



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Culture e società		
ACADEMIC YEAR	2019/2020		
MASTER'S DEGREE (MSC)	COOPERATION, DEVELOPMENT AND MIGRATIONS		
INTEGRATED COURSE	QUANTITATIVE METHODS FOR DEVELOPMENT ANALYSIS		
CODE	20699		
MODULES	Yes		
NUMBER OF MODULES	2		
SCIENTIFIC SECTOR(S)	SECS-S/05		
HEAD PROFESSOR(S)	MILITO ANNA MARIA	Professore a contratto in quiescenza	Univ. di PALERMO
OTHER PROFESSOR(S)	MILITO ANNA MARIA	Professore a contratto in quiescenza	Univ. di PALERMO
	FERRANTE MAURO	Professore Associato	Univ. di PALERMO
CREDITS	9		
PROPAEDEUTICAL SUBJECTS			
MUTUALIZATION			
YEAR	1		
TERM (SEMESTER)	1° semester		
ATTENDANCE	Not mandatory		
EVALUATION	Out of 30		
TEACHER OFFICE HOURS	FERRANTE MAURO Wednesday 10:00 - 12:00 Stanza del docente: edificio 15, sesto piano, stanza 608, oppure su Piattaforma Microsoft Teams. E' preferibile che gli studenti interessati contattino il docente tramite mail qualche giorno prima per essere aggiunti al team del ricevimento.		
	MILITO ANNA MARIA Thursday 10:00 - 12:00 Edificio 15, viale delle Scienze, VI piano stanza 602		

PREREQUISITES	The students are expected to have basic knowledge of mathematical concepts of high school programs, more in particular: the concept of logarithm, Cartesian coordinate system, and the linear equation.
LEARNING OUTCOMES	1) Knowledge and understanding Students have demonstrated knowledge and understanding of statistical methodologies aiming at constructing elementary and composite indicators in the socio-economic field 2) Applying knowledge and understanding Students can apply their knowledge and understanding in new or unfamiliar environments within broader (or multidisciplinary) contexts related to the field of development and cooperation. 3) Making judgements Students have the ability to integrate knowledge and handle complexity, and formulate judgements with incomplete or limited information, but that include reflecting on consequences linked to the application of their knowledge and judgements. 4) Communication Students can communicate their conclusions, and the knowledge and rationale underpinning these, to specialist and non-specialist audiences clearly and unambiguously. In order to gain this goal students are solicited to prepare and present documents and short research reports to be discussed during the lectures with classmates and teachers. Several guided debates on case studies about developed and developing countries will take place dealing with social and economic development themes. 5) Lifelong learning skills: Students have the learning skills to allow them to continue to study in a manner that may be largely self-directed or autonomous. They develop these skills through efforts during lectures to judgmentally analyse socio-economic context of a country, by using primary and secondary information sources and scientific literature.
ASSESSMENT METHODS	Final written test and oral discussion for both modules. Written test is made by practice on building composite indicators and theoretical questions. Final oral exam: The oral assessment, joint for both modules, is a viva in which knowledge and skills in the field of study are going to be tested. Questions shall assess a) knowledge and understanding, b) cognitive and practical skills, c) ability to communicate, d) making judgements. Final grade is on a scale going from 18 to 30 points, and arise from a weighted mean (CFU) of final grades in the two modules. For the module of Indicators of development, written test and oral exam equally concur to the module's grade. Assessment scale: 30 - 30 cum laude a) advanced knowledge of a field of work or study, involving a critical understanding of theories and principles; b) advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study; c) fully adequate use of specialized language; d) take responsibility for managing and innovate the study field. 26-29 a) comprehensive, specialised knowledge within a field of work or study and an awareness of the boundaries of that knowledge; b) a comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems; c) comprehensive use of specialized language; d) exercise management and supervision in contexts of work or study activities. 22 - 25 a) knowledge of facts, principles, processes and general concepts, in a field of work or study. b) basic skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information; c) basic capacity to use specialized language; d) basic capacity to take responsibility for completion of tasks in work or study. 18-21 a) basic general knowledge; b) basic skills required to carry out simple tasks; c) basic capacity to communicate relevant information; d) basic capacity to take responsibility for completion of tasks in work or study. 0-17 a) Insufficient general knowledge; b) Insufficient skills required to carry out simple tasks; c) Insufficient capacity to communicate relevant information;

	d) Insufficient capacity to take responsibility for completion of tasks in work or study.
TEACHING METHODS	Lectures. Tutorials and excel lab. Case studies analyses, teamwork.

MODULE DEVELOPMENT INDICATORS

Prof. MAURO FERRANTE

SUGGESTED BIBLIOGRAPHY

Testi consigliati

- Nardo M., Saisana M. Saltelli A., Tarantola S., Hoffman A., Giovannini E. (2005) Handbook on Constructing Composite Indicators- Methodology and user guide, OCSE Statistics working paper 2005/3 (scaricabile dal web)
- Delvecchio F. (1995) Scale di misure e indicatori sociali - Cacucci Editore

Ulteriore materiale didattico, articoli scientifici e report di Organismi internazionali saranno forniti dalla docente attraverso il portale della didattica ed il portale e-learning unipa.

Supplementary material will be provided by the teacher through the University web-portal and through the e-learning web-page of the course.

AMBIT	50603-discipline economiche
INDIVIDUAL STUDY (Hrs)	110
COURSE ACTIVITY (Hrs)	40

EDUCATIONAL OBJECTIVES OF THE MODULE

The aim of this module is to provide students with statistical methodology and technical skills necessary to: a) build by themselves simple and composite indicators in the socio-economic field; b) interpret and properly use main socio-economic indicators widespread in the official reports by European Union, international organizations and major non-governmental organizations operating in international cooperation; c) understand main composite development indicators from international scientific socio-economic literature, in the area of cooperation and development. Teaching methods aim at stimulating ability to solve problems working individually or in groups, and building and efficaciously using development indicators. At the end of the course, students must possess the mathematical and statistical tools to combine in a single synthetic indicator variables of different nature in order to obtain a quantitative measure of the target phenomenon. They must know how to operate –by means of composite indicators- comparisons between countries and between individuals. Moreover students are expected: a) to have acquired a discriminating judgment and adequate statistical techniques to select the most suitable instrument and data to measure the concept; b) to have gained skills to read and interpret statistical indicators in the present socio-economic literature of the main international organizations of interest to the themes of the course of study.

SYLLABUS

Hrs	Frontal teaching
1	Introduction to the course: objectives, syllabus, teaching and assessment methods.
2	The indicators as instruments for the evaluation of complex phenomena and of the socio-economic development.
2	Types of indicators. Indicator properties.
2	The construction process of the data: measurement of latent variables, selection of variables to measure a multidimensional concept
6	Linear and nonlinear transformations for comparability of data (normalization, standardization, and other transformations).
4	Methods for the synthesis of indicators: choice of the aggregation function and the weighting scheme. Comparing countries' ranking.
4	The construction of a composite indicator in the presence of ordinal variables. Examples on customer satisfaction indicators.
5	Discussion on some composite indicators used in socio-economic field with special reference to indicators for international comparisons. Among others, the Human Development Indices, Quality of life indices, welfare indicators, TAI.
4	Main approaches and indices to poverty measurement.
Hrs	Practice
6	Case study analysis: Excel lab. Particularly: construction of development indicators, variables' selection, data transformation, weighting and aggregation
Hrs	Others
4	Guided discussion on case studies on composite indicators used in national and international field

MODULE PRINCIPLES OF APPLIED STATISTICS

Prof.ssa ANNA MARIA MILITO

SUGGESTED BIBLIOGRAPHY

A scelta tra:

Borra S., Di Ciaccio, A. . Statistica. Metodologia per le Scienze Economiche e Sociali, 2 Ed., McGraw-Hill, Milano.

Cicchitelli G., D'Urso P., Minozzo M.. Statistica: principi e metodi. Ed. Pearson.

Ulteriore materiale didattico sara' rilasciato dal docente.

AMBIT	21029-Attività formative affini o integrative
INDIVIDUAL STUDY (Hrs)	55
COURSE ACTIVITY (Hrs)	20

EDUCATIONAL OBJECTIVES OF THE MODULE

Statistics is a key-element in many aspects of society. The course aims at developing critical capabilities of interpretation of statistical information produced by international organizations and at developing individual capabilities in producing adequate statistical synthesis and graphical representations. The peculiar emphasis placed on the knowledge of the main techniques for describing and analyzing social phenomena allows for the development of comprehension capabilities of the results as well as competences related with data analysis. Particular attention will be devoted to the analysis between quantitative and ordinal variables, as a pre-requisite for some of the topics which will be discussed in the Indicators of development module.

Note

For those students that made a Statistics course during the Bachelor degree, there will be a specific program

SYLLABUS

Hrs	Frontal teaching
2	Course introduction. The measurement process in social sciences. Main definitions and measurement scales.
1	Aims and main stages in statistical survey. Statistical sources.
2	Data Matrix. Simple statistical distributions. Frequency distributions: absolute, relative and percentage frequencies
1	Graphical representations
3	Measures of central tendency: Mode, Median, Quantiles, Arithmetic Mean. Main properties of arithmetic mean
3	Variability: basic concepts. Heterogeneity: the Gini Index of Heterogeneity. Absolute and relative variability: Range, Interquartile range; Standard deviation; Coefficient of variation.
1	Symmetry and asymmetry. The box-plot
1	Statistical ratios, and main statistical indexes.
6	Association between variables: general concepts. Dependence and Independence. Measures of association in contingency tables, Spearman's rank-order correlation coefficient; Kendall index; Bravais-Pearson correlation coefficient; Linear regression model