12-02-21

Financial Econometrics – ECFI

M.Sc. EMF + MF – 2020/21 – 2nd Semester

Instructor: Nuno Crato ncrato@iseg.ulisboa.pt, 105 Quelhas 4, 21 392 5846 (ext. 3846)

Classes: Thursdays: 10:00-12:30 – [F2-109] – Teams

Textbook: William Wei, *Time Series Analysis: Univariate and Multivariate Methods, 2nd Ed.*, Pearson-Addison-Wesley, 2006

Complements: Gloria Gonzalez-Rivera, *Forecasting for Economics and Business*, Pearson, 2013
S.J. Taylor, *Asset Price Dynamics, Volatility, and Prediction,* Princeton UP, 2005
Ruey S. Tsay, *Analysis of Financial Time Series,* 3rd Ed. Wiley 2010
T.C. Mills, *The Econometric Modelling of Financial Time Series,* 2nd Ed, CUP, 1999

Software: EViews, ISTM2000, R, or any other software with time series analysis capability

Goals: To introduce the main topics in statistical time series analysis and forecasting, with an emphasis on financial applications

Evaluation: Two tests (2 x 15%), a group project (35%) and the final exam (35%)

Day	**Topic**	**Text Chapters**
Feb 25	Time series, stochastic processes	1.2, 2.1-5
Mar 04	Stationary processes, ACF, PACF, AR(p)	2.6, 3.1
Mar 11	MA(q) processes, MA(∞) and AR(∞) duality	3.2-3
Mar 18	ARMA(p,q) processes – Test 1	3.4
Mar 25	Difference- and trend-stationarity, ARIMA processes	4.1-2
Apr 01	Box-Cox. Unit roots – Working groups constitution	4.3, 9.1-5
Apr 08	Seasonality and seasonal ARMA models	8.1-4
Apr 15	Brief reference to forecasting principles – Test 2 Identification, diagnostic checking, selection criteria	5.1 7.5, 7.7, 8.4
Apr 22	SARIMA model estimation and forecasting Modelling examples in EViews and optional software	7.1-5, 5.1-4 7.6, 8.4
Apr 29	Financial time series stylized facts – volatility, ARCH models	15.1-2
May 06	GARCH models – Group project presentations	15.3
May 13	Group project presentations	