

Financial Econometrics – ECFI

M.Sc. EMF + MF – 2019/20 – 2nd Semester

- Instructor: Nuno Crato ncrato@iseg.ulisboa.pt, 105 Quelhas 4, 21 392 5846 (ext. 3846)
- Classes: Wednesdays: 10:00-12:30 – [F2-109] – Teams ECFI S17
Fridays: 10:00-10:45
- Textbook: William Wei, *Time Series Analysis: Univariate and Multivariate Methods, 2nd Ed.*, Pearson-Addison-Wesley, 2006
- Complements: 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
Gloria Gonzalez-Rivera, *Forecasting for Economics and Business*, Pearson, 2013
- Software: EViews, ISTM2000, R, or any other software with time series analysis capability
- Goals: To introduce the main topics in time series analysis and forecasting, with an emphasis on financial applications
- Evaluation: Two online tests (2 x 10%), group project (40%) and final exam (40%) – students can bring to the exam a two-page formula sheet and a simple calculator

Day	Topic	Text Chapters
Feb 19	Time series, stochastic processes	1.2, 2.1-5
Feb 26	Stationary processes, ACF, PACF, AR(p)	2.6, 3.1
Mar 04	MA(q) processes, MA(∞) and AR(∞) duality	3.2-3
Mar 18	ARMA(p,q) processes	3.4
Mar 25	Difference- and trend-stationarity, ARIMA processes Test 1 – March 27, 9:30-10:45 (up to book section 3.4)	4.1-2
Apr 01	Box-Cox. Unit roots – Working groups constitution	4.3, 9.1-5
Apr 15	Seasonality and seasonal ARMA models	8.1-4
Apr 22	Brief reference to forecasting principles Identification, diagnostic checking, selection criteria Test 2 – April 24, 9:30-10:45 (up to book section 8.4)	5.1 7.5, 7.7, 8.4
April 29	Modelling examples in EViews and optional software	7.6, 8.4
May 06	Brief references to SARIMA model estimation and forecasting Financial time series stylized facts – volatility, ARCH models	7.1-5, 5.1-4 GGR Slides, 15.1-2
May 13	GARCH models	GGR Slides, 15.3
May 20	Group work presentations	