

## Financial Econometrics

### M.Sc. EMF + MF – 2018/19 – 2nd Semester

- Instructors: Nuno Crato [ncrato@iseg.ulisboa.pt](mailto:ncrato@iseg.ulisboa.pt) 105 Quelhas 4, 21 392 5846 (ext. 3846)
- Office contact: By appointment
- Classes: Wednesdays: 10:00-12:30 – F2-102
- 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: Group work (30%) and final exam (70%) – students can bring to the exam a two-page formula sheet

Day	Topic	Text Chapters
Feb 20	Time series, stochastic processes	1.2, 2.1-5
Feb 27	Stationary processes, ACF, PACF	2.6-7
Mar 06	MA( $\infty$ ) and AR( $\infty$ ), linear difference equations	3.1-2
Mar 13	AR( $p$ ) and MA( $q$ ) processes	3.3
Mar 20	ARMA( $p,q$ ) processes	3.4
Mar 27	Difference and trend stationarity, ARIMA processes	4.1-2
Apr 03	Box-Cox. Unit roots – <b>Working groups constitution</b>	4.3, 9.1-5
Apr 10	Seasonality and seasonal ARMA models	8.1-4
Apr 24	Brief reference to forecasting principles Identification, diagnostic checking, selection criteria	5.1 7.5, 7.7, 8.4
April 26	Modeling examples with EViews and optional software	7.6, 8.4
May 08	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 15	GARCH models	GGR Slides, 15.3
May 22	<b>Group work presentations</b>	
May 24	<b>Group work presentations</b>	