



| FINANCIAL ECONOMETRICS |  |
|------------------------|--|
| Enrollment year        | 2017/2018  |
| Academic year          | 2018/2019  |
| Regulations            | DM270  |
| Academic discipline    | SECS-P/05 (ECONOMETRICS)   |
| Department             | DEPARTMENT OF ECONOMICS AND MANAGEMENT   |
| Course                 | ECONOMICS, FINANCE AND INTERNATIONAL INTEGRATION   |
| Curriculum             | Finance  |
| Year of study          | 2°   |
| Period                 | 1st semester (24/09/2018 - 21/12/2018)   |
| ECTS                   | 9  |
| Lesson hours           | 66 lesson hours  |
| Language               | English  |
| Activity type          | WRITTEN TEST   |
| Teacher                | ROSSI EDUARDO (titolare) - 7 ECTS<br>SANTUCCI DE MAGISTRIS PAOLO - 2 ECTS  |
| Prerequisites          | The course is meant to deepen the technical knowledge of the econometric methods used in the analysis of financial markets. Necessary prerequisites are Econometrics and Statistics  |
| Learning outcomes      | The objective of this course is to provide a comprehensive and systematic account of financial econometric models and their applications to modeling and prediction of financial time series data, focusing on asset returns and volatilities. The students will learn the analytical tools needed for the specification and estimation of econometric models with financial data. Students at the end of the course will have a working knowledge of financial time series data and gain expertise in the software to conduct the analyses. |
| Course contents        | Introduction to MATLAB   |

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|   | <p>1. Finite difference equations. Solutions and stability. Stationarity and ergodicity</p> <p>2. ARMA models: Stationarity, invertibility, forecasting</p> <p>3. Maximum likelihood estimation of ARMA models</p> <p>4. VAR: representation and estimation</p> <p>5. Stochastic trends and deterministic trends</p> <p>Test per radici unitarie</p> <p>6. Kalman filter</p> <p>7. Cointegration</p> <p>8. The instrumental variables estimator</p> <p>9. Generalized method of moments (GMM)</p> <p>Empirical asset pricing models</p> <p>2. Volatility of financial returns: models, estimation, forecasting</p> <p>(a) Introduction</p> <p>(b) Univariate GARCH models (T, 8,9,10)</p> <p>(c) Multivariate GARCH models</p> <p>(d) Stochastic volatility models</p> <p>(e) Nonparametric estimation of volatility with high-frequency data</p> |
| Teaching methods                            | =Frontal lessons  |
| Reccomended or required readings            | <p>Hamilton J. (1994), Time Series Analysis, Princeton University Press.</p> <p>Taylor S.J. (2005) Asset Prices Dynamics, volatility, and prediction, Princeton University Press.</p> <p>Singleton K. (2006) Empirical Dynamic Asset Pricing, Princeton University Press.</p>   |
| Assessment methods                          | =written exam   |
| Further information                         | =written exam   |
| Sustainable development goals - Agenda 2030 | <a href="#">\$lbl_legenda_sviluppo_sostenibile</a>  |