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

INSEGNAMENTO COMPOSTO

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| **Code** | 27003218 |
| **Description** | Advanced Statistical Techniques |
| **Sector Code** |  |
| **Single Module Type** | OB |
| **CFU** | 10 |
| **Course Year** | 1 |
| **Academical Period** | All year |
| **Hours** | 60 |

MODULO 1

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| **Code** | 27003120 |
| **Description** | Time Serie Analysis |
| **Sector Code** | SECS-S/01 |
| **Single Module Type** | OB |
| **CFU** | 5 |
| **Course Year** | 1 |
| **Academical Period** | 2nd period |
| **Apprenticeship** | NO |
| **Language Of Instruction** | Italian |
| **Course Contents** | preliminary analyses of time series, stochastic processes, BJ approach, Reg-Arima. |
| **Recommended or Required Reading** | handouts available from the webpage; Di Fonzo T., Lisi F. (2005), Serie storiche economiche: analisi statistiche e applicazioni, Carocci; Piccolo D. (1990), Introduzione all’analisi delle serie storiche, Carocci; Santamaria L. (2000), Analisi statistica delle serie storiche economiche, Carocci |
| **Learning Outcomes** | Understanding the importance of the time dimension in data; Students will become familiar with the framework conditions of technical decisions in time series analysis and foregasting gaining knowledge of problems and possible solutions in planning, implementation and control in various areas of managerial decision-making based on time-dependent phenomena |
| **Prerequisites** | R language, infererence |
| **Teaching Methods** | Lectures/laboratory Advances with the Arima, Srima and Reg-Arima techniques through intensive practical experiences. |
| **More Information** | Other optional Teaching Units: economic ad busines statistics  Teacher’s Page:  <http://www.unical.it/portale/strutture/dipartimenti_240/disesf/servizi/cozzucoli/> |
| **Assessment Methods** | intermediate tests and final examination |
| **Raccomanded Programme** |  |
| **ID Number** |  |
| **Last Name** | COZZUCOLI |
| **First Name** | Paolo |
| **Role Code** | PA |
| **Activity Type** | LEZ |
| **Hours** | 30 |

MODULO 2

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| **Code** | 27003121 |
| **Description** | Generalized Linear Models |
| **Sector Code** | SECS-S/01 |
| **Single Module Type** |  |
| **CFU** | 5 |
| **Course Year** | 1 |
| **Academical Period** | 4th period |
| **Apprenticeship** | NO |
| **Language Of Instruction** | Italian |
| **Course Contents** | This course deals with statistical models for the analysis of quantitative and qualitative data usually encountered in economic and social science. The statistical methods studied are the general linear model for quantitative responses (multiple regression), regression models for binary data (including logistic regression and probit models), models for count data (Poisson regression) and models for survival data. All of these techniques are covered as special cases of the Generalized Linear Statistical Model, which provides a central unifying statistical framework for the entire course. A set of lecture notes is distributed. |
| **Recommended or Required Reading** | “Generalized Linear Models”, Chapman and Hall; J.K. Lindsey (1997): “Applying Generalized Linear Models”, Springer; Hosmer D. Lemeshow S. (2000) “Applied Logistic Regression”, Wiley. Hosmer, D., Lemeshow, S., and May, S. (2008), Applied Survival Analysis: Regression Modeling of Time-to-Event Data, Second Edition, John Wiley & Sons; Piet de Jong and Gillian Z. Heller (2008): “Generalized Linear Models for Insurance data”, Cambridge University Press; Teacher's slides. |
| **Learning Outcomes** | The course is designed to provide the basic knowledge of generalized linear models. At the end of the course, the student will be able to specify and estimate the model to deal with different kinds of dependent variables. |
| **Prerequisites** | probability theory, statistical estimation and testing theory, multiple regression analysis. Some familiarity with matrix algebra and calculus is necessary. Computer literacy is essential. |
| **Teaching Methods** | theoretical lectures and analysis of a data set |
| **More Information** | N/D |
| **Assessment Methods** | oral exam and preparation of a short dissertation |
| **Raccomanded Programme** | N/D |
| **ID Number** |  |
| **Last Name** |  |
| **First Name** |  |
| **Role Code** |  |
| **Activity Type** |  |
| **Hours** | 30 |