

DSEF07 – Financial Econometrics

Masters of Commerce
Semester IV
DSE – Elective Paper
Financial Econometrics

Course Type/ Course Code	Course Title	Lectures	Tutorials	Practical	Credit	Pre-requisites
DSEF07	Financial Econometrics	3	0	1	4	NIL

Objectives: The course aims to build a strong foundation in econometric techniques with a focus on time-series analysis. It enables students to understand and apply concepts such as regression models, stationarity, and volatility models. It also equips them with advanced tools like cointegration and error correction models for empirical research and financial decision-making.

Learning Objectives: After completion of the course, learners will be able to:

- Enable understanding of basic econometric tools.
- Provide the knowledge of stationary time-series.
- Provide a comprehensive understanding of various volatility models.
- Enable knowledge of cointegration and error correction models.

Contents:

Unit I (10 Hours)

Introduction to Econometrics; Simple linear regression model; Ordinary Least Square (OLS) Method and its assumptions; Dummy variable regression models.; Violation of Assumptions of OLS.

Unit II (12 Hours)

Concept and test of stationarity, ARMA models, stationary restrictions for ARMA(p,q) model, autocorrelation function, partial autocorrelation function, structural equation models, application in investment management and corporate finance.

Unit III (13 Hours)

ARCH and GARCH models and their extensions, Multivariate GARCH, DCC and ADCC models, Markov switching and state space models, long memory models, application in investment management and corporate finance.

Unit IV

(10 Hours)

VAR models and its variants, Co-integration and vector error correction models, causality tests, applications in investment management and corporate finance.

Practical Exercise:

(30 Hours)

The students shall be required to:

- Examine stationarity of stock market index using appropriate software.
- Modelling volatility of stock market index using appropriate software.
- Examine cointegration between future and spot time series using appropriate software.
- Analyze and examine error correction between time series using appropriate software.
- Examine causality between time series using appropriate software.

Suggested Readings:

- Enders W. (2014), Applied Econometric Time Series. John Wiley & Sons, Inc., Fourth Edition.
- Mills, T.C. and Markellos, R.N. (2008), The Econometric Modelling of Financial Time Series. Cambridge University Press, Third Edition.

Reference Books

- Tsay, R.S. (2014), Analysis of Financial Time Series, Wiley, Third Edition
- Hamilton, J.D. (2012), Time Series Analysis, Princeton University Press.
- Chatfield, C. (2003), The Analysis of Time Series: An Introduction, Chapman & Hall, Sixth Edition.
- Shumway, R.H. & Stoffer, D.S. (2013), Time Series Analysis and Its Applications: With R Examples, Springer.
- Anderson (2011), The Statistical Analysis of Time Series, Wiley.
- Brockwell, P.J. & Davis, R.A. (2016), Introduction to Time Series and Forecasting, Springer, Third Edition.

Note: Latest edition of the readings may be used.

Note: Suggested readings will be updated by the Department of Commerce and uploaded on Department's website.