University of St Andrews

BUSINESS SCHOOL,
DEPARTMENT OF MANAGEMENT
DEPARTMENT OF FINANCE **2024-25**

FI5443: Applied Financial Econometrics

MODULE TYPE/SEMESTER: Core (20 credits), Semester 1

MODULE CO-ORDINATOR: Dr Jimmy Chen

CONTACT DETAILS: xc38@st-andrews.ac.uk

AIM:
The aim of this module is to equip students with econometric tools and techniques to analyse and interpret financial data. Students will learn how to organise and characterise financial and/or economic dataset (cross-section, time series, and panel data) as well as analysing it using appropriate econometric techniques. The module also develops student's ability to estimate various econometric models and perform various tests using Stata/EViews. The final end of the module is to develop student's ability to undertake empirical research in finance.

METHOD OF TEACHING AND LEARNING:

Teaching Format
One two-hour lecture plus one hour computer lab session each week

INDICATIVE TOPIC OUTLINE:

- **Week 1:** Introduction to Financial Econometrics
- **Week 2:** Classical Linear Regression I
- **Week 3:** Classical Linear Regression II
- **Week 4:** Classical Linear Regression III
- **Week 5:** Classical Linear Regression IV
- **Week 6:** No Classes (Independent Learning Week)
- **Week 7:** Time Series Analysis I
- **Week 8:** Time Series Analysis II
- **Week 9:** Time Series Analysis III
- **Week 10:** Panel Data
- **Week 11**: No Classes
- **Week 12:** Revision Period
- **Weeks 13 &14:** Semester 1 Examination Diet

LEARNING OUTCOMES:

On completion of this module, students should:

- Understand the OLS formulae for estimating parameters and their standard errors
- Explain the desirable properties that a good estimator should have
- Estimate linear regression models and test single and multiple hypotheses
- Determine how well a model fits the data
- Explain the impact of heteroscedasticity or autocorrelation on the optimality of OLS parameter and standard error estimation, as well as solutions to deal with these problems
- Define the characteristics of various time series models
- Estimate time series models, produce forecasts from them and evaluate the accuracy of predictions using various metrics
- Understand the concepts of stationarity and cointegration, and the various tests associated with these concepts
- Understand and estimate error correction model (ECM)
- Understand and estimate conditional volatility (GARCH) models
- Describe the key features of panel data and outline its advantages and disadvantages
- Understand the fixed effect and random effect approaches to panel model specification
- Construct and estimate panel regression models
- Perform various models and tests covered in lectures using Stata/Eviews
- Understand the procedure of conducting empirical research in finance

ASSESSMENTS:

- **Assessment 1 (30%):** Class Test (Interim)
- **Assessment 2 (30%):** Group Coursework
- **Assessment 3 (40%):** Class Test (Final)
-

READING LIST:

- Brooks, C. (2019) *Introductory Econometrics for Finance.* (4th edition). Cambridge University Press.

Organisation of courses may be subject to change without notice.