



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	
ACADEMIC YEAR	
ANNO ACCADEMICO EROGAZIONE	
SUBJECT	
CODE	
SCIENTIFIC SECTOR(S)	
HEAD PROFESSOR(S)	VASSALLO ERASMO Professore Associato Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	
TERM (SEMESTER)	
ATTENDANCE	
EVALUATION	
TEACHER OFFICE HOURS	VASSALLO ERASMO Monday 14:30 15:30 Ufficio docente o da remoto via Teams Tuesday 14:30 15:30 Ufficio docente o da remoto via Teams

PREREQUISITES	The course requires knowledge of inferential statistics and statistical modeling.
LEARNING OUTCOMES	<p>Knowledge and understanding. Acquisition: 1. Essential tools for analyzing the market of goods and services; 2. Of the language specific to economic disciplines in this disciplinary field in order to understand and use it appropriately; 3. Structure and content of the analysis models specific to economic disciplines to analyze the effects of public intervention policies in the field of services; 4. Principles of performance measurement; 5. Principles of production factors and functions.</p> <p>Ability to apply knowledge and understanding. Be able to: 1. Evaluate and develop the relevant areas for public intervention; 2. Identify what the information is necessary to be able to evaluate the degree of effectiveness of a public policy or intervention; 3. Carry out elementary analyzes on the capacity that systems and services have in responding to the needs of the community; 4. Carry out elementary cost-benefit analyzes to recognize the potential effects of public policies on the market; 5. Research, extract and comment on the statistical data connected to the evaluation and performance system both in the regional/ national and international context.</p> <p>Autonomy of judgement. Be able to evaluate the implications and results that public policies can achieve in the regulation of markets and services; be able to provide a critical reading of the results obtained with the application of the different analysis models. Appropriate use of indices and performance indicators in connection with public accounts.</p> <p>Communication skills. Ability to explain the main concepts and tools of statistical performance evaluation. Be able to expose results obtained through economic and statistical analysis and to highlight the socio-economic impacts of spending interventions. Be able to summarize and report the main problems of economic and statistical analysis in the field of services.</p> <p>Learning ability. Ability to critically evaluate, using the knowledge acquired during the course, both specialist sector studies and the institutional structure of the systems and services present in different countries. Ability to update by consulting one's own and other scientific and statistical publications in economic statistics. Ability to have, using the knowledge acquired during the course, a more advanced training such as masters or specialist seminars.</p>
ASSESSMENT METHODS	<p>Written test and oral test. The written test focuses on the ability practical and interpretative regarding the resolution of a problem usually with the use of a statistical model for time series or cross-section series. The written test lasts about an hour and is structured so that the student can successfully use different and alternative analysis strategies. In particular, you are asked to focus on the meaning and interpretation of the data and the result obtained. The oral exam addresses in detail all the topics of the study program with the possibility of providing, during the same exam, mathematical and statistical demonstrations or solving short exercises. The oral test lasts about half an hour. The student's evaluation takes into account: knowledge of concepts and topics, ability to apply them, properties of statistical language in both the written and oral tests. Each of these dimensions is given a rating between: absent, poor, sufficient, good, excellent. The minimum rating of 18 is given for a just sufficient knowledge of the topics, while the maximum rating of 30 is given in the case of a full and mature knowledge of the topics. Whether reports and homeworks are carried out during the course, and whether they are sufficient to evaluate the student's skills, they can be used as a skills assessment to replace the traditional exam.</p>
EDUCATIONAL OBJECTIVES	<p>The student must achieve knowledge and skills that are useful and necessary for the professional activities involved in the measure and in the statistical evaluation of the characteristics and performances of private and public services at both local and national level/international. In particular, the student must acquire the statistical tools used and usable for the analysis and evaluation of services. Furthermore, one objective is to acquire the theoretical and practical elements for data collection, analysis and interpretation of statistical information through appropriate indices and indicators in the context of parametric and non-parametric modeling. The student who learns the structure of the main institutions and services and the methods of performance evaluation should be able to know the main aspects that characterize these systems and have the ability to evaluate the peculiar characteristics, highlighting the paths of improvement and adaptation to the highest standards.</p>
TEACHING METHODS	<p>Lectures, exercises and laboratories with extensive use of the R statistical software. Preparation of teaching support material uploaded to the institutional website. Procedures with SAS and Python are also used.</p>
SUGGESTED BIBLIOGRAPHY	

	<p>1- Hollingsworth B., Peacock S.J. (2008) "Efficiency Measurement in Health and Health Care", Routledge: New York. ISBN 9780415569491.</p> <p>2- Sickles R.C., Zelenyuk V. (2019). Measurement of Productivity and Efficiency: Theory and Practice. Cambridge University Press: Cambridge. ISBN: 978-1107687653.</p> <p>3- Montgomery D.C. (2012). Statistical Quality Control: A Modern Introduction. Wiley: NY. ISBN: 978-1118322574.</p>
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SYLLABUS

Hrs	Frontal teaching
2	Principles of performance measurement
2	Economic and statistical factors of performance in services
4	Statistical source of the data for European, national and regional comparison
2	Production, productivity and efficiency
4	Parametric and non-parametric models for performance measurement
4	Univariate and multivariate control charts for statistical analysis of quality
6	Composite indicators for performance analysis: data, aggregation, weighting. Theory and applications.
Hrs	Practice
4	Performance measurement. Use of software (R, SAS, Python).
4	Productivity and efficiency. Use of software (R, SAS, Python).
4	Control charts. Use of software (R, SAS, Python)
6	Exercises and case studies. Other applications with softwares.