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| **Logo****Department of Economics Statistics and Finance** | ***Statistics for Financial Market*****Master Degree in Statistics and Informatics for Business and Finance****a.y. 2014-2015** |

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| **Code**  | 27003129 |
| **Description**  | Statistics for Financial Market |
| **Sector Code**  | SECS-S/01 |
| **Single Module Type**  | SC |
| **CFU**  | 10 |
| **Course Year**  | 1 |
| **Academical Period**  | 2nd semester (3rd-4th period) |
| **Apprenticeship**  | NO |
| **Language Of Instruction** | Italian |
| **Course Contents**  | The course aims to describe relevant statistical methodologies conceived for the analysis of financial returns financial in order to evaluate the market risk. The theoretical part of the course will be focused on a critical review of the so-called "stylized financial facts" and will be supported with empirical analysis of real financial series by using Excel and the R open source language. For this reason, part of the course will be held in the computer laboratory. |
| **Recommended or Required Reading** | J. Franken, W. Hardle, C.M. Hafner 2008). Statistics of Financial Markets. Springer G. M. Gallo, B. Pacini (2002) Metodi quantitativi per i mercati finanziari. Carocci, Roma. D. Ruppert (2004) Statistics and Finance. An Introduction. Springer |
| **Learning Outcomes** | At the end of the course, the student should have acquired the main statistical tools used in the empirical analysis of financial data and be able to critically conduct analyses using statistical packages |
| **Prerequisites**  | Statistics, Probability Inference, Time series and use of R software |
| **Teaching Methods** | Theoretical lectures and analysis of study cases in laboratory |
| **More Information** | Teacher’s Page: <http://www.unical.it/portale/strutture/dipartimenti_240/disesf/servizi/perri/>  |
| **Assessment Methods** | oral exam and preparation of a short dissertation |
| **Raccomanded Programme** | **Descriptive and inferential analysis of financial returns**. Definition of financial return. Financial time series. Centrality, variability and shape of returns. The autocorrelation function of different forms of returns. Test and graphical methods for assessing autocorrelation. The empirical analysis of the returns and the stylized facts. Tests of normality. Distributional models for returns. **Conditional heteroscedastic models**. Definition and characteristics of volatility. Structure of a model. The GARH models and their use in finance: ARCH(p), GARCH(p,q), I-GARCH, GARCH-M, E-GARCH, T-GARCH. Multivariate extension High-frequency data analysis. The duration models. The auto regressive conditional duration model Parameter estimation **The extreme values theory**. The order statistics and the distribution of maxima. The extreme value distributions: Gumbel, Frèchet and Weibull types and related domain of attraction problem . The POT approach and the generalized Pareto distribution. The EVT for financial time series. |
| **ID Number**  | 010755 |
| **Last Name**  | PERRI |
| **First Name**  | PIER FRANCESCO |
| **Role Code**  | PA |
| **Activity Type**  | LEZ |
| **Hours**  | 60 |