② 国立東華大學 教學計劃表 Syllabus

	77.7	一到到代	Oy I	Tabus					
課程名稱(中文) Course Name in Chinese	大數據統計分析AB學年/學期 Academic Year/Semester				nester 110/2				
課程名稱(英文) Course Name in English	Statistical Analysis of Big Data								
科目代碼 Course Code	FIN_3144AB	系級 Department & Year	學三	開課單位 Course-Offering Department	財務金融學系				
修別 Type	學程 Program	學分數/時/ Credit(s)/Hou		3.	0/3.0				
授課教師 Instructor	/林金龍	/林金龍							
先修課程 Prerequisite									
	課	程描述 Cours	e Descri	ption					
Big Data is a broad term f applications are inadequat It offers promises for dis possible with small data. Yet, the huge sample size statistical challenges, including scalability and endogeneity and measuremen These challenges demand ne This course focuses on the and statistical methods to meet the challenges. It co Big Data and the architecture for t	e. covering subtle and high dimens storage bottlen t errors. w computational salient featur msists of five	e population p sionality of D neck, noise ad l and statist ces of Big Da parts. The f	patterns Big Data ccumulati ical meth ta and re irst part	and heterogeneities create unique compu ion, spurious correl nods. eviews newly propose c overviews the main	a that are not ntational and ation, incidental ed data analytical a characteristics of				
essential for effective analysis of Big A/B testing, crowdsourcing, language processing, signal processing, simulat learning. As almost financial data i mining. Text mining is the focus o Data. Popular textming technique clustering, concept linkag information visualization, algorithms including k nearest neighbor, suppo includes the empirical application of Big Data a could complete analyzing one real big da millions domestic flights between 1987 to 2008 and analyze a real bank market	data fusion and ion, time series is in the formation of the four particles include information e, and association ort vector machinal inalytics. One of itaset. The air in US is a perfect p	nd integration es analysis, y t of time ser t as it become rmation extrac on rule mining ine, Bayesian cannot really line data inc	n, geneti visualisa ies, the es more a ction, to g. We sha n classif master H ludes on-	c algorithms, machi ation. tensors, mult third part focuses and more important f opic tracking, categ all cover commonly u Fier and K-mean clus Big Data technology -time information of	ne learning, natural ilinear subspace upon time series for financial Big gorization, used text mining stering. Final part unless he or she more than 120				
I choose R as the main s Data.	oftware as it :	is free, powe:	rful and	very popular for th	e analysis of Big				

課程目標 Course Objectives

大數據有4種特性: (1)數據量巨大; (2)數據類型多樣; (3)數據快數累積; (4)數據價值密度低,因而無法應 用傳統的統計方法來分析。本課程針對大數據特性所發展的統計方法做系統性的介紹,包含大數據計算平台,架構與 統計軟體;大數據統計模型的建立與分析方法;大數據分析結果的呈現、說明與視覺化;及大數據實證應用,以提昇 修課學生分析大數據的統計能力。

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	Introduction to Big data and R			
2	Big Data Basics (I)			
3	Big Data Basics (II)			
4	Pattern recognition and association (I)			
5	Pattern recognition and association (II)			
6	Classification (I)			
7	Classification (II)			
8	Classification (III)			
9	期中考試週 Midterm Exam			
10	Clustering (I)			
11	Clustering (II)			
12	Outlier dectection			
13	Time series mining (I)			
14	Time series mining (II)			
15	Time series mining (III)			
16	Finance applications			
17	Project presentation (I)			
18	Project presentation (II)			

教學策略 Teaching Strategies
✓ 課堂講授 Lecture ✓ 分組討論Group Discussion 参觀實習 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)
─ 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 Industy-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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	說明(Supple	mental	instruc	tions)			
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