



# UNIVERSITÀ DEGLI STUDI DI PALERMO

<b>DEPARTMENT</b>	Scienze Economiche, Aziendali e Statistiche
<b>ACADEMIC YEAR</b>	2023/2024
<b>BACHELOR'S DEGREE (BSC)</b>	STATISTICS FOR DATA ANALYSIS
<b>SUBJECT</b>	SAMPLE SURVEYS AND OPINION POLLS
<b>TYPE OF EDUCATIONAL ACTIVITY</b>	B
<b>AMBIT</b>	50250-Statistico, statistico applicato, demografico
<b>CODE</b>	22733
<b>SCIENTIFIC SECTOR(S)</b>	SECS-S/05
<b>HEAD PROFESSOR(S)</b>	GIAMBALVO ORNELLA Professore Ordinario Univ. di PALERMO
<b>OTHER PROFESSOR(S)</b>	
<b>CREDITS</b>	6
<b>INDIVIDUAL STUDY (Hrs)</b>	94
<b>COURSE ACTIVITY (Hrs)</b>	56
<b>PROPAEDEUTICAL SUBJECTS</b>	
<b>MUTUALIZATION</b>	
<b>YEAR</b>	3
<b>TERM (SEMESTER)</b>	1° semester
<b>ATTENDANCE</b>	Not mandatory
<b>EVALUATION</b>	Out of 30
<b>TEACHER OFFICE HOURS</b>	<b>GIAMBALVO ORNELLA</b> Tuesday 10:00 12:00 Il servizio prenotazione ricevimento e sospeso. Per fissare un appuntamento con la docente si prega di inviare una mail all'indirizzo ornella.giambalvo@unipa.it Wednesday 12:00 13:00 Il servizio prenotazione ricevimento e sospeso. Per fissare un appuntamento con la docente si prega di inviare una mail all'indirizzo ornella.giambalvo@unipa.it

<p><b>PREREQUISITES</b></p>	<p>The course requires the knowledge of descriptive and inferential statistics, the foundations of mathematics and probability theory and SAS software.</p>
<p><b>LEARNING OUTCOMES</b></p>	<p>Knowledge and Understanding Acquisition:</p> <p>of survey types and the type of data produced. Ability to apply knowledge and understanding Being able to: recognize the nature of data (individual or aggregated, longitudinal or instantaneous, spatial or point-based, censored or complete, etc.) and identify the possibility of acquiring them; proficiently use SAS at an intermediate level; recognize data types; know how to use PROC SURVEYMEANS and different options. Judgment autonomy Being able to: provide a critical interpretation of the obtained results in relation to the data type (survey or experimental data, longitudinal or instantaneous data, etc.) and disciplinary field (social, educational, etc.); evaluate the potential of SAS in analyzing real data from sample surveys. Communication skills Being able to: understand the main elements for preparing a written report on a simple sampling technique. Learning ability Being able to: consult basic national and international literature; enhance acquired knowledge by attending higher-level courses; distinguish texts based on their statistical content in different application areas; adapt and apply learned concepts to the conditions and limitations imposed by the client and the type of problem to be solved; assess the use of common computer tools (Excel, R, and SAS) in comparative terms.</p>
<p><b>ASSESSMENT METHODS</b></p>	<p>Test The test aims to check student's knowledge, abilities (with respect to excel too) and his/her talent in reporting them in a text along with an adequate statistical language. The test lasts 2 hours. During the written test cellular phones, smartphones, and own notebook/tablet will not allowed, under penalty of invalidation of the exam. Student can withdraw from the exam (oral and written) at any time. If the student does not pass the exam, he/she can do it again at next scheduled exam. The test considers three questions: the first, aims to assess the putting in field when the students must organize a sampling plan, The second exercise concerns the use of methods and formulas to estimate a parameter, the variance of the estimator and his deft with the software used during the exercises in classroom. The third exercise is a test of 3 multiple choice questions (True/ False) in which a discussion of the given answers is required. The pass-mark (expressed by a mark of 18 on a 0-30 scale) will be reached when the student will show a basic use of the core concepts/terms of the module, and when he chooses the suitable methodology even in case of some calculus errors, provided for of any coherence with the theoretical question. Is the student solves only the second exercise the written test passes. Oral exam Once the student passes the written test, he/she will access to the oral exam. Oral exam regards both course modules and it will examine in depth the test and further student's knowledge. Oral exam consists of at least 2 questions aimed to better graduate the assessment of the student's knowledge and abilities (also to made links to others subjects) and his/her talent in reporting them by a statistical speech (it will complete the outcome of the test). Pass-mark will be reached when the student will show a basic use of the core concepts/terms of the course. Better he/she will perform, higher will be the assessment. Final mark Final mark will consider of the outcomes of both written test and oral exam. Final passing mark for the whole course is in [18; 30]: it comes from the simple mean of the final marks of the two exams. The teacher could also take into account some student context characteristics (disability, or level of participation during lessons). The level of SAS knowledge demonstrated during the exams required for obtaining the BASE SAS certification must be at least sufficient.</p>
<p><b>EDUCATIONAL OBJECTIVES</b></p>	<p>The main aim of this module regards basic statistical methods for survey sampling (questionnaire, dimension, and schemes), estimation of an unknown parameter of a population (unknown) and its standard error. At the end of the</p>

	module, students will be able to perform a simple survey and collect data. Students will be more confident with Excel worksheets and software SAS.
<b>TEACHING METHODS</b>	Frontal lessons and practice exercises. SAS Lab for data analysis. During the course, the teacher will share with the students a short article, a book chapter, or a part thereof in English of an informative nature, which will be discussed with the students.
<b>SUGGESTED BIBLIOGRAPHY</b>	Cochran (1977) Sampling Techniques. Wiley & Sons. Cap da 1 a 5. Dispense del corso Boscaino G., Giambalvo O. (2014) Sampling, in Probability and Statistics: A Didactic Introduction, pagg. 176-209. Ed. Jose' I. Barragues; Adolfo Morais; Jenaro Guisasola, by CRC press Taylor & Francis Group. ISBN 9781482219777 Testi per il campionamento con SAS: Selecting Unrestricted and Simple Random With Replacement Samples Using Base SAS® and PROC SURVEYSELECT David. D. Chapman, Consultant, Alexandria, VA e 1. <a href="http://support.sas.com/documentation/cdl/en/statug/68162/HTML/default/viewer.htm#statug_surveysselect_details04.htm">http://support.sas.com/documentation/cdl/en/statug/68162/HTML/default/viewer.htm#statug_surveysselect_details04.htm</a>

### SYLLABUS

Hrs	Frontal teaching
1	Introduction: aims, exams procedures.
1	Introduction to survey sampling: history and sampling from finite population.
4	Simple survey sampling: estimation of the mean, proportion, and total. Setting optimum sampling dimension.
2	The random sampling with SAS
10	Stratified survey sampling: estimation of the mean, proportion, and total. Allocation: proportional, equal, and optimum.
2	Comparisons between simple and stratified sampling (for the three different allocations).
5	SAS procedures and statmenst for surveys; the proc surveymeans for randoma sampling and stratified sampling.
2	The stratified sampling using SAS.
5	Collecting data: questionnaire building and administration.
Hrs	Practice
6	Simple survey sampling: estimation of the mean, proportion, and total. Setting optimum sampling dimension. Estimators and their variances using SAS.
14	Stratified survey sampling: estimation of the mean, proportion, and total. Allocation: proportional, equal, and optimum. Estimators and their variances using SAS.
4	Case studies and analysis of results.