morrow


資料故事時代
Effective Data Storytelling
How to Drive Change with Data, Narrative and Visuals
大數據時代的未來，
將由資料「說書人」定義！
亞馬遜、微軟等企業巨擘都在用


線上閱讀
電子書
布倫特·戴克斯
Brent Dykes


視覺設計大師的
數據溝通
聖經
在數位敘事世代，展現如實不偏的洞見
不只教你看圖表，也教你批判性思考
一書掌握圖表背後的設計與統計基礎
好的圖表設計具備的五大特質
Alberto Cairo——著
施威銘研究室 監修


大數據時代的決策思維
資料敘事的起承轉合
五南出版

CLASS SCHEDULE

(Tentative and might be adjusted depending on the course progress)

Week	Date	Lecture Topic	Text	Reading	Case
1.	02/25	Introduction to the course		My slide	
2.	03/04	(1) My course design idea of big data analysis and management is from the movie, Moneyball (Watch it to understand my reason!) (2) Introduction to the topic about how to utilize Artificial Intelligence tools (ChatGPT) to help you for finishing your jobs		Moneyball	
3.	03/11	Introduction to Microsoft Power BI Desktop (1/3)		Textbook + My slide	
4.	03/18	Introduction to Microsoft Power BI Desktop (2/3)		Textbook + My slide	
5.	03/25	Introduction to Microsoft Power BI Desktop (3/3)		Textbook + My slide	
6.	04/01	Introduction to Tableau		Textbook + My slide	
7.	04/08	No Class (校際活動週) (預計跟 04/01 第 6 週交換)			
8.	04/15	Introduction to association rules and use SPSS Clementine (1/2)		Textbook + My slide	
9.	04/22	Introduction to association rules and use SPSS Clementine (2/2)		Textbook + My slide	
10.	04/29	Introduction to sequential patterns and use SPSS Clementine (1/1)		Textbook + My slide	
11.	05/06	Introduction to classification and use SPSS Clementine (1/2)		Textbook + My slide	

12.	05/13	Introduction to classification and use SPSS Clementine (2/2)		Textbook + My slide	
13.	05/20	Pandora's Box：Big Data		My slide	
14.	05/27	(1) Logical Thinking Before Big Data (2) 禿子跟著月亮走：大數據 Metrics (KPI) 的思考哲學		My slide	
15.	06/03	Oral presentation for the study of practical issues			
16.	06/10	Oral presentation for the study of practical issues			
17.	06/17	Final examination with watching documentary			
18.	06/24	彈性上課週			

ASSURANC OF LEARNING

學習目標與目的

Learning Goal and Objective
目標 3: 研究能力-學生具進階研究能力 3.1 具進行進階研究所需之必備方法論知識 3.2 將方法論應用在主修研究領域

為配合教育部針對保護智慧財產權觀念之宣導，課程大綱內容請加註警語「請尊重智慧財產權，不得非法影印教師指定之教科書籍」。