UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze Psicologiche, Pedagogiche, dell'Esercizio Fisico e della Formazione
ACADEMIC YEAR	2023/2024
BACHELOR'S DEGREE (BSC)	PSYCHOLOGICAL SCIENCES AND TECHNIQUES
SUBJECT	SOCIAL STATISTICS
TYPE OF EDUCATIONAL ACTIVITY	C
AMBIT	10687-Attività formative affini o integrative
CODE	06702
SCIENTIFIC SECTOR(S)	SECS-S/05
HEAD PROFESSOR(S)	PARROCO ANNA MARIA Professore Ordinario Univ. di PALERMO MENDOLA DARIA Professore Ordinario Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	8
INDIVIDUAL STUDY (Hrs)	146
COURSE ACTIVITY (Hrs)	54
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	2
TERM (SEMESTER)	1° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	**MENDOLA DARIA** Tuesday 10:00 11:00 Ricevimento Online su piattaforma Teams (codice di accesso 5u94trz). Occorre *sempre* prenotarsi tramite portale unipa Thursday 09:30 10:30 Dipartimento SPPEFF (campus di viale delle scienze, Palermo), edificio 15, piano 6, stanza P6 010. Occorre *sempre* prenotare almeno 2 gg prima tramite piattaforma. **PARROCO ANNA MARIA** Tuesday 09:00 12:30 Il ricevimento si svolge in presenza presso lo studio 610, al 6 piano dell'ed.15 oppure a distanza su piattaforma TEAMS. Dopo essersi prenotati, si prega di inviare una mail all'indirizzo annamaria.parroco@unipa.it specificando la modalita prescelta e per concordare un appuntamento orario.

DOCENTE: Prof.ssa ANNA MARIA PARROCO- *Lettere A-L*

PREREQUISITES	Prerequisites ensure that you will have the necessary academic background for a course. Students are required to have basic notions of mathematics at the high school level. Particularly: order relations, equivalence relations; natural, rational, real numbers and their properties. Then, absolute value, exponentiation, power; dealing with negative and positive numbers. The notion of a mathematical function. The orthogonal Cartesian reference system, the linear function: geometric meaning of slope and intercept. These prerequisites are acquired autonomously by each student or via the attendance of the first-year course in "BASIC SKILLS FOR QUANTITATIVE ANALYSIS". On the course first day, students must take a self-evaluation test to verify whether they meet the prerequisites. Students lacking required competencies will be provided with a textbook to fill-in their gaps.
LEARNING OUTCOMES	DUBLIN DESCRIPTORS: * Knowledge and understanding: Knowledge and understanding of the basic models and techniques of statistics. * Applying knowledge and understanding: Acquirement of theoretical and methodological skills to support the analysis of psychological contexts. * Making judgements: Acquirement of the capacity to work independently, with a discerning and aware approach, demonstrating to have got the ability to organize the knowledge learned in order to autonomously choose the best actions and solutions according to different situations. *Communication: Acquirement of skills to describe and summarize statistical data and the results of statistical analysis. Acquirement of technical statistical lexicon. Acquirement of the ability to express statement of problems in a formal language (mathematical/statistical). *Lifelong learning skills: Achieving an expertise in autonomous learning. Achieving good ability to apply knowledge to solve concrete prospective problems.
ASSESSMENT METHODS	ASSESSMENT METHODS: Written and oral tests. The written test is in the Italian language and is a multiple-choice test that includes theoretical questions and the resolution of exercises using a spreadsheet (Excel, Calc or similar ones). It will be aimed at assessing acquisitions reached during the course and, in particular, the ability to apply knowledge and understanding, independence of judgment and communication skills. The written test takes about one hour. Any question is given a score (according to its difficulty). Only right answers are scored positively, while a penalty of -20% of the score is given to any incorrect answers. Missing answers do not contribute to the final grade. Grades are expressed out of thirty. The pass mark is reached whether the students answer correctly to at least 60% of the questions. Answering correctly to all questions allows for gaining the maximum score (30/30). The oral examination is an interview aiming at assessing the acquirement of skills, technical language proficiency and knowledge provided by the course. Candidates have to answer at least two/three questions posed orally, covering the whole syllabus, concerning the recommended texts. The final assessment aims to evaluate whether students have knowledge and understanding of the topics as well as whether they acquired the capacity to interpret and independently judge real case studies. The pass mark has been reached when students show knowledge and understanding of the subjects at least in general terms and have the minimal application of knowledge regarding the presentation of case studies. In addition, students have to demonstrate presentation and argumentative skills to allow the transmission of their knowledge to the examiner. Below this threshold, the examination will be insufficient. Grades of the oral exam are expressed in thirtieths. Students will gain up to 2 additional marks (over a positive evaluation of the exam) whether they choose to answer orally one question in the English language. The topic to be covered in English is “Mean, Median, Mode and quantiles”. Study material will be uploaded on the Portale Unipa of the course. The final assessment is the average of written and oral grades. Erasmus students will be given the same test as local students (i.e., in Italian). However, they can choose to give the oral exam in Italian or English. No additional marks are in this case granted according to the language chosen. ONLY FOR STUDENTS WHO DECIDE TO TAKE THE MID-COURSE TEST:

	During the week of suspension of didactic activity, a mid-course test is administered to students who freely decide to participate. It is a multiple-choice test that includes theoretical questions and the resolution of exercises using a spreadsheet (Excel, Calc or similar ones). It refers to topics imparted up to that time of the course. The allotted time is 30 minutes. Only right answers are scored, and no penalty is given to missing or incorrect answers. To get the minimum evaluation and pass the mid-term test, the candidate must be able to correctly complete at least 60% of the questions proposed. The evaluation of the test is expressed out of thirty. The student who passes the mid-course test will be able to take the final written test on the contents of the program that are not part of the first test, as long as this takes place within the first useful exam session (the one immediately following the end of the course). Whether students are not satisfied with the mark received, they can renounce and answer the complete (full) test. The final evaluation is calculated as the weighted average of the marks obtained in the written / practical tests and the oral one (with weights given by: mid-term and end of course test 40%, oral test 60%).
EDUCATIONAL OBJECTIVES	The course addresses the basic instruments and notions of Social Statistics. This course considers both theoretical and methodological aspects as well as practical ones.
TEACHING METHODS	Theoretical-practical lessons with the personal computer. Excel (or Calc) labs. Every lesson is made up by both theoretical notions and practice. Students are requested to bring with them their own devices in order to participate in lab activities. To share study materials and for some lab activities we use the e-learning platform, provided by the University of Palermo.
SUGGESTED BIBLIOGRAPHY	(Uno a scelta) Mecatti F. Statistica di base. Come, quando, perche'. McGraw-Hill (terza edizione, 2022) Agresti A., Franklin C., Statistica. L'arte e la scienza di imparare dai dati. Pearson, 2016. (qualunque edizione). ISBN: 9788865189511 Borra S., Di Ciaccio A., Statistica, metodologie per le scienze economiche e sociali, McGraw-Hill, 2008 (qualunque edizione). EAN: 9788838696329

SYLLABUS

Hrs	Frontal teaching
2	Quantitative methods in social science: an introduction
1	Statistical unit, population and variable
2	Taxonomy of variables. Variables x cases framework. Statistical data sources.
1	Frequency distributions
2	Graphics of frequency distributions.
2	Mode, percentiles, arithmetic mean and their properties
1	Skewness. Box-plot
2	Statistical variability: range, interquartile interval; standard deviation; variance: coefficient of variation
1	Gini heterogeneity index
2	Two-way tables: construciton and interpretation. Frequencies and percentual (row/column) frequencies.
1	Introduction to the study of variables relationship
2	Relationship between categorical variables. X square index. The V Index
1	Relationship between ordinal variables : the rho index
4	Statistical relations between quantitative variables: scatterplot, covariance, linear correlation and regression.
2	Elements of probability.
2	Random variables. The normal and t di Student distributions.
2	Population and parameters. Probabilistic and non probabilistic sampling. Basic concept of classical inference.
3	Estimators and their properties (unbiasedness, efficiency, consistency). Sampling distributions. Point estimate , standard error. Confidence intervals.
2	Point estimation of the mean, the proportion and the variance. Confidence intervals for the mean and the proportion
4	Hypothesis testing; p-value, significance level; type I and type II error.
1	Parametric and non-parametric tests: an introduction
1	Parametric one sample t test of mean and proportion
2	Parametric tests for the comparison of two samples with paired and unpaired observations

Hrs	Practice
6	Using spreadsheets for preparing, manipulating and analysing data: simple and bivariate statistics
5	Case studies analysis; lab on probability and inference.

DOCENTE: Prof.ssa DARIA MENDOLA- *Lettere M-Z*

PREREQUISITES	Prerequisites ensure that you will have the necessary background for a course. Students are required to have basic notions of mathematics at high school level. Particularly: order relations, equivalence relations; natural, rational, real numbers and their properties. Then, exponentiation, power; dealing with negative and positive numbers. The notion of mathematical function. The orthogonal Cartesian reference system, the linear function: geometric meaning of slope and intercept. At the course first day, students must take a self-evaluation test in order to verify whether they meet the prerequisites. Students lacking required competencies will be provided with a textbook in order to fill-in their gaps.
LEARNING OUTCOMES	DUBLIN DESCRIPTORS: * Knowledge and understanding: Knowledge and understanding of the basic models and techniques of statistics useful in Sport and Exercise Sciences.Ability to understand written essays which include statistical methods to describe and analyze sport, anthropometric and performance data. * Applying knowledge and understanding: Acquirement of theoretical and methodological skills to support the analysis of profession-related contexts in Sport and Exercise Sciences. * Making judgements: Acquirement of the capacity to work independently, with a discerning and aware approach, demonstrating to have got the ability to organize the knowledge learned in order to autonomously choose the best actions and solutions according to different situations. *Communication: Acquirement of skills to describe and summarize statistical data and the results of statistical analysis. Acquirement of the technical statistical lexicon. Acquirement of the ability to express statements of problems to non-specialistic stakeholders. *Lifelong learning skills: Achieving expertise in autonomous learning. Achieving good ability to apply knowledge to solve concrete prospective problems.
ASSESSMENT METHODS	ASSESSMENT METHODS: Written and optionally oral test. The written test is a multiple-choice test that includes theoretical questions and the resolution of exercises using a spreadsheet (Excel, Calc or similar ones). It will be aimed at assessing acquisitions reached during the course and, in particular, the ability to apply knowledge and understanding, independence of judgment and communication skills. The written test takes about one hour. Only right answers are scored, no penalty is given to missing or incorrect answers. Grades are expressed out of thirty. The oral examination is upon request by students in order to improve marks received in the written test. It is an interview aiming at assessing the acquirement of skills and knowledge provided by the course, as well as technical language skills. Candidates have to answer at least two/three questions posed orally, covering the whole syllabus, with reference to the recommended texts. The final assessment aims to evaluate whether students have knowledge and understanding of the topics as well as whether they acquired the capacity to interpret and independently judge real case studies. The pass mark has been reached when students show knowledge and understanding of the subjects at least in general terms and have the minimal application of knowledge regarding the presentation of case studies. In addition, students have to demonstrate presentation and argumentative skills as to allow the transmission of their knowledge to the examiner. Below this threshold, the examination will be insufficient. Grades of the oral exam are expressed in thirtieths. The final assessment is the average of written and, in case, oral grades.
EDUCATIONAL OBJECTIVES	The course addresses the basic instruments and notions of Statistics to collect, intepret, manage and elaborate statistical data in the field of Sport and Exercise Sciences. This course considers both theoretical and methodological aspects as well as practical ones.
TEACHING METHODS	Theoretical-practical lessons with the personal computer. Excel (or Calc) labs. Both theoretical notions and practice make up every lesson. Students are requested to bring with them their own devices in order to participate in lab activities. To share study materials and for some lab activities, we use the "e-learning" platform and the Course webpage, both provided by the University of Palermo.
SUGGESTED BIBLIOGRAPHY	Maurizio De Pra (2016) Finalmente ho capito la statistica. Vallardi editore (disponibile anche per il prestito, in versione ebook, sulla Piattaforma MLOL di Ateneo - http://unipa.medialibrary.it)

	ISTAT (Istituto Nazionale di Statistica) La pratica sportiva in Italia (scaricabile da https://www.istat.it/it/archivio/204663 e da https://www.istat.it/it/files/2015/10/Slide-CONI_Alleva_2017.pdf) Materiale aggiuntivo fornito sul portale unipa dell'insegnamento dalla docente.

SYLLABUS

Hrs	Frontal teaching
1	Introduction: course objectives, assessment; syllabus. The relation between Statistics and Sport and Exercise Sciences.
1	Population, statistical units, variables. Measurement, scales (ordinal and non-ordinal scales, interval scales, ratio scales)
2	Variables x cases framework. Frequency distributions. Pivot tables with Excel. Plotting your data
2	Mean values: mode, median, quantiles, arithmetic mean
2	Statistical variability: range, interquartile interval; standard deviation; variance: coefficient of variation
4	Introduction to bivariate statistics: existence, intensity, link's direction and functional form of the relation between two variables. Statistical relations between quantitative variables: scatterplot, covariance, linear correlation and regression.
2	Introduction to probability, main theorems. Population and its parameters. A brief introduction to probability sampling schemes.
2	A brief introduction to statistical inference and sample estimation. Paired and independent samples.
1	Gaussian (Normal) distribution; Student t distribution.
2	Confidence intervals for the mean and for the difference in means (in independent samples)
2	Comparison before/after a treatment. Dependent t-test for paired samples

Hrs	Practice
10	Group work, computer lab sessions