● **Advanced methods for social research (Maria Carmela AGODI)**

The subject of the course is the logic of the scientific method when applied in social sciences. Its main goal is to introduce students to advanced research design and techniques. At the end of the course students are intended to achieve adequate capabilities and skills for a competent design and implementation of empirical research, dealing with qualitative and quantitative data as well.

● **Credit and Finance Risk Analysis (Marina ALBANESE)**

The course provides students decision-making competences derived from the ability to understand, perform and interpret complex problems in credit and financial markets . The course surveys the fundamental concepts of economic theory applied to these markets to provide the skills required in the credit, in financial firms and in institutions of analysis and monitoring of money, credit and capital markets.

● **Demographic Methods and Models (Salvatore STROZZA)**

The course will provide an overview of the major methods and models for the measurement of the components of demographic change and for the analysis of population dynamics, even in the case of missing or incomplete data. A further aim is to provide the basic tools for population predictions.

● **English language for statistical sciences (Gabriella DI MARTINO)**

The course aims to consolidate the linguistic skills required to comprehend and communicate in specific professional environments and to express opinions through the analysis of specialist academic texts.

● **English language laboratory**

● **German (German as a foreign language) (Amelia BANDINI)**

The course aims to consolidate linguistic tools for understanding speaking and writing in professional contexts. In particular through the analysis of academic and specialized texts, will be developed language skills aimed to relate and to express opinions in specific professional fields.

● **Mathematical methods for Statistics (Mariarosaria COPPOLA)**

The aim of the course is to provide students with the knowledge of methods and mathematical tools necessary for an appropriate quantitative approach to the issues of statistical nature that will be addressed during the course of Degree. In addition, on the basis of quantitative tools learned, the student will be able to develop and deepen its expertise through consultation of databases and publications related to the topics addressed during the course of the study.

● **Methods and models of multivariate data analysis (Carmela CAPPELLI)**

The aim of the course is to provide the students with the main multivariate data analysis methods and models, i.e. statistical techniques used to analyze data that arises from more than one variable. The course covers both the underlying theory required to understand the multivariate methods and models, as well as their applications in data analysis considering real datasets. The methods/models covered in the course are: multiple linear regression focusing on diagnostic issues, principal

component analysis, binary segmentation, discriminant analysis, analysis of variance. A relevant part of the course includes computer lab where multivariate data analysis is performed using the R package.

● **Models for dynamic data (Francesca DI IORIO)**

The overall aim of this course is to provide students with an advanced understanding of the principles and techniques for the standard quantitative analysis in economics and finance. Using statistical methods, the student will be able to verify the validity of economic theories, to forecast trend of the real economic and financial variables, to assess the effects of macro and micro-economic policies, and finally to provide feedback to the non-observable economic variables (eg, the marginal propensity to consume).

● **Public Economics (Iacopo GRASSI)**

The aim of this course is to introduce students to a number of key topics in public economics. The focus is on relevant economic theory (Demand-Supply model, Production Theory, Market structures), the role of the State and its limits (Market Failures), the debate over regulation (Economic Crisis)

● **Privacy Law (Claudio FABRICATORE)**

The course intends to teach the principles and laws that regulate the recording, transmission and use of statistical information in accordance with the laws which protect the right to privacy.

● **Private Law (Claudio FABRICATORE)**

The course intends to teach the basic principles and legal principles to convey a knowledge of existing legislation and its rules with reference to the Italian private law.

● **Risk analysis (Mariarosaria COPPOLA)**

The aim of the course is to provide students with the knowledge of mathematical models and probabilities calculation for the management of risk in the financial sector and insurance. These models are presented with a view of their practical applicability for obtaining meaningful evaluations in order to take concrete and practical decisions. The student, on the basis the knowledge gained, will also be able to develop and deepen its expertise through consultation of databases and publications related to the topics addressed during the course of the study.

● **Sample surveys (Alfonso PISCITELLI)**

The purpose of this course is to provide an overview of current methods and issues in survey sample design. Emphasis will be on construction of sampling frames, simple random, stratified, cluster and multistage, methods of estimation and sampling methods for surveys of human populations. To successfully complete the course, students must attend class regularly. Upon successfully completing this course, students will be able to: 1) deal with practical aspects of the design and implementation of sample surveys; 2) design and implement surveys with the following sampling designs: simple random, stratified, cluster and multistage; 3) estimate sample size for different sampling designs in order to estimate population level point estimates and testing null

hypothesis; 4) understand the nature of non-sampling and measurement errors in surveys and how to control their effects; 5) design, conduct, and analyze the results of a sample survey.

● **Statistical models for evaluation analysis (Maria IANNARIO, Domenico PICCOLO)**

The course discusses the statistical models proposed per the analysis of categorical and ordinal data in the economics, social and political sciences. The approach will connect the methodological problems with real situations where evaluations, preference, judgements are expressed as rankings or ratings. Students will learn how to select convenient method and how to implement in an efficient software.

● **Statistical methods for complex data (Francesco PALUMBO e Giancarlo RAGOZINI)**

The course illustrates some basic approaches for the statistical analysis of complex data, i.e. interval-valued, functional and relational data. Students should be able to accomplish critical choices in the model selection and in the results interpretation.

● **Statistical Models (Giancarlo RAGOZINI)**

The course intends to provide fundamental tools of the exploratory and confirmatory analysis of multivariate data. Linear and non-linear models will be presented. Student will also acquire skills in data analysis through practical activities, especially related to the model choice and results interpretation.

● **Theory of statistical inference (Marcella CORDUAS)**

The main objective of the course is to provide students with a solid ground in statistical inference allowing them to conduct methodological analysis in the field. The three main goals in inference (estimation, confidence set construction and hypothesis testing) are discussed in a theoretic framework.