## ②国o支束華大學 教學計劃表 Syllabus

	名稱(中文) me in Chinese	時間序列分析			學年/學期 Academic Year/Sem	學年/學期 Academic Year/Semester				
	名稱(英文) me in English	h Time Series Analysis								
	-目代碼 rse Code	IIE_56900	系級 Department & Year	碩士	開課單位 Course-Offering Department	經濟學系				
	修別 Type	選修 Elective 學分數/時間 Credit(s)/Hour(s) 3.0/3.0								
	課教師 tructor	/林金龍								
	修課程 equisite	/								
課程描述 Course Description										
This course focuses exclusively on Time Series Analysis (TSA) designated for graduate students majoring in economics or finance. Cointegration and introductory financial econometrics are two main topics.										
The course starts with a lecture introducing stochastic process, time series model and statistical package R. I then spend 3 lectures covering conventional univariate time analysis, including identification, estimation, diagnostic checking and forecasting of a time series model. Unit root and cointegration econometrics makes the second part. The third and main part comprises univariate ARCH/GARCH, multivariate GARCH models and stochastic volatility models. Finally two frequently used methods in finance: event study and matching theory are covered. The former topic assesses the impact of some particular event on the target variables before and after the event. Obviously, the target variables are in timeseries context. The latter topic estimates the causal treatment effect where cross sectional data are involved. Both are extremely important and useful methods frequently used in finance and economic studies. They both involve, of course, some econometric theory but the core theory are not too difficult to learn. Similar to any other filed of economics and finance, intuition and creative ideas constitute the flesh and bone of TSA. I am aiming at equipping the students with proper tools for advanced empirical work and lay the foundation for theoretical research in TSA. In additional to econometric theory, I also emphasize computational aspects of these complicated econometric techniques. R, is the main statistical packages used in this course. Homework assignments using R will be given but there is no programming question in the midterm exam										
課程目標 Course Objectives										
本課程主要是介紹計量時間序列方法,課程目標是建立學生有關總體經濟或財務時間序 列分析的研究基礎,以便從事總體經濟實證或財務經濟學的實證分析										
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		内容	Subject/Topi	,	備註Remarks					
1	Introduction to	Stochastic Pr								
2	ARIMA modelling	odelling (I)								
3	ARIMA modelling	odelling (II)								
4	Theory of Forec	Theory of Forecasting								

5	VAR and Impulse response analysis											
6	Introduction to unit root and prointegration (I)											
7	Introduction to unit root and prointegration (II)											
8	Univariate GARCH (I)											
9	期中考試週 Midterm Exam											
10	Univariate GARCH (II)											
11	Multivariate GARCH and stochastic volatility models (I)											
12	Multivariate GARCH and stochastic volatility models (II)											
13	Event study (I)											
14	Event study (II											
15	Score Matching (I)											
16	Score Matching (II)											
17	Lab works											
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												
L												
 學期成績計算及多元評量方式 Grading & Assessments												
 	2.分項目	配分比例	多元評量方式 Assessmer									
Items		Percentage	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		30%	$\checkmark$									
期中考成績 Midterm Exam		30%	$\checkmark$									
期末考成績 Final Exam		0%										
作業成績 Homework and/or Assignments												
其他 Miscellaneous (term paper)		40%				~						
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.) Textbook: Ngai Hang Chan, 2010, Time Series: Applications to Finance with R and S-plus, 2nd, John Wiley Reference Books: Ruey S. Tsay, 2010, Analysis of Financial Time Series 3rd edition, New York: John Wiley G.E.P. Box, G.M. Jenkins and G.C. Reinsel, Time Series Analysis: Forecasting and Control, 3rd edition, Prentice Hall, 1994. Clive W.J. Granger Forecasting Economic Time Series, 2nd edition Academic Press 1986 Johansen, S. (1995) Likelihood-based inference in cointegrated vector autoregressive models, Oxford: Oxford University Press Helmut Lutkepohl, Introduction to multiple Time Series Analysis, 2nd edition, Springer-Verlag 1993 課程教材網址(教師個人網址請列在本校內之網址) Teaching Aids & Teacher's Website (Personal website can be listed here.) faculty.ndhu.edu.tw/~jlin 其他補充說明(Supplemental instructions)