



# UNIVERSITÀ DEGLI STUDI DI PALERMO

<b>DEPARTMENT</b>	Scienze Economiche, Aziendali e Statistiche
<b>ACADEMIC YEAR</b>	2017/2018
<b>BACHELOR'S DEGREE (BSC)</b>	STATISTICS FOR DATA ANALYSIS
<b>SUBJECT</b>	STATISTICS 1
<b>TYPE OF EDUCATIONAL ACTIVITY</b>	A
<b>AMBIT</b>	50244-Statistico - probabilistico
<b>CODE</b>	06647
<b>SCIENTIFIC SECTOR(S)</b>	SECS-S/01
<b>HEAD PROFESSOR(S)</b>	PLAIA ANTONELLA      Professore Ordinario      Univ. di PALERMO
<b>OTHER PROFESSOR(S)</b>	
<b>CREDITS</b>	9
<b>INDIVIDUAL STUDY (Hrs)</b>	145
<b>COURSE ACTIVITY (Hrs)</b>	80
<b>PROPAEDEUTICAL SUBJECTS</b>	
<b>MUTUALIZATION</b>	
<b>YEAR</b>	1
<b>TERM (SEMESTER)</b>	1° semester
<b>ATTENDANCE</b>	Not mandatory
<b>EVALUATION</b>	Out of 30
<b>TEACHER OFFICE HOURS</b>	<b>PLAIA ANTONELLA</b> Wednesday 15:00 - 17:00      La modalita, in studio o su Teams, va concordata col docente

DOCENTE: Prof.ssa ANTONELLA PLAIA

<b>PREREQUISITES</b>	Conoscenze di base di matematica
<b>LEARNING OUTCOMES</b>	<p>Knowledge and understanding Knowledge of statistical methods and procedures for exploratory and descriptive analysis of univariate and bivariate data. Knowledge of non-specialist and statistical software.</p> <p>Capacity 'to apply knowledge and understanding Being able to choose the appropriate statistical computer analysis solutions for the particular study.</p> <p>Making judgments To be able to: 1. translate into statistical terms a knowledge requirement arose in different application fields. 2. intervene with cleaning activities, reorganization, descriptive analysis and interpretation of data from different types of sources, 3. process and communicate consistently the results of their observations</p> <p>communication skills To be able to: 1. grasp and define the statistical target of a study involving parties not experts, justifying the choices of the tools used for the analysis, 2. communicating the results of analysis with appropriate language.</p> <p>learning ability The student must have developed the learning skills necessary to continue the study of statistical, methodological and applied, by mastering the basic cultural and educational content necessary also to follow the updates of the discipline.</p>
<b>ASSESSMENT METHODS</b>	<p>Ongoing test, written test, oral interview. The exam is done through an oral interview, subject to passing the written test and, for the winter session tests, to overcoming the ongoing evaluation. The Selection Committee is formed by the chair of the class and at least one other teacher, professor or assistant professor, or an expert on the subject.</p> <p>Ongoing evaluation The ongoing evaluation (written) will be held in the week from 13 to 17 November 2017, it will last one hour and will focus on the part of the program of the first 6 weeks of the course. It will consist of 4 multiple choice questions, the value of at most three points each, and a question divided into six several sub-questions of the value of at most 3 points each. The final mark will be in thirties, it is believed passed with a score of 18/30, and is valid only if the student completes the exam (written and oral) during the winter session.</p> <p>Written test The written exam (on the computer) for those who passed the ongoing test, and limited to the winter session, is constituted by one or more exercises on subjects covered in the second part of the course, using R environment and lasts 1 hour. The written test for those who did not pass the ongoing test and during all the other sessions (summer and autumn) lasts two hours and includes two exercises to do without the use of PC and 1 or more exercises in R environment, focusing on the whole program of the course. It will not be allowed to use books or notes, but it is recommended to use a calculator.</p> <p>Starting from the summer session all the students will have to take the written test lasting 2 hours. The tests, well-defined, clear, different in difficulty and uniquely interpretable, allow students to independently formulate the answer and they are structured so as to allow comparison with that provided by other students. The sufficiency threshold, which indicates the passing of the test, is in the proper use of terms relating only to the basic concepts of the course, and i) in the case of a practical question, with the application of appropriate statistical methodology although spoiled by mere miscalculation (provided consistent with the methodology itself); ii) in the case of theoretical question, in consistency (from a statistical point of view) of the answer, albeit not complete.</p> <p>Oral exam The oral test is intended to deepen the written work and assessment learning of the student. This will consist of at least two questions, about the whole syllabus, aimed at graduating better the assessment of knowledge, skills, transversal skills held by the student, as well as his ability to provide it with a suitable statistical language. The threshold of sufficiency of the interview will be reached when the student has demonstrated knowledge and understanding of the subjects (definition of concepts) and have minimal application skills. The more, however, the examinee has given evidence during the oral interview of his argumentative skills and exhibition, as well as of the statistical language properties, the more the evaluation will be positive.</p> <p><b>FINAL EVALUATION</b> The final evaluation of the examination will consider three aspects: i) mastery of the subjects; ii) the ability of application of knowledge and iii) the properties of</p>

	<p>language, assessed as a whole in the written test (with weight 3, or 5 in absence of ongoing test), the ongoing evaluation (if present, with weight 2) and the oral interview (with weight 5).</p> <p>The teacher could take account of the other factors (such as active participation in classes and exercises, or presence of some disables). If the student does not pass the examination, he can enroll for the next one.</p>
<b>EDUCATIONAL OBJECTIVES</b>	<p>The course aims to provide the basic elements useful for the study of collective phenomena. Indeed statistics analyzes quantitatively the phenomena whose study requires the observation of a series of individual events. In particular the methods of that part of the statistics, known as Descriptive Statistics, directed to the analysis of the characteristics of a collective observed in its entirety, will be introduced. At the end of the course the student will be 'able to identify the appropriate methods and techniques and apply them to the analysis, summarizing the results in the most effective way. The hours of the Laboratory will be held in the Lab and will introduce students to the use of R.</p>
<b>TEACHING METHODS</b>	Lectures, problem classes, homework
<b>SUGGESTED BIBLIOGRAPHY</b>	<p>Cicchitelli, D'Urso, Minozzo, Statistica: Principi e Metodi, III ed., Pearson, 2017. Capp. 1-7, 9-11          Borra, Di Ciaccio, Statistica 3ª ed., McGraw-Hill. Capp 1-6.          R Manuals. <a href="http://cran.r-project.org/manuals.html">http://cran.r-project.org/manuals.html</a>          Materiale didattico fornito dal docente, disponibile sul Portale Studenti.</p>

## SYLLABUS

Hrs	Frontal teaching
2	Objectives of the discipline and its subdivision
2	Statistical concepts and introductory terminology
2	Population; statistical units; characters and variables
4	Tables ; absolute, relative and cumulative frequencies.
2	Statistical plots
4	Central tendencies
4	Measures of variability and eterogeneity
2	Kurtosis and skewness
6	Cross-tabulations and contingency tables. Conditional distributions
4	Marginal and conditional central tendencies and measures of variability
4	Statistical dependence
4	Measures of association for ordinal variables
6	Mean dependence
10	Linear regression and correlation
Hrs	Practice
4	R statistical language
8	Distribution of a statistical variable. Statistical plots. Central tendencies and measures of variability in R
6	Distributions of pairs of variables
6	Association and correlation