



Università Commerciale
Luigi Bocconi

Lecture 0: Preview and Organizational Issues

Prof. Massimo Guidolin

20192– Financial Econometrics

Winter/Spring 2020

Goals and structure

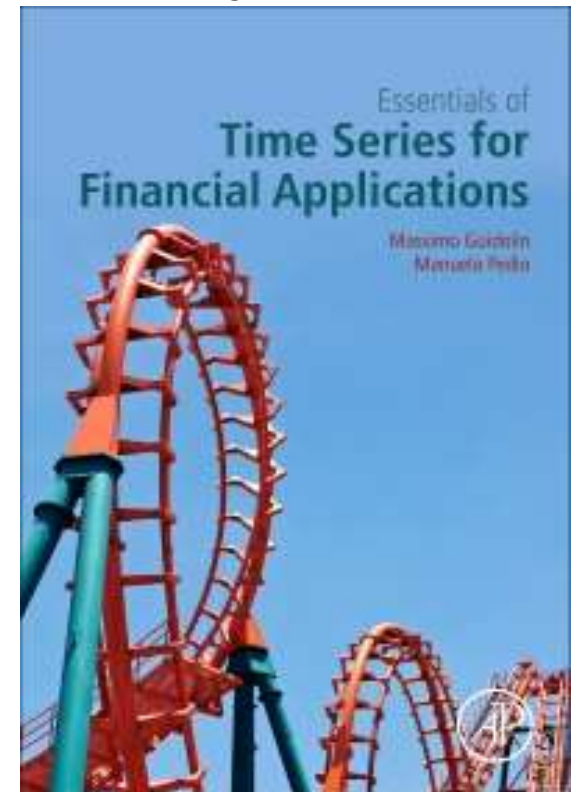
- This is a course in modern financial econometrics
- The emphasis is on the interaction between the statistical tools and their applications to relevant, financial data
- Two distinct parts
 - Models of the conditional mean useful to forecast the “level” of financial variables of interest, univariate and multivariate
 - Models of the conditional variance useful to forecast the degree of “uncertainty” of financial variables of interest, only univariate
- There will be a series of six laboratory sessions, five of them potentially (if you so elect) graded for participation and output
- The lab grades are valid for the May and June final exams **only**
 - There will be another other, “general exam” make up exam in October
- In the May-June cycle, the labs carry 20% weight (4% **each**) and the final test carries a weight of 80%
- A student can access the May and June final exams only if he/she has recorded already a passing grade in 20191

The exams

- The formats of the final exam is the same as in the past: the exam is closed book, closed notes, and based on open questions
- Some sub-questions (with weight of $\approx 20/25\%$) will be based on interpretation of outputs and examples covered in the lectures
 - Multiple choice exams from the past become irrelevant
 - A few mock, sample exams are made available
- All topics are compulsory and the maximum score can be achieved only replying to all the questions
- This implies two ways to approach the assessment in the course
 - **Students who participate to the lab sessions** and are graded with the formula:
$$\text{grade} = \max\{0.8 \times \text{grade in the final test} + 0.2 \times \text{lab session score}; \text{grade in the final test}\}$$
 - **Students** who just sit the final exam, receive 100% of the grade from them
 - Labs are not compulsory but the interpretation of outputs similar to the ones in the book and in the lectures is expected of all students

Textbooks and other (key) resources

- Also students non-attending the labs may achieve 30/30
- The material covered in the course is outlined in the lecture notes made available via the class website, at:
<http://didattica.unibocconi.eu/mypage/map.php?IdUte=135242&idr=14063&lingua=eng>
- Lecture notes and class presentations of the material may be taken as a guidance for further study on the textbook:
 - Guidolin, M. and M., Pedio (2018) *Essentials of Time Series for Financial Applications*, Academic Press 1st edition (henceforth “**Guidolin-Pedio**”)
 - The readings from the book are compulsory: e-mails and questions concerning «whether it is enough to study the slides» will not receive a reply (ok, a smile if you ask me directly)
 - Further readings are/will be posted but they will not be compulsory



Teaching assistants and rules of conduct

- Book has a cool web site: <https://essentialoftimeseries.wordpress.com/>
- As usual the best resources are people: we have one super teaching assistant for the course who will soon post office hours
 - Manuela **Pedio**, MSc. Finance 2013, formerly derivatives sales at UniCredit, now Bocconi's junior faculty, in charge of tutorials
<http://didattica.unibocconi.it/docenti/cv.php?rif=196456>
- Manuela, who is a co-author of the book, will be available with weekly office hours: please do visit with her
- Unless of emergencies (and these will be of admin or even personal nature), office hours take place in an office, and not by e-mail
- On every single week of the course, as a rule there will be a minimum of 3 posted hours available for your consultation, **USE THEM**



Topics

- 1. The Econometrics of Financial Returns: an Introduction [2 hours]
- 2. Essential Concepts in Time Series Analysis: Weak and Strong Stationarity; Sample Autocorrelations and Sample Partial Autocorrelations [3 hours]
- 3. Autoregressive Moving Average (ARMA) Models and their Applications; Selection and Estimation of AR, MA and ARMA models; Forecasting ARMA processes [6 hours]
- 4. Multivariate Time Series: Structural vs. Reduced-Form VARs; Estimation; Specification, Hypothesis Testing, and Forecasting; Structural Analysis with VAR Models [7 hours]
- 5. Unit Roots, Cointegration and Error Correction; Spurious Regression Problem [6 hours]
- 6. Univariate Volatility Modeling: ARCH and GARCH [7 hours]
- 7. Advanced Univariate Volatility Modeling: Non-Gaussian Marginal Innovations; Exogenous (Predetermined) Factors [5 hours]
- 8. OPTIONAL laboratory sessions [12 hours]