

FSO302 Advanced Econometrics for Finance [4 Credits]

Learning Objectives: *The course is designed to introduce basic econometric theory and models for students to equip with the necessary skills, knowledge and techniques for data analysis. The usage of various statistical software packages during the course will help in simplifying complex data and serve as a basis for empirical research analysis.*

UNIT 1: Dummy Variable and Limited Dependent variable Regression Model (12 Hours)

Introduction – Application of Dummy Variable - The linear probability model (LPM) and application – The Logit Model – Probit Model – Tobit Model - choosing between Logit and Probit Model - Goodness of fit measures for linear dependent variable models

UNIT 2: Introduction to Time Series (12 Hours)

Introduction – Some basic concepts – Moving average process – autoregressive process – partial autocorrelation function – ARMA process – Building ARMA Models: Box-Jenkins approach - Stationarity and Unit Root Testing

UNIT 3: Modelling Long-run relationships, Volatility and Correlations (12 Hours)

Cointegration – Error Correction Models – Lead Lag and long term relationships – Models for Volatility – Historical and Implied Volatility – ARCH / GARCH models estimation – Tests for asymmetries in Volatility – Uses of GARCH type models including volatility forecasting.

UNIT 4: Multivariate Models (12 Hours)

Simultaneous equations bias – estimation procedures for simultaneous equations systems – Vector Autoregressive Models – VARs with exogenous variables – Block significance and causality tests – Granger Causality – Sims Causality Test - Impulse Response and Variance Decomposition

UNIT 5: Panel data analysis (12 Hours)

Panel data analysis – Introduction - Applications of Panel Data - Pooled OLS - Fixed Effects Model – Time fixed effects model - Random Effects Models – Hausman Test – Dynamic Heterogenous Panel – Non Stationary Panel

Suggested Readings:

1. Brooks, C., Introductory Econometrics for Finance, 2008, Cambridge University Press
2. Dimitrios Asteriou & Stephen G. Hall, Applied Econometrics, 2011, Palgrave Macmillan
3. Gujarati, D., Basic Econometrics, 2003, McGraw-Hill
4. Gujarati, D., Essentials of Econometrics, 2006, McGraw-Hill
5. Greene, W., Econometric Analysis, 2003, Prentice Hall
6. Maddala & Lahiri, Introduction to Econometrics, 2009, Wiley India Edition
7. Ramanathan., Introductory Econometrics with applications, 2002, Thomson South-Western
8. Wooldridge J., Introductory Econometrics A modern Approach, 2002, South Western