FI310 Financial Econometrics

Instructor Information	Yao Yao Home Institution: Curtin University & Shanghai Lixin University of Accounting and Finance Email: ethan.yao@curtin.edu.au Office Hours: To be determined		
Term	December 13, 2021 - January 7, 2022	**Credits**	4 units
Class Hours	Monday through Friday, 120 mins per teaching day		
Discussion Sessions	2.5 hours each week, conducted by teaching assistant(s)		
Total Contact Hours	66 contact hours (1 contact hour = 45 mins, 3000 mins in total)		
Required Texts (with ISBN)	Introductory Econometrics for Finance Brooks, C., Cambridge University Press 4th ed. 2019 ISBN: 9781108436823		
Prerequisite	Fundamental Statistics/Business Statistics		

Course Overview

This unit provides students with the statistical tools needed to track the performance and volatility of financial markets and instruments in equities, futures, options, bonds and currencies. It will also provide students with an understanding of models used to value financial assets. Students will explore market data and problems faced by fund managers and bond and currency dealers. Students will use the capital asset pricing model, the arbitrage pricing model and derivative valuation models, as well as time series models for the analysis of market data.

Learning Outcomes

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

1. demonstrate professional understanding of the nature and characteristics of financial data;
2. demonstrate a professional understanding of standard models used for valuation of capital assets, common stocks, bonds, options, and futures;
3. critically evaluate complex measures of volatility in financial time series;
4. demonstrate expert knowledge and awareness of the software available for statistical analysis of financial markets; and
5. conduct a financial research project applying econometric models.

Grading Policy

Assessment	Final Grade
Attendance	10%
Homework & Assignment	20%
Mid-Term Examination	20%
Group research project+presentation	50%

Grading Scale is as follows

Number grade	Letter grade	GPA
90-100	A	4.0
85-89	A-	3.7
80-84	B+	3.3
75-79	B	3.0
70-74	B-	2.7
67-69	C+	2.3
65-66	C	2.0
62-64	C-	1.7
60-61	D	1.0
≤59	F (Failure)	0

Class Schedule

Date	Lecture	Reading/Assignments/ Examination
Day 1	A Brief Overview of the Classical Linear Regression Model Section A.	Chapter 3 p.147-p.208 of Brooks (2019)
Day 2	A Brief Overview of the Classical Linear Regression Model Section B.	Chapter 3 p.147-p.208 of Brooks (2019)
Day 3	Further Development and Analysis of the Classical Linear Regression Model Section A.	Chapter 4 p.209-p.253 of Brooks (2019)
Day 4	Further Development and Analysis of the Classical Linear Regression Model Section B	Chapter 4 p.209-p.253 of Brooks (2019)
Day 5	Classical Linear Regression Model Assumptions and Diagnostic Tests Section A	Chapter 5 p.254-p.329 of Brooks 2019
Day 6	Classical Linear Regression Model Assumptions and Diagnostic Tests Section B	Chapter 5 p.254-p.329 of Brooks (2019)
Day 7	Univariate Time-Series Modelling and Forecasting Section A	Chapter 6 p.330-p.386 of Brooks (2019)
Day 8	Univariate Time-Series Modelling and Forecasting Section B	Chapter 6 p.330-p.386 of Brooks (2019)
Day 9	Multivariate Models	Chapter 7 p.387-p.436 of Brooks (2019)
Day 10	VAR analysis	Chapter 7 p.387-p.436 of Brooks (2019)
Day 11	Stationarity and Unit Root Testing	Chapter 8 p.437-p457 of Brooks (2019)
Day 12	Cointegration Testing	Chapter 8 p.438-p463 of Brooks (2019)
Day 13	Methods of Parameter Estimation in Cointegrated Systems	Chapter 8 p.464-p480 of Brooks (2019)
Day 14	Modelling Volatility and Correlation	Chapter 9 p.497-p572 of Brooks (2019)
Day 15	ARCH & G-ARCH model in action	Chapter 9 p.497-p572 of Brooks (2019)
Day 16	Switching and State Space Models	Chapter 10 p.573-p590 of Brooks (2019)
Day 17	Markov Switching Model & Threshold Model	Chapter 10 p.591-p599 of Brooks (2019)
Day 18	Panel Data models	Chapter 11 p.625-p655 of Brooks (2019)
Day 19	Presentation of Empirical Research Project	
Day 20	Presentation of Empirical Research Projects	