UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Biomedicina, Neuroscienze e Diagnostica avanzata		
ACADEMIC YEAR	2023/2024		
MASTER'S DEGREE (MSC)	DIAGNOSTIC TECHNICAL HEALTH PROFESSIONS		
INTEGRATED COURSE	RESEARCH AND INNOVATION METHODOLOGY - INTEGRATED COURSE		
CODE	22311		
MODULES	Yes		
NUMBER OF MODULES	3		
SCIENTIFIC SECTOR(S)	MED/50, ING-INF/05, MED/46		
HEAD PROFESSOR(S)	TODARO MATILDE	Professore Ordinario	Univ. di PALERMO
OTHER PROFESSOR(S)	GAGGIANESI MIRIAM	Ricercatore a tempo determinato	Univ. di PALERMO
	TODARO MATILDE	Professore Ordinario	Univ. di PALERMO
	DI BELLA SEBASTIANO	Ricercatore a tempo determinato	Univ. di PALERMO
CREDITS	9		
PROPAEDEUTICAL SUBJECTS			
MUTUALIZATION			
YEAR	1		
TERM (SEMESTER)	2° semester		
ATTENDANCE	Mandatory		
EVALUATION	Out of 30		
TEACHER OFFICE HOURS	**DI BELLA SEBASTIANO** Tuesday 10:00 12:00 Laboratorio Fisiopatologia Cellulare e MolecolareVia del Vespro 131, 90127 Palermo **GAGGIANESI MIRIAM** Tuesday 14:30 16:30 Dipartimento Discipline Chirurgiche Oncologiche e Stomatologiche. Laboratorio di fisiopatologia cellulare e molecolare- Via del vespro 131- Presso Dermatologia (primo piano). **TODARO MATILDE** Monday 14:00 15:00 sede caltanissetta CESPAF		

DOCENTE: Prof.ssa MATILDE TODARO

PREREQUISITES	No specific prerequisites other than administrative ones
LEARNING OUTCOMES	The Integrated Course aims to provide the skills to actively participate in clinical and health research, disseminate its results and apply them in professional practice. Therefore, it is intended to cover topics such as: - Setting a research question from the unmet needs of clinical practice; - - Identifying ethical aspects involved in one's own research; - Choosing the most appropriate research methodologies; - Conducting the research in every step. - Conducting the research at every step; - - Choose the most appropriate ways to disseminate the results of one's research; - Interpreting the results of clinical and health research published in the scientific literature; - Evaluate the appropriateness of applying research to clinical practice and healthcare organisation Knowledge and understanding The course provides the student with the indispensable basic notions to enable him/her to tackle other topics related to the subject. The student is expected to show participation, interest and an obvious ability to learn in the subject, as well as to be able to update and expand his/her knowledge by drawing independently on texts, scientific articles and databases. Furthermore, the student must also demonstrate the ability to analyse arguments, scientific data and theoretical-practical experiences objectively and autonomously and thus to have developed a critical spirit and approach to the subject. The student must demonstrate the ability to develop discussions on the course of descriptive, analytical and experimental studies and the prevention of infectious and chronic degenerative diseases. The teaching aims to provide students with the basic knowledge and methodological tools required to conduct scientific research and thus understand the procedures, strategies and methods for designing, planning and implementing various epidemiological studies. Ability to apply knowledge and understanding The student must be able to participate actively and skilfully in the collection of environmental and health data in epidemiological studies. Ability to correctly use texts and scientific literature specific to the sector for a continuous updating of knowledge in the specific health field. Ability to correctly use texts and scientific literature specific to the field for continuous updating of knowledge in the specific health field. Ability to learn and follow appropriately, using the knowledge acquired in the course, the subsequent curricular teaching; ability to continue to study independently in order to benefit from in-depth courses, specialist seminars and Masters.
ASSESSMENT METHODS	Student assessment involves a written test, by means of a test that includes multiple-choice or open-ended questions, in which topics covered in the course are proposed. By selecting the correct answer, the student must demonstrate sufficient knowledge of the topics covered during the course, and a mastery of the concepts and terminology studied. The examination test is scored by means of a grade expressed in thirtieths. The written test will involve 30 multiple-choice or open-ended questions. Each correct answer will be assigned a score of 1/30. The test is considered passed with a minimum score of 18/30. The maximum score obtainable is 30/30. From the analysis of the answers given to open-ended questions, based on the degree of accuracy, depth and terminology adopted, it will be possible to decide which candidate will be given honors (if maximum score is achieved).
TEACHING METHODS	Face-to-face lessons

MODULE
INFORMATION PROCESSING SYSTEMS

Prof. SEBASTIANO DI BELLA

SUGGESTED BIBLIOGRAPHY	
Slides utilizzate a lezione e note integrative messe a disposizione online	
AMBIT	20427-Scienze informatiche applicate alla gestione sanitaria
INDIVIDUAL STUDY (Hrs)	51
COURSE ACTIVITY (Hrs)	24
EDUCATIONAL OBJECTIVES OF THE MODULE	
The goal of the module is to learn the fundamental principles of how IT systems work and use them. The module starts from the history of computer science and the basics of computerization, from the use of major types of software in the health sector up to the analysis of philosophies such as open source and open data.	

SYLLABUS

Hrs	Frontal teaching
3	Introduction to the course and history of computer science
4	Hardware and Software. Computer architecture: Von Neumann machine, the CPU, access to resources, memory hierarchy. The software: operating systems, application software, cloud software.
3	Analogic and digital algorithms flow charts: The digitization of information
3	Binary and hexadecimal system; (operations with the binary system). Physical measurable information: bits, bytes, hexadecimal, types, sizes.
3	Binary representation of information characteristics, representation in memory, formats. File formats and their compression: texts, images, audio, video features, representation in memory, formats. Information loss - physical limits of memory, compression
3	Introduction to computational linguistics, regular expressions, and their use. Introduction to Open Source and Open Data. Introduction to Artificial Intelligence.
4	Analysis of a Health Information System (HIS), privacy and health data, regulatory framework in the E-Health sector. Practise.
3	Basics of networking (static and dynamic IP, gateway, DNS etc), how a network works, computer networks, Internet and World Wide Web, how to search for information.
4	Basics of HTML and markup language, what is a CMS (Content Management System), installation and first use

MODULE
SCIENTIFIC RESEARCH TECHNOLOGY

Prof.ssa MATILDE TODARO

SUGGESTED BIBLIOGRAPHY	
Dispense e materiale didattico forniti dal Docente	
AMBIT	20417-* Scienze e tecniche di radiologia medica per immagini e radioterapia
INDIVIDUAL STUDY (Hrs)	51
COURSE ACTIVITY (Hrs)	24
EDUCATIONAL OBJECTIVES OF THE MODULE	
The Integrated Course aims to provide the skills to actively participate in clinical and health research, disseminate its results and apply them in professional practice. Therefore, it is intended to cover topics such as: Setting a research question starting from the unmet needs of clinical practice; Identifying ethical aspects involved in one's research; Choosing the most appropriate research methodologies; Conducting the research in each of its steps; Choosing the most appropriate ways to disseminate the results of one's research; Interpreting the results of clinical and health research published in the scientific literature; Assessing the appropriateness of applying research to clinical practice and health organisation	

SYLLABUS

Hrs	Frontal teaching
2	Critical reading of a scientific article
4	From clinical case to research question
2	Study designs in clinical research
4	The elements of the search protocol
2	Statistics at the service of clinical research
2	Ethical issues in clinical research
4	Clinical trial regulations and ethics committees
4	Management of personal data and biological samples
4	Structure of a scientific article
4	The spill-over of research results into clinical practice

MODULE
HEALTH RESEARCH METHODOLOGY

Prof.ssa MIRIAM GAGGIANESI

SUGGESTED BIBLIOGRAPHY	
- Fondamenti di ricerca clinica. Antonella Bacchieri, Giovanni Della Cioppa. Editore: Springer Verlag. Data di Pubblicazione: 2004. EAN: 9788847002111. ISBN: 8847002117. - La sperimentazione clinica sull'uomo. Normativa e istituti di controllo. Ilaria Del Giglio. Editore: Hygeia Press. Collana: Medicina. Data di Pubblicazione: 2015. EAN: 9788898636044. ISBN: 8898636040. - Guida alla ricerca clinica. ISBN-10 8849003153. ISBN-13 978-8849003154. - Ricerca clinica. Dalla good clinical practice alla buona assistenza. Editore: Edizioni Medico-Scientifiche. Paola Culotta, Irene Feroce, Luciano Callegaro. Codice EAN: 9788871102160. Anno edizione: 2008.	
AMBIT	20416-* Scienze e tecniche di laboratorio biomedico
INDIVIDUAL STUDY (Hrs)	51
COURSE ACTIVITY (Hrs)	24
EDUCATIONAL OBJECTIVES OF THE MODULE	
Acquisition of knowledge underlying clinical project management, from conceptualization to project writing, and ethics committee application for approval by health care facilities. Understanding of the fundamentals of clinical research and evidence-based medicine, descriptive and analytical epidemiology.	

SYLLABUS

Hrs	Frontal teaching
5	Evidence-based clinical practice and clinical research.
5	JBI database and nursing practice support.
4	Clinical research ethics, informed consent.
5	Research and controlled clinical trial planning, methodology, and results of clinical trials.
5	Design of an epidemiological study, the clinical research method, and study phases.