UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Biomedicina, Neuroscienze e Diagnostica avanzata		
ACADEMIC YEAR	2022/2023		
BACHELOR'S DEGREE (BSC)	AUDIOPROTHESIC TECHNIQUES		
INTEGRATED COURSE	BIOMEDICAL RESEARCH METHODOLOGY - INTEGRATED COURSE		
CODE	20344		
MODULES	Yes		
NUMBER OF MODULES	2		
SCIENTIFIC SECTOR(S)	INF/01, MED/01		
HEAD PROFESSOR(S)	LO BOSCO GIOSUE'	Professore Associato	Univ. di PALERMO
OTHER PROFESSOR(S)	LO BOSCO GIOSUE'	Professore Associato	Univ. di PALERMO
	ENEA MARCO	Professore Associato	Univ. di PALERMO
CREDITS	6		
PROPAEDEUTICAL SUBJECTS			
MUTUALIZATION			
YEAR	1		
TERM (SEMESTER)	2° semester		
ATTENDANCE	Mandatory		
EVALUATION	Out of 30		
TEACHER OFFICE HOURS	**ENEA MARCO** Monday 15:00 17:00 Dipartimento PROMISE - Sezione di Igiene - Universita degli Studi di Palermo - Via del Vespro, 133, Palermo. Stanza del Docente. Si consiglia di contattare il docente per un appuntamento. **LO BOSCO GIOSUE'** Tuesday 15:00 17:00 Ufficio al secondo piano del Dipartimento di Matematica e Informatica, Stanza 203. E' suggerita la prenotazione		

DOCENTE: Prof. GIOSUE' LO BOSCO

PREREQUISITES	Basic Math
LEARNING OUTCOMES	Knowledge and understanding: The course provides the practical knowledge to be able to understand how modern computers are structured, the different types of programs they can run, computer networks, the basic concepts of descriptive statistics, probability and measure of diagnostic tests. Ability to apply knowledge and understanding: Students will acquire the ability to understand how a computer processes information and how statistics can be applied in the diagnostic context. Autonomy of judgment: Students are guided to learn in a critical and responsible way everything that is explained in the classroom and to enrich their judgment skills both through the study of the teaching material indicated or provided by the teacher Communication skills: Through interaction during the lessons, the course will tend to encourage the development of the ability to communicate clearly and comprehensively. Learning skills: Through the presentation part of some software for the management of audiometry, students will be stimulated to a more in-depth knowledge of the use of computers in their training environment. The Statistics exercises will provide concrete use cases of the discipline.
ASSESSMENT METHODS	The final grade will be expressed out of thirty and will vary from 18/30 to 30/30 with honours. An oral discussion on the contents of the two modules is foreseen. The oral discussion will aim to highlight to what extent the candidate has understood and is able to master the basic concepts described in the two modules. The final grade will be calculated as the average of the marks obtained in the two modules. In accordance with the Dublin descriptors, the formulation of the tests allows an evaluation of the expected results in relation to the final grade as follows: - from 18/30 to 20/30: mediocre or sufficient knowledge and understanding of the topics covered, partial ability to apply the acquired knowledge for the resolution of the proposed problems; partial autonomy of judgment, communication skills and ability to learn. - from 21/30 to 23/30: sufficient or fair knowledge and understanding of the topics covered, sufficient ability to apply the knowledge acquired for the resolution of the proposed problems, sufficient autonomy of judgment, communication skills and ability to learn. - from 24/30 to 26/30: fair knowledge and understanding of the topics covered, fair ability to apply the acquired knowledge for the resolution of the proposed problems, sufficient autonomy of judgment, communication skills and ability to learn. - from 27/30 to 30/30 cum laude: good or excellent knowledge and understanding of the topics covered, good or excellent ability to apply the acquired knowledge for the resolution of the proposed problems, good or excellent autonomy of judgment, skill communication and learning skills.
TEACHING METHODS	Frontal Lessons

MODULE
COMPUTER SCIENCE

Prof. GIOSUE' LO BOSCO

SUGGESTED BIBLIOGRAPHY	
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AMBIT	10337-Scienze propedeutiche
INDIVIDUAL STUDY (Hrs)	45
COURSE ACTIVITY (Hrs)	30
EDUCATIONAL OBJECTIVES OF THE MODULE	
The aim of the course is to provide the basic computer skills to the students.	

SYLLABUS

Hrs	Frontal teaching
2	Computer architecture according to Von Neumann. Information representation. Binary representation of integers, relative integers, real numbers, characters. The ASCII code.
2	Binary, hexadecimal and octal systems. Base conversion for the representation of integers. Boolean logic, variables and operators. Logic gates and circuits.
2	Definition of algorithm. Examples of algorithms. Flow diagrams, representation of an algorithm through a flow chart.
4	Basic software, operating systems and application software. Network models: geographical extension, transmission channel, topology, connection. ISO / OSI standards. Bluetooth. Internet network. Domains. E-mail. Search engines. Social Networks.
20	Presentation of software features for audiometry and fitting of hearing aids and cochlear implants

MODULE
MEDICAL STATISTICS

Prof. MARCO ENEA

SUGGESTED BIBLIOGRAPHY	
Libro di testo Triola MM Triola MF, Fondamenti di Statistica per le discipline biosanitarie. Pearson. Traduzione italiana de "Biostatistics for the Biological and Health Sciences with Statdisk, 1st edition". ISBN 9788891902580.	
AMBIT	10337-Scienze propedeutiche
INDIVIDUAL STUDY (Hrs)	45
COURSE ACTIVITY (Hrs)	30
EDUCATIONAL OBJECTIVES OF THE MODULE	
The course is aimed to introduce the statistical methodology useful to the skills of the health professional. Students will be introduced to the elementary concepts of descriptive statistics, probability calculation and measurement of accuracy of diagnostic tests.	

SYLLABUS

Hrs	Frontal teaching
1	Sources and databases of health data
2	Basic concepts: qualitative and quantitative characters, discrete and continuous characters, scales of measurement: nominal, ordinal, intervals and ratio
2	Data presentation: frequency and quantity distributions. Graphical representations
4	Measures of mean and variability with exercises
4	Elements of probability theory. Bayes Theorem. Measures of accuracy of diagnostic tests. Roc Curves
3	Theoretical distributions: Gauss and Binomial distribution, with exercises
2	Central Limit Theorem. Sample distributions of sample mean, with exercises
2	Statistical estimate of the mean and confidence interval
2	Statistical tests of significance for the mean

Hrs	Practice
3	Practice on preparation of tables and graphics to describe and summarize data
2	Measures of accuracy of diagnostic tests. Roc Curves and area under the curve (AUC)
3	Confidence intervals and statistical tests of significance for the mean