

COURSE OF STUDY *Statistics and methods for Economics and Finance*
ACADEMIC YEAR 2023-24

ACADEMIC SUBJECT *Statistics for services assessment*

General information	
Year of the course	<i>1st year</i>
Academic calendar (starting and ending date)	<i>1st semester</i>
Credits (CFU/ETCS):	8
SSD	<i>Statistics - SECS-S/01</i>
Language	Italian
Mode of attendance	<i>Attendance at the course is strongly recommended</i>

Professor/ Lecturer	
Name and Surname	<i>Angela Maria D'Uggento</i>
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Department and address	<i>Economics and Finance</i>
Virtual room	
Office Hours (and modalities: e.g., by appointment, on line, etc.)	<i>Tuesday and Thursday, 9:00 am to 11:00 am. May change depending on class schedule and specific needs of professor or students.</i>

Work schedule			
Hours			
Total	Lectures	Hands-on (laboratory, workshops, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
<i>200</i>	<i>48</i>	<i>10</i>	<i>142</i>
CFU/ETCS			
<i>8</i>	<i>6</i>	<i>2</i>	

Learning Objectives	<i>The objective of the course is to provide students with the knowledge to critically use the main multivariate statistical methods for the analysis and evaluation of services and interventions in both the public and private sectors, and to identify user needs by applying the conceptual tools, models and statistical techniques covered in the course. The laboratory is devoted to analysis of official data and modeling with statistical software.</i>
Course prerequisites	<i>knowledge of descriptive and inferential statistics, the basics of matrix algebra, and the main elements of multivariate statistical analysis.</i>

Teaching strategies	<i>Lessons with PC exercises and slides. Seminars for in-depth analysis of specific topics using software.</i>
Expected learning outcomes in terms of	
Knowledge and understanding on:	<i>Students must acquire knowledge of the phenomenon under study, demonstrating the ability to organize and process data for the analysis and evaluation of services and interventions using the most appropriate analytical techniques in relation to the problem being addressed, to model and propose solutions, and to interpret the results obtained.</i>

Applying knowledge and understanding on:	<i>students must acquire the professional tools to approach and solve problems of data organization, processing and analysis useful for operational support of decision-making processes.</i>
Soft skills	<p><i>- students must develop independent judgment and skills in data collection, including from official national and international sources, data analysis and interpretation. The use of official documents and scientific articles will support learning. The use of statistical software will allow for a better understanding of what is learned in the course.</i></p> <p><i>- students must be able to identify the most appropriate methods for communicating the results of the analyzes performed.</i></p>
Syllabus	<p>PART I - Evaluation: definitions and generalities. Statistics and its applications in evaluation. Concept and purpose of statistical evaluation. Services: Essence, definitions and requirements. Definition of the concept of quality. TQM.</p> <p>PART II - Statistical measurements of service quality. Statistical indicators of efficiency, effectiveness and quality. Recall the statistical summary of indicators, measurement scales and rating scales (Likert and others) to measure their validity and reliability. Creation of a questionnaire for quality assessment: Likert and Delphi techniques. Methods for measuring the quality of services: SERVQUAL and SERVPERF.</p> <p>PART III - Multivariate statistical analysis for evaluation. Basic concepts of classification analysis in data mining and segmentation analysis. Cluster analysis. Decision analysis. Notes on advanced classification analysis (artificial neural networks). Notes on exploratory factor analysis. Multivariate scaling of ordinal and categorical variables. European customer satisfaction index and PLS estimation method. Notes on structural equation models: Confirmatory factor analysis and determination of latent variables (quality dimensions). Mediation analysis.</p>
Content knowledge	
Texts and readings	<p>d'Ovidio F. D., a cura di (2012) Elementi di statistica per la valutazione dei servizi Temi di ricerca e didattica, CLEUP, Padova</p> <p><i>Teaching material of the lecturer (A. M. D'UGGENTO - F. D. D'OVIDIO. Course notes), available at http://dief.osel.it with password provided by the instructor.</i></p> <p>Fabbris L. (1997), <i>Statistica multivariata: analisi esplorativa dei dati</i>, McGraw-Hill</p>
Notes, additional materials	
Repository	http://dief.osel.it
Assessment	
Assessment methods	<i>The profit test is conducted through an oral interview supplemented by exercises conducted simultaneously with the oral exam. The assessment of knowledge contributes equally to the ability to analyze, the theoretical knowledge acquired and the ability to solve problems involving real cases.</i>
Assessment criteria	<p><i>Based on the above expected learning outcomes, the following are expected:</i></p> <ul style="list-style-type: none"> <i>- Knowledge and skills of comprehension: students must demonstrate that they have acquired knowledge and are able to conduct statistical investigations.</i> <i>- Applied Knowledge and Skills: students must be able to apply the correct statistical tools to investigate the social phenomenon and correctly interpret the results of the analyzes conducted.</i>

	<ul style="list-style-type: none"> - <i>Critical skills and judgment: students must be able to define the possible research hypotheses while demonstrating the ability to collect and interpret data.</i> - <i>Ability to communicate what has been learned: Students must be able to understand the research hypotheses and rationale for the methods used and write a report analyzing and interpreting the results obtained.</i> - <i>Ability to continue studies independently: with the acquired methodological knowledge, students must be able to carry out further studies with a high degree of independence.</i>
Final exam and grading criteria	<i>The final grade is given in thirtieths. The exam is considered passed if the grade is greater than or equal to 18.</i>
Further information	