City University of Hong Kong
Course Syllabus

offered by Department of Management Sciences
with effect from Semester A 2017 /18

Part I Course Overview

Course Title:	Statistical Modelling in Economics and Finance
Course Code:	MS6217
Course Duration:	One Semester
Credit Units:	3
Level:	P6
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: *(Course Code and Title)*	Nil
Precursors: *(Course Code and Title)*	MS5213 Statistical Methods II or equivalent
Equivalent Courses: *(Course Code and Title)*	Nil
Exclusive Courses: *(Course Code and Title)*	Nil

Part II Course Details

1. Abstract

This course aims to

- Provide students with a solid understanding of the range of econometric techniques used in economic and financial analysis; Special emphasis is placed on the analysis of economic and financial time series;
- Demonstrate the relevance of these econometric techniques through examples and case studies;
- Acquaint students with the necessary computing knowledge to execute an analysis;
- Provide students with a basic knowledge of economics, finance and the options market

2. Course Intended Learning Outcomes (CILOs)

(CILOs state what the student is expected to be able to do at the end of the course according to a given standard of performance.)

No.	CILOs	Weighting (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	*A2*	*A3*
1.	Apply the economic models and econometric techniques learnt in the course to solve real world problems			✓	✓
2.	Select the most appropriate econometric techniques for a given problem		✓	✓	✓
3.	Translate a general question into specific questions for technical analysis		✓	✓	✓
4.	Gain a working knowledge of the relevant academic literature in econometrics			✓	
5.	Evaluate the validity of the econometric findings			✓	
6.	Appreciate the relevance of statistics in economics and finance		✓		
7.	Understand the basic operations of financial market and apply such knowledge in investment and other financial decisions			✓	
8.	Communicate and explain the findings to non-specialists			✓	
		100%			

A1: Attitude
Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability
Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to self-life problems.

A3: *Accomplishments*
Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

3. Teaching and Learning Activities (TLAs)

(TLAs designed to facilitate students' achievement of the CILOs.)

TLA	Brief Description	CILO No.								Hours/week (if applicable)
		1	2	3	4	5	6	7	8	
Lectures	The concepts and statistical properties of the forecasting techniques and their relevance to business and economics are explained. The strengths and weaknesses of the techniques, and how they can be used to tackle different business problems are discussed in details. Case studies and examples are used to illustrate the forecasting techniques in practice. There will also be opportunities for peer interactions in the lectures through group discussions.	✓	✓	✓	✓	✓	✓			
Computer Laboratory Sessions	Hands-on experience with the forecasting techniques and problem solving activities based on real world business data using the SAS software. During the laboratory sessions, the instructor can identify problems encountered by students and provide assistance. The laboratory sessions consolidate and supplement what the students learn in lectures. There will be opportunities for students to work together and help each other.	✓	✓	✓		✓	✓	✓		
Group Discussions & Presentation	Group discussions on major issues in class. Team members take turns to present the contents.	✓	✓	✓		✓	✓	✓	✓	
Reading Assignments			✓	✓	✓	✓	✓	✓		

4. Assessment Tasks/Activities (ATs)

(ATs are designed to assess how well the students achieve the CILOs.)

Assessment Tasks/Activities	CILO No.								Weighting	Remarks
	1	2	3	4	5	6	7	8		
Continuous Assessment: __100__%										
Assignments/Projects/Tests	✓	✓	✓	✓	✓	✓	✓	✓	100%	
Examination: __0__% (duration: , if applicable)										
									100%	

5. Assessment Rubrics

(Grading of student achievements is based on student performance in assessment tasks/activities with the following rubrics.)

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
Assignments/Projects/Tests	Ability to ANALYZE and ORGANISE ; and GRASP of subject material	High	Significant	Moderate	Basic	Not even reaching marginal levels

Part III Other Information (more details can be provided separately in the teaching plan)

1. Keyword Syllabus

(An indication of the key topics of the course.)

1. Seasonal Box-Jenkins and Transfer Function Models
   Seasonal ARIMA; Impulse response function; prewhitening; cross-correlation; lead time;

2. ARCH and GARCH Models
   Autoregressive Conditional Heteroscedasticity, volatility, high frequency financial data

3. Value at Risk (VaR) and Expected Shortfall (ES)
   Methods for calculating VaR and ES; quantile regression; L-estimator; trade-risk profile

4. Option Pricing Models
   Option payoff and strategies, Binomial Option Pricing and Black-Scholes Option Pricing Models

2. Reading List

2.1 Compulsory Readings

(Compulsory readings can include books, book chapters, or journal/magazine articles. There are also collections of e-books, e-journals available from the CityU Library.)

Nil

2.2 Additional Readings

(Additional references for students to learn to expand their knowledge about the subject.)

1.	Brooks, C. Introductory Econometrics for Finance, Cambridge, 2002
2.	Benninga, S. Financial Modeling, MIT Press, 2001
3.	Econometriclinks.com: http://www.feweb.vu.nl/econometriclinks/