Course Title	:	Applied Econometrics
Course Code	:	ECO4203
Recommended Study Year	:	3 and 4
No. of Credits/Term	:	3
Mode of Tuition	:	Lecture-Tutorial
Class Contact Hours	:	2-hour lecture per week
		1-hour tutorial per week
Category in Major Prog.	:	Major in Economics (Elective Course)
Discipline	:	Economics
Prerequisite(s)	:	(a) ECO2101 Introduction to Economics, or
		(b) ECO2104 Introduction to Microeconomics and ECO2105 Introduction to Macroeconomics, or
		(c) BUS2105 Microeconomics for Business; plus
		(a) ECO3105 Introduction to Statistics and Econometrics, or
		(b) ECO3104 Quantitative Methods in Economics, or
		(c) BUS1102 Statistics for Business, or
		(d) CDS1003 Probability and Statistics 1
Co-requisite(s)	:	N/A
Exclusion(s)	:	N/A
Exemption Requirement(s)	:	N/A

Brief Course Description

This course introduces students to the art and science of econometric modeling as applied to economics, business, sociology and all other branches in social sciences. Students could easily apply it to many other areas such as the natural sciences. They are going to learn how to develop, statistically test, and apply econometric models. This course emphasises intuitive understanding of econometrics, as opposed to a more abstract and theoretical approach. Hands-on experience with econometric computer software is an important part of this course.

Aims

This course aims at laying down a basic but solid foundation for quantitative analysis commonly used in empirical studies. Students will acquire a "tool" that may prove very useful for a wide range of careers that requires data analysis.

Learning Outcomes (LOs)

Upon completion of this course, successful students should be able to:

1. demonstrate an understanding of the principles of regression analysis and statistical inference in regression model;
2. define research questions, acquire and manage economic data, conduct econometric analysis using regression software and interrupt the test results and identify its limitations; and
3. utilise relevant published articles to support own investigations.

Indicative Contents

Part I – Introduction

1 What is econometrics and how do we do it? Brief introduction to STATA

2 The linear regression model

3 Functional forms of regression models and variable types

Part II - Problems

4 Multicollinearity

5 Heteroscedasticity

6 Autocorrelation

7 Model specification errors

Part III – Topics in cross-section data and panel data

8 Panel data

9 Logit probit and multinomial models

10 Count data

Part IV – Time series

11 Stationary and non-stationary time series

12 Cointegration and error correction models

Teaching Method

All classes (lectures and tutorial) will take place in a computer lab

During the lectures

We will go through the main chapters of the textbook and students will be asked to reproduce the main examples with STATA.

We will do application exercises together with STATA

During the tutorials

We will discuss/correct the homework

Students will have to present the progress of their research projects

Measurement of Learning Outcomes

Each student (or students by groups of 2, depending on attendance) has to conduct a research project. They will have to:

    1) choose a topic related to any of the following disciplines: Economics, management, finance, sociology, political science, psychology, history, and geography.

    2) define a simple and precise question that will be investigated

    3) look for datasets that will be used for the econometric analysis

    4) set-up a statistical and econometric analysis and interpret the results

    5) write up a draft (4 to 10 pages) explaining the methodology, showing and interpreting the results, and listing the possible drawbacks of the analysis

    6) provide all the programs (in STATA or R)

    7) present in class their approach and results

Assessment

Continuous assessment	: 65%	
	assignments -20%;	
	Research project	- 25%;
	Midterm exam (on computers)	- 10%
	Attendance and participation	- 10%
Final examination (on computers)	: 35% (Open book)	

Assessment Rubrics for Assignments (20%)

Dimension	Excellent A-, A	Good B- to B+	Fair C- to C+	Pass D, D+	Failure F
Accuracy (5%)	Accurately answer all questions with minor mistakes.	Accurately answer most questions with some mistakes in others.	Accurately answer some of the questions with obvious flaws in others.	Obvious flaws in most answers.	All questions are poorly answered.
Originality (5%)	Show great originality in all answers.	Show good originality in most of the answers.	Show basic originality in most of the answers.	Obvious reference to online solutions for some questions.	Obvious reference to online solution for all questions.
Richness	Display great	Display good	Display	Display	Answers are

and formatting (5%)	richness in the answers with all codes and charts. Perfect formatting.	richness in the answers with some codes and charts. Good formatting.	basic richness in the answers. Lack important codes or charts. Acceptable formatting.	minimum richness in the answers. Lack codes or charts for most questions. Poor formatting.	unclear without any codes or charts. Unacceptable formatting.
Timely submission (5%)	Timely submit most assignments with occasional late submission.	Timely submit most assignment with occasional no-submission.	Frequent late submission with occasional no-submission.	Frequent late or no-submission.	Most assignments are not submitted.

Assessment Rubrics for Midterm Exam (10%)

Dimension	Excellent A-, A	Good B- to B+	Fair C- to C+	Pass D, D+	Failure F
Accuracy (5%)	Accurately answer all questions with minor mistakes.	Accurately answer most questions with some mistakes in others.	Accurately answer some of the questions with obvious flaws in others.	Obvious flaws in most answers.	All questions are poorly answered.
Richness and formatting (5%)	Display great richness in the answers with all codes and charts. Perfect formatting.	Display good richness in the answers with some codes and charts. Good formatting.	Display basic richness in the answers. Lack important codes or charts. Acceptable formatting.	Display minimum richness in the answers. Lack codes or charts for most questions. Poor formatting.	Answers are unclear without any codes or charts. Unacceptable formatting.

Assessment Rubrics for Final Exam (35%)

Dimension	Excellent A-, A	Good B- to B+	Fair C- to C+	Pass D, D+	Failure F

Accuracy (20%)	Accurately answer all questions with minor mistakes.	Accurately answer most questions with some mistakes in others.	Accurately answer some of the questions with obvious flaws in others.	Obvious flaws in most answers.	All questions are poorly answered.
Richness and formatting (15%)	Display great richness in the answers with all codes and charts. Perfect formatting.	Display good richness in the answers with some codes and charts. Good formatting.	Display basic richness in the answers. Lack important codes or charts. Acceptable formatting.	Display minimum richness in the answers. Lack codes or charts for most questions. Poor formatting.	Answers are unclear without any codes or charts. Unacceptable formatting.

Assessment Rubrics for Research Project (25%)

Dimension	Excellent A-, A	Good B- to B+	Fair C- to C+	Pass D, D+	Failure F
Understand regression analysis and statistical inference (10%)	Excellent understanding of the principles of regression analysis and statistical inference.	Good understanding of the principles of regression analysis and statistical inference.	Basic understanding of the principles of regression analysis and statistical inference.	Minimum understanding of the principles of regression analysis and statistical inference.	No understanding of the principles of regression analysis and statistical inference.
Define research questions and conduct econometric analysis (10%)	Very clear research question, excellent data, informative outcomes and reasonable interpretation.	Clear research question, good data, acceptable outcomes and interpretation.	Understandable research question, relevant data, some outcomes and interpretation.	Vague research question, barely relevant data with minimum outcome and interpretation.	Poor research question, irrelevant or no data, unacceptable outcome or interpretation.
Utilise relevant	Thorough and very	Good relevant	Basic reference list	Barely relevant	Irrelevant or no reference.

published articles to support own investigations (5%)	relevant reference list.	reference list.	with some relevance.	reference list.	

Rubrics for Attendance and Participation (10%)

Dimension	Excellent A-, A	Good B- to B+	Fair C- to C+	Pass D, D+	Failure F
Attendance (5%)	No absence without appropriate reason.	1-2 absences without appropriate reason	3-4 absences without appropriate reason	5-6 absences without appropriate reason	More than 7 absences without appropriate reason
Participation (5%)	Frequently raise excellent questions and/or eagerly respond to questions.	Often raise excellent questions and/or eagerly respond to questions.	Occasionally raise questions and/or respond to questions.	Rarely raise questions or respond to questions.	Never raise questions or respond to questions.

Required/Essential Reading

Econometrics by Example (2nd Ed), by D. GUJARATI, Palgrave ed.

Supplementary Reading

Wooldrige J. (2012), *Introductory econometrics, A modern approach (5th edition)*, South Western Cengage learning.
Angrist J. and Pischke J-S. (2015) , *Mastering Metrics, The path from cause to effect,* Princeton University Press

Important Notes:
(1) Students are expected to spend a total of 9 hours (i.e. 3 hours of class contact and 6 hours of personal study) per week to achieve the course learning outcomes.
(2) Students shall be aware of the University regulations about dishonest practice in course work, tests and examinations, and the possible consequences as stipulated in the Regulations Governing University Examinations. In particular, plagiarism, being a kind of dishonest practice, is "the presentation of another person's work without proper

acknowledgement of the source, including exact phrases, or summarised ideas, or even footnotes/citations, whether protected by copyright or not, as the student's own work". Students are required to strictly follow university regulations governing academic integrity and honesty.

(3) Students are required to submit writing assignment(s) using Turnitin.

(4) To enhance students' understanding of plagiarism, a mini-course "Online Tutorial on Plagiarism Awareness" is available on https://pla.ln.edu.hk/.

(5) Students are required to fill in a mid-term survey and the end of course CTLE survey.