



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze Economiche, Aziendali e Statistiche
ACADEMIC YEAR	2022/2023
MASTER'S DEGREE (MSC)	ECONOMIC AND FINANCIAL SCIENCES
SUBJECT	COMPUTATIONAL STATISTICS AND STATISTIC SOFTWARE
TYPE OF EDUCATIONAL ACTIVITY	C
AMBIT	20979-Attività formative affini o integrative
CODE	06660
SCIENTIFIC SECTOR(S)	SECS-S/01
HEAD PROFESSOR(S)	ABBRUZZO ANTONINO Professore Associato Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	8
INDIVIDUAL STUDY (Hrs)	146
COURSE ACTIVITY (Hrs)	54
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	2
TERM (SEMESTER)	1° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	ABBRUZZO ANTONINO Monday 15:00 17:00 DSEAS secondo piano stanza 222

DOCENTE: Prof. ANTONINO ABBRUZZO

PREREQUISITES	Averages and variability indexes. Dependence and interdependence: simple linear regression and correlation. Discrete and continuous random variables: distribution function and probability density. Distribution function and probability density of two-dimensional random variables. Principles and methods of the theory of estimation and hypothesis testing.
LEARNING OUTCOMES	Knowledge and understanding Acquisition of the discipline language to understand it and use it appropriately in relation to different contexts; acquisition of statistical methods for the analysis of qualitative and quantitative data. Applying knowledge and understanding Being able to distinguish between the various types of data and the ability to acquire them; to recognize the nature of the data to be processed in relation to the objectives; using critically linear models to analyze relationships among variables. Judgment autonomy Being able to produce results in relation to the noun and the phenomenon and the methodologies used. Being able to link results from alternative techniques and non. Being able to synthesize. Communication skills Being able to draw up a technical report with various levels of detail depending on the scope and application of the recipient; to expose orally what is contained in the written report by modulating the language and the formalism depending on the recipient. Learning ability Being able to consult the national and international scientific literature; to distinguish texts depending on the scope and the application of statistical content; to rework what has been learned through the adaptation to the conditions and limits from any customer and the type of problem to be solved.
ASSESSMENT METHODS	The final exam consists of writing and discusses a statistical report based on the analysis of a data set. The analysis will be conducted within the statistical environment R. The evaluation is expressed in the thirtieth. The test will tend to verify: a) the level of acquired knowledge and the ability to establish relationships among the topics; b) the capacity of processing and analyzing the context, the ability to apply correctly the contents for the resolution of the proposed problems; c) the ability to expose adequately and the properties of language. With regard to the evaluation of the points listed above, the following table of correspondence trial-vote will be considered: excellent: 30-30 cum laude; very good: 27-29; good: 24-26; fairly good: 22-24; sufficient: 18-21 insufficient: <18.
EDUCATIONAL OBJECTIVES	The objective of this course is to provide the students with the knowledge necessary to use linear models and extension of the regression model, for analyzing financial and economic data. In this course, we deal with both the theoretical and the applied aspects. The open-source statistical software R will be used for applications. R is a very flexible free and constantly updated software, able to perform statistical analysis at each level.
TEACHING METHODS	The course is structured in 54 hours, 36 hours of lectures and 18 hours of exercises and laboratory.
SUGGESTED BIBLIOGRAPHY	Il materiale didattico consiste in dispense, lucidi e codici in linguaggio R, forniti dal docente e disponibili sul portale studenti. (The course material is provided by the teacher and online available). I testi consigliati sono i seguenti: - A.M. Mineo - Una Guida elementare all'utilizzo dell'ambiente Statistico R - Laboratorio di statistica con R, F. Ieva et al. 2016, Pearson (Appendice, Cap. 1, 2, 4, 5, 6, 7, 11) - Linear Models with R, Julian Faraway, Chapman & Hall (Cap 1-6) - Extending the linear models with R, Julian Faraway, Chapman & Hall (Cap 1-6, 8 - 11, 15 - 17)

SYLLABUS

Hrs	Frontal teaching
3	An introduction to R
6	Multiple linear regression model
15	Multiple Linear Regression Model and its extensions
12	Nonparametric regression models

Hrs	Practice
2	Multiple linear regression model in R
10	Multiple Linear Regression Model and its extensions in R
6	Nonparametric regression models in R