國立東華大學

教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	計量經濟學(二)-時間序列分析			學年/學期 Academic Year/Semester	100/2
課程名稱(英文) Course Name in English	Econometrics I-Time Series				
科目代碼 Course Code	FIN_52620	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

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	內容 Subject/Topics	備註Remarks
1	Introduction to Stochastic Process, Time series and R	
2	ARIMA modelling	
3	ARIMA modelling	
4	Theory of Forecastin	

5	VAR and Impulse response analysis	
6	Introduction to unit root and prointegration	
7	Introduction to unit root and prointegration	
8	Univariate GARCH	
9	期中考試週 Midterm Exam	
10	Univariate GARCH	
11	Multivariate GARCH and stochastic volatility models	
12	Multivariate GARCH and stochastic volatility model	
13	Event study	
14	Event study	
15	Score Matching	
16	Score Matching	
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

☐ 其他Miscellaneous:

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	30%								
期中考成績 Midterm Exam	30%								
期末考成績 Final Exam									
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)