City University of Hong Kong
Course Syllabus

offered by Department of Economics and Finance
with effect from Semester A 2017/18

Part I Course Overview

Course Title:	**Applied Time Series Analysis**
Course Code:	**EF4450**
Course Duration:	**1 Semester**
Credit Units:	**3**
Level:	**B4**
Proposed Area: *(for GE courses only)*	☐ Arts and Humanities ☐ Study of Societies, Social and Business Organisations ☐ Science and Technology
Medium of Instruction:	**English**
Medium of Assessment:	**English**
Prerequisites: *(Course Code and Title)*	**Nil**
Precursors: *(Course Code and Title)*	**EF3450 Principles of Econometrics** **EF3451 Economic and Business Forecasting**
Equivalent Courses: *(Course Code and Title)*	**Nil**
Exclusive Courses: *(Course Code and Title)*	**Nil**

Part II Course Details

1. Abstract

This course aims to equip students with advanced econometric and time-series techniques to analyze economic and financial data. This course introduces the advanced methods for econometric modeling and quantitative analysis of data in economics, finance and related disciplines. Real-world economic and finance data will be used in this course to help students to master different econometric methods.

Student will learn how to synthesize the academic theories and real-world problem to design suitable econometrics models for projections.

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.	Learn techniques of empirical modeling of economic and financial data using advanced techniques in econometrics and time series, and use advanced econometric skills to analyze data in economics and finance.	30%	√	√	√
2.	Develop econometric methods that are useful for predictions and forecast, perform time series analysis using economic and finance data, and use these skills to obtain certain findings about economic issues.	30%	√	√	√
3.	Apply econometric software packages for modeling and analysis.	40%	√	√	√
		100%			

** If weighting is assigned to CILOs, they should add up to 100%.*

[#] Please specify the alignment of CILOs to the Gateway Education Programme Intended Learning outcomes (PILOs) in Section A of Annex.

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 real-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	
1.	Lecture	√	√	√	3 hours

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		
Continuous Assessment: 50%					
Coursework	√	√	√	50%	
Examination: 50% (duration: 2 hours, if applicable)					
Examination	√	√	√	50%	
** The weightings should add up to 100%.*				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)
Coursework and examination	Develop models and computer programs to analyse financial data	Demonstrate excellent skills and analysis in applying econometric skills for analysing financial data.	Demonstrate acceptable skills and analysis in applying econometric skills for analysing financial data.	Demonstrate some knowledge and ability in applying econometric skills for analysing financial data.	Demonstrate marginal ability in applying econometrics skills for analysing financial data.	Fail to demonstrate their knowledge in applying econometrics skills for analysing financial data.

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

1. Keyword Syllabus

Stationary stochastic processes. Integrated processes and differencing. Random walks, trends, and spurious regressions. Unit roots in economic and financial data. Co-integration and error correction. Autoregressive Conditional Heteroskedasticity and Generalized Autoregressive Conditional Heteroskedasticity.

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.)

1.	Enders, Walter (2015). "Applied Econometric Time Series", 4th Edition, WILEY.

2.2 Additional Readings

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

1.	Hamilton, J. D. (1994). "Time Series Analysis", Princeton University Press.