

UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Biomedicina, Neuroscienze e Diagnostica avanzata			
ACADEMIC YEAR	2019/2020			
BACHELOR'S DEGREE (BSC)	AUDIOPROTHESIC TECHNIQUES			
INTEGRATED COURSE	BIOMEDICAL RESEARCH METHODOLOGY - INTEGRATED COURSE			
CODE	20344			
MODULES	Yes			
NUMBER OF MODULES	2			
SCIENTIFIC SECTOR(S)	MED/01, IN	IF/01		
HEAD PROFESSOR(S)	MATRANG	A DOMENIC	A Professore Ordinario	Univ. di PALERMO
OTHER PROFESSOR(S)		RCO GIOSUE'	Professore Associato	Univ. di PALERMO
	6	00000		
	0			
	1			
	2º semeste	r		
	Mandatory	1		
	Out of 30			
TEACHER OFFICE HOURS		<u>.</u>		
	Monday	15:00 17:00	Dipartimento PROMISE - Sezi degli Studi di Palermo - Via de Stanza del Docente. Si consig un appuntamento.	ione di Igiene - Universita I Vespro, 133, Palermo. lia di contattare il docente per
	LO BOSCO GIOSUE'			
	Tuesday	15:00 17:00	Ufficio al secondo piano del Di Informatica, Stanza 203. E' su	ipartimento di Matematica e ggerita la prenotazione
	MATRANGA DOMENICA			
	Friday	12:00 13:30	Stanza della docente, Dipartim Salute, Materno-Infantile, Med eccellenza "G. D'Alessandro", terra	nento di Promozione della licina interna e specialistica di , Via del Vespro, 133, piano

PREREQUISITES	The student must have the skills and knowledges required to overcome the admission test.
LEARNING OUTCOMES	Knowledge and ability to understand At the end of the course, students will need to demonstrate: • knowledge and ability to understand descriptive statistics, probability and assessment of diagnostic tests accuracy • knowledge and ability to understand simple statistical tests and confidence intervals • knowledge and ability to understand the main issues concernig hardware and software. Ability to apply knowledge and understanding The knowledge gained by the students with the course "Methodology of biomedical research" will constitute a wealth directly spendable in the working world of hearing aid technique. Students will be able to use the acquired competencies to read and do critical appraisal of the most important literature of their work field, they will have the ability to analyse, synthesize, argue and establish critical connection skills, with concern to the topics of the course. Making judgments The students will be able to independently meet the professional issues related to the knowledge of the course. In particular, they will: • be able to rationally and independently deal with issues related to the professional knowledge of the course and to deal with issues regarding hearing aid technique through a correct scientific approach. • be able to assess and implement preventive/corrective measures in professional practice and in issues concerning the discipline . Communication skills Students will be able to communicate clearly and without ambiguity their conclusions as well as the knowledge and rationale to specialist and nonspecialists. The following learning objectives have to be acquired: scientific and experimental communicative methodology; ability to manage all biomedical investigations in respect and protection of human health. Learning capacity Students/graduates must have developed adequate learning capacity, interpretation and evaluation of risks associated with specific diagnostic biomedical and research contexts. In addition, the ability to interact with differe
ASSESSMENT METHODS	Structured exam made of a written test for Medical Statistics and Informatics. The exam aims to assess knowledge and comprehension of all the topics, autonomy of making judjments, ability to use the acquired knowledge, appropriate language. The written test of Medical Statistics consists of 2 practicals and 3 open and synthetic questions about theory that aim to evaluate the "knowledge" and the "know-how" acquired by the student, about all topics included in the programme, with regards to the suggested references and the materials provided by the teacher. The written exam of Informatics will consist of structured test with multiple responses that is to ascertain the possession of skills and subject knowledge provided by the course. The assessment is carried out of thirty and it is obtained as the weighted average of the assessments obtained at each module. The pass mark will be reached when the student shows knowledge and understanding of the subjects at least in general terms; furthermore, the student will also have to show presentation and argumentative skills as to allow the transmission of his/her knowledge to the examiner. Below this threshold, the examination will be insufficient. The more the assessment is positive. The assessment is done according to the following scheme: A – A+ (Excellent)=30-30 cum laude=Excellent knowledge of teaching contents; students should show high analytical and synthetic capabilities and should be able to apply their knowledge to solve highly complex problems. B (Very good)=27-29=Very good knowledge of the teaching contents and excellent language control; the student should and synthetic skills and good language control; the students should be able to apply their knowledge to solve problems of medium and, in some cases, even higher complexity. C (Good)=24- 26=Good knowledge of teaching contents, and good language control; the students should be able to apply their knowledge of the teaching contents, in some cases limited to the main topic; acceptable ability to use the specif

	ability to use the specific subject language and apply independently the acquired knowledge.
TEACHING METHODS	Teaching is based on lectures and practice, also with informatics aid and supported by slides, downloadable by the unipa website.

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.
4	Presentation of Inventis MAESTRO software features for the management of the Trumpet system for prosthetic fitting
4	Presentation of MEDEL MAESTRO software features for the management of Nedel cochlear implants
4	Presentation of Cochlear Custom sound software features for the management of Cochlear cochlear implants
4	Presentation of SOUNDWAVE software features for the management of AB cochlear implants
4	Presentation of Oticon Genie medical software features for the management of Oticon Medical cochlear implants.

MODULE MEDICAL STATISTICS

Prof. MARCO ENEA

SUGGESTED BIBLIOGRAPHY

Libro di testo Triola MM Triola MF, Statistica per le discipline biosanitarie, Pearson		
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
3	Sources 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
2	Statistical tests of significance for the mean
Hrs	Practice
2	Practice on the use of health databases
4	Practice on preparation of tables and graphics to describe and summarize data