UNIVERSITÀ DEGLI STUDI DI BARI ALDO MORO

Pedagogical Sciences

General information	
Academic subject	**Research and data processing techniques**
Degree course	Pedagogical studies
Academic Year	I year
European Credit Transfer and Accumulation System(ECTS)	6
Language	Italian
Academic calendar (starting and endingdate)	
Attendance	Attendance at the course is strongly recommended

Professor/ Lecturer	
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Department and address	FORPSICOM
Virtual headquarters	
Tutoring (time and day)	Monday 10.00-12.00

Syllabus	
Learning Objectives	The aim of the course is to provide the student with the basic knowledge of statistical methodology in the field of communication processes and to familiarize the student with the basic techniques of data collection and processing and their immediate applicability. At the end of the course, the student will be able to: - Recognise the nature and structure of the available data and identify the most appropriate analysis technique for both the univariate and bivariate cases; - Acquire the ability to critically analyse the results obtained and place them in the context of real problems. - Apply and interpret the results of the main descriptive and inferential statistical methods of analysis to concrete cases.
Course prerequisites	There are no formal prerequisites, but it is strongly recommended to have studied topics in general mathematics.
Contents	GET THE ESSENTIAL INFORMATION Gathering information First steps to statistics Simple random sampling Other sampling methods Sampling errors Statistical sources DESCRIPTIVE STATISTICS Organising and summarising data Organising qualitative data Organising quantitative data: the most commonly used representations Incorrect graphical representations Summarising data numerically Measures of central tendency Measures of dispersion

	Position and outlier measures Describe the relationship between two variables Scatter and correlation diagrams Least squares regression Coefficient of determination PROBABILITY AND PROBABILITY DISTRIBUTIONS Probability rules How to use discrete probability distributions The normal probability distribution CONCLUSIONS: FROM CHAMPIONS TO POPULATION Sampling distributions How to use confidence intervals for means and percentages How to use hypothesis testing How to use the chi-square test
Books and bibliography	Michael Sullivan III, FONDAMENTI DI STATISTICA, V edizione, Pearson, 2020. How to Think Like a Computer Scientist: Learning with Python 3. Peter Wentworth, Jeffrey Elkner, Allen B. Downey and Chris Meyers.
Additional materials	The text offers an online platform with additional exercises and solutions.

Work schedule			
Total	Lectures	Hands on (Laboratory, working groups,seminars, field trips)	Out-of-class study hours/ Self-study hours
Hours			
40	30	10	At the discretion of the student
ECTS			
6	5	1	At the discretion of the student

Teaching strategy	Lectures and regular practice/lab sessions
Expected learning outcomes	- Know how to classify data according to their nature and be able to find the most appropriate graphical tool to represent them. - Know the statistical indicators (mean, variance, shape indices, etc.) and how to apply them according to the type of data. - Be able to interpret the results obtained and be able to describe the phenomenon using statistical indicators. - Be familiar with the methods and master the tools. - Acquire the logic of the discipline both methodologically and in terms of application.
Knowledge and understanding on:	- The course aims to provide the basic methodological knowledge of statistical tools useful for the understanding and organically analysing the complex economic reality studied. - Particular attention will be paid to the different sources available at national and international level to guide the user in the context of the numerous databases useful for the analysis of the sector. - The study of these topics will allow the student to understand which tools to use to analyse the available data in order to correctly interpret the reality being studied.
Applying knowledge andunderstanding on:	- The course includes several application exercises that accompany the methodological topics in order to allow students to apply what they have learned in class, with the aim of empirically applying the formulas presented and, above all, interpreting the statistical results obtained. Basic knowledge of computer programmes and web tools will also be taught to better understand and apply what has been learned in the course.
Soft skills	Autonomous judgment - The study of statistical tools from the point of view of critical application, accompanied by examples and exercises, will enable the student to acquire and improve his judgment. In this way, he will be able to understand which tool is the most appropriate for the analysis in question and how to correctly interpret the results obtained. Communicative skills - Presenting and commenting on some statistical reports related to the tourism sector will enable you to acquire appropriate technical language and

	terminology relevant to the subject. Ability to learn independently - Learning skills are enhanced through the management of application exercises uploaded to the platform, which also aim to check effective understanding of the topics covered. Other complementary online learning resources, such as official documents, journal articles and links to specific websites, enable you to enhance and develop your learning skills.
Assessment and feedback	
Methods of assessment	The final exam consists of a written test at the end of the course in which students are asked to solve problems on real cases using appropriate statistical methods. This exam will be followed by an oral discussion, which may take place on one of the dates provided in the exam calendar.
Evaluation criteria	- Written examination in which you demonstrate how well you have mastered the content and methods taught in the course. - The oral examination includes a discussion of the results achieved and a review of knowledge on topics not covered in the written examination.
Criteria for assessment andattribution of the final mark	- Theoretical and methodological references - Appropriate use of vocabulary
Additional information	

Assessment and feedback	
Methods of assessment	
Evaluation criteria	
Criteria for assessment and attribution of the final mark	
Additional information	