



# UNIVERSITÀ DEGLI STUDI DI PALERMO

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| <b>DEPARTMENT</b>              | Biomedicina, Neuroscienze e Diagnostica avanzata                                                                                                                                                                                                                                                                                                                                                   |                                 |                  |
| <b>ACADEMIC YEAR</b>           | 2022/2023                                                                                                                                                                                                                                                                                                                                                                                          |                                 |                  |
| <b>MASTER'S DEGREE (MSC)</b>   | HEALTH PROFESSIONS REHABILITATION SCIENCES                                                                                                                                                                                                                                                                                                                                                         |                                 |                  |
| <b>INTEGRATED COURSE</b>       | APPLIED COMPUTER SCIENCE AND EPIDEMIOLOGY FOR HEALTHCARE MANAGEMENT - INTEGRATED COURSE                                                                                                                                                                                                                                                                                                            |                                 |                  |
| <b>CODE</b>                    | 16970                                                                                                                                                                                                                                                                                                                                                                                              |                                 |                  |
| <b>MODULES</b>                 | Yes                                                                                                                                                                                                                                                                                                                                                                                                |                                 |                  |
| <b>NUMBER OF MODULES</b>       | 3                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |                  |
| <b>SCIENTIFIC SECTOR(S)</b>    | MED/42, INF/01, ING-INF/05                                                                                                                                                                                                                                                                                                                                                                         |                                 |                  |
| <b>HEAD PROFESSOR(S)</b>       | IMMORDINO PALMIRA                                                                                                                                                                                                                                                                                                                                                                                  | Ricercatore a tempo determinato | Univ. di PALERMO |
| <b>OTHER PROFESSOR(S)</b>      | PAVONE ARIANNA MARIA                                                                                                                                                                                                                                                                                                                                                                               | Ricercatore a tempo determinato | Univ. di PALERMO |
|                                | IMMORDINO PALMIRA                                                                                                                                                                                                                                                                                                                                                                                  | Ricercatore a tempo determinato | Univ. di PALERMO |
|                                | DI BELLA SEBASTIANO                                                                                                                                                                                                                                                                                                                                                                                | Ricercatore a tempo determinato | Univ. di PALERMO |
| <b>CREDITS</b>                 | 8                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |                  |
| <b>PROPAEDEUTICAL SUBJECTS</b> |                                                                                                                                                                                                                                                                                                                                                                                                    |                                 |                  |
| <b>MUTUALIZATION</b>           |                                                                                                                                                                                                                                                                                                                                                                                                    |                                 |                  |
| <b>YEAR</b>                    | 2                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |                  |
| <b>TERM (SEMESTER)</b>         | 2° semester                                                                                                                                                                                                                                                                                                                                                                                        |                                 |                  |
| <b>ATTENDANCE</b>              | Mandatory                                                                                                                                                                                                                                                                                                                                                                                          |                                 |                  |
| <b>EVALUATION</b>              | Out of 30                                                                                                                                                                                                                                                                                                                                                                                          |                                 |                  |
| <b>TEACHER OFFICE HOURS</b>    | <p><b>IMMORDINO PALMIRA</b><br/>Thursday 14:00 16:00 studio del docente presso la sezione di Igiene del dipartimento promise via del vespro, 133 90127 Palermo (policlinico). Si prega di concordare l'appuntamento previa email al docente palmira.immordino@unipa.it</p> <p><b>PAVONE ARIANNA MARIA</b><br/>Tuesday 15:00 16:00 Studio del docente, dipartimento di matematica e informatica</p> |                                 |                  |

**DOCENTE:** Prof.ssa PALMIRA IMMORDINO

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|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PREREQUISITES</b>      | Knowledge of the biological agents. Characteristic of pathogenic and opportunistic microorganisms. Evaluation of the possible interactions between microorganisms and the environment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>LEARNING OUTCOMES</b>  | <p>Ability to apply knowledge and understanding</p> <p>Be able to perform basic diagnostic and technical procedures, know how to analyze and interpret the results, in order to define correctly the nature of a problem</p> <p>Know the appropriate use of human resources, diagnostic interventions, of therapeutic modalities and technologies dedicated to health care</p> <p>Be aware of the important role of health and health determinants disease and ability to know how to take adequate preventive and protective actions in</p> <p>against diseases, injuries and accidents, while maintaining and promoting health of the individual, of the family and of the community</p> <p>Be aware of the roles and responsibilities of other staff health care in providing health care</p> <p>Autonomy of judgment</p> <p>Be aware of the need for continuous professional improvement with the awareness of one's own limits, including those of one's own knowledge medical</p> <p>Respect colleagues and other health professionals, demonstrating excellent ability to establish collaborative relationships with them</p> <p>Communication skills</p> <p>Interact with other professionals involved in patient care through efficient teamwork</p> <p>Knowing how to create and maintain good medical records</p> <p>Learning skills</p> <p>Being able to collect, organize and interpret correctly health and biomedical information from the various resources and databases available</p> <p>Knowing how to use the technology associated with information and communications</p> <p>as a proper support to diagnostic, therapeutic and preventive practices</p>                                           |
| <b>ASSESSMENT METHODS</b> | <p>Evaluation: Mark. Type of exam: Oral exam.</p> <p>The test aims at evaluate if the student has knowledge and understanding of the topics of the integrated teaching / course program, independent judgment, ability to apply the acquired knowledge, specific disciplinary language.</p> <p>Minimum number of questions: The student must answer a minimum of three questions, posed orally, which will focus on all the topics of the integrated teaching / course program, with reference to the texts recommended.</p> <p>Evaluation and its criteria: The evaluation is out of thirty, as reported in diagram below.</p> <p>Excellent</p> <p>30- 30 and praise excellent knowledge of the topics, excellent property of language, good analytical skills, the student is able to apply the knowledge to solve the proposed problems;</p> <p>very good</p> <p>26-29 - Good command of topics, full ownership of language, the student is able to apply the knowledge to solve i problems proposed.</p> <p>Good</p> <p>24-25 -Basic knowledge of the main topics, fair properties of language, with limited ability to autonomously apply knowledge to the solution of the proposed problems.</p> <p>Satisfactory</p> <p>21-23 - Does not have full command of the main teaching topics but he possesses the knowledge, satisfactory property of language, scarce ability to autonomously apply the acquired knowledge.</p> <p>Enough</p> <p>18-20 - Minimum basic knowledge of the main teaching topics e of technical language, very little or no ability to apply knowledge acquired.</p> <p>Insufficient</p> <p>He does not have an acceptable knowledge of the contents of the topics covered in teaching.</p> |
| <b>TEACHING METHODS</b>   | Lectures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

## MODULE INFORMATION PROCESSING SYSTEMS

*Prof. SEBASTIANO DI BELLA*

### SUGGESTED BIBLIOGRAPHY

- 1) D. Sciuto, G. Buonanno, L. Mari; Introduzione ai sistemi informatici 5/ed, McGraw-Hill. ISBN: 978-8838668326  
 2) P. Manghi, A. Brogi, V. Gervasi, A. Martinelli, G. Fiorentino, A. P. Pala; Le basi di Dati per Medicina e Farmacia, Collana IT4PS, McGraw-Hill.

Libri di consultazione:

- 1) J.G. Glenn; Informatica – Una panoramica generale, Pearson - Education Italia. ISBN: 978-8891901057  
 2) A. Brogi, A. Martinelli, V. Gervasi, P. Manghi, A. Fabrizio, G. Pacini; Il foglio elettronico per Medicina e Farmacia, Collana IT4PS, McGraw-Hill.

Materiali didattici integrativi

Dispense integrative e slides proposte dal docente

|                               |                                                              |
|-------------------------------|--------------------------------------------------------------|
| <b>AMBIT</b>                  | 20407-Scienze informatiche applicate alla gestione sanitaria |
| <b>INDIVIDUAL STUDY (Hrs)</b> | 51                                                           |
| <b>COURSE ACTIVITY (Hrs)</b>  | 24                                                           |

### EDUCATIONAL OBJECTIVES OF THE MODULE

The course aims to provide knowledge of information and communication technologies, as a proper support to diagnostic, therapeutic and preventive practices in the medical field. The module proposes an introductory course on computer systems, taking the Personal Computer as a paradigm and analyzing the fundamental operating principles of the three supporting infrastructures: the hardware, software and network infrastructure. Subsequently, the use of two of the main software tools for the analysis and management of data in the healthcare sector will be introduced: the spreadsheet and databases. In particular, the databases constitute the fundamental element for the development of the electronic medical record. The introduction to access methods and search methodologies in online databases constitutes the final part of the course.

## SYLLABUS

| Hrs | Frontal teaching                                                                                                                                                                  |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2   | Introduction to the Course. Data and Information. Codes.                                                                                                                          |
| 2   | Representation and processing of information. Binary coding of data.                                                                                                              |
| 2   | Main characteristics of algorithms, programs and programming languages                                                                                                            |
| 3   | The hardware infrastructure: notes on the architecture of a computer; central processing unit; memories; input / output devices.                                                  |
| 2   | The software infrastructure: basic software and application software; characteristics and tasks of an operating system; main components of an operating system.                   |
| 2   | The network infrastructure: transmission of data and information; computer networks; notes on the TCP / IP protocol; World Wide Web and e-mail.                                   |
| 5   | Introduction to the spreadsheet; application examples in the healthcare sector.                                                                                                   |
| 5   | Introduction to databases. The management systems of databases or DBMS. Application examples in the healthcare sector. Definition and management of an electronic medical record. |
| 1   | Use of Google and Pubmed search engines                                                                                                                                           |

**MODULE  
COMPUTER SCIENCE**

*Prof.ssa ARIANNA MARIA PAVONE*

**SUGGESTED BIBLIOGRAPHY**

Tibone F., Tecnologie Informatiche LME essenziale. Editore: Zanichelli, Bologna, 2010. ISBN. 978-8808105431  
Dispense fornite dal docente.

|                               |                             |
|-------------------------------|-----------------------------|
| <b>AMBIT</b>                  | 20391-Scienze propedeutiche |
| <b>INDIVIDUAL STUDY (Hrs)</b> | 34                          |
| <b>COURSE ACTIVITY (Hrs)</b>  | 16                          |

**EDUCATIONAL OBJECTIVES OF THE MODULE**

The information technology course aims to promote a basic level information technology culture in the student, in order to initiate the student to a conscious and critical use of ICT (Information Communication Technology). The training activities will be aimed in particular at the acquisition of knowledge relating to: analog and digital systems, computer hardware and software components, networks, internetworking devices and protocols, SQL language, security and data protection.

**SYLLABUS**

| <b>Hrs</b> | <b>Frontal teaching</b>                                                                        |
|------------|------------------------------------------------------------------------------------------------|
| 2          | Analog and Digital: encoding of writing, numbers, images (raster and vector), movies and audio |
| 4          | Architecture hardware and software of a personal computer                                      |
| 2          | Networks, devices and internetworking protocols LAN and WAN                                    |
| 3          | Database and SQL elements                                                                      |
| 3          | Security and Data Protection                                                                   |
| 2          | Overview of Digital Administration Code and the Privacy Code                                   |

**MODULE  
GENERAL AND APPLIED HYGIENE**

*Prof.ssa PALMIRA IMMORDINO*

**SUGGESTED BIBLIOGRAPHY**

Igiene, medicina preventiva e salute globale. DATA PUBBLICAZIONE: Gennaio 2022; ISBN: 978-88-299-3245-0; AUTORI: Auxilia - Pontello

|                               |                                   |
|-------------------------------|-----------------------------------|
| <b>AMBIT</b>                  | 20394-Statistica ed epidemiologia |
| <b>INDIVIDUAL STUDY (Hrs)</b> | 51                                |
| <b>COURSE ACTIVITY (Hrs)</b>  | 24                                |

**EDUCATIONAL OBJECTIVES OF THE MODULE**

Aim of this module is to provide scientific and professional knowledge in the fields of preventive medicine, health education and health promotion, planning, organization and evaluation of health technologies and health services, food safety, safety in the living and working environment, epidemiological studies and use of health information systems, health legislation and the evidence of efficacy for the prevention and health care.

**SYLLABUS**

| <b>Hrs</b> | <b>Frontal teaching</b>                                                                                                                                           |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2          | Introduction to Epidemiology and Public Health.<br>Concept of health, disease, health promotion, health education and Primary, Secondary and Tertiary Prevention. |
| 2          | Demographic parameters of interest for health and population health indicators.<br>Population registers.                                                          |
| 2          | Epidemiological methodology.                                                                                                                                      |
| 2          | Measures of Frequency and association.<br>Incidence, prevalence, relative risk, attributable risk, odds ratio.                                                    |
| 1          | Descriptive, analytic and experimental epidemiology.                                                                                                              |
| 2          | Design of epidemiological studies.<br>Observational studies.<br>Descriptive and analytic studies.                                                                 |
| 2          | Methodology of case-control studies.<br>Methodology of cohort studies, retrospective and prospective.                                                             |
| 2          | Experimental study.                                                                                                                                               |
| 2          | Systematic review and meta-analysis.                                                                                                                              |
| 1          | Epidemiology of cancers, infective disease, health service, and social epidemiology.                                                                              |
| 1          | Screening and diagnostic test.                                                                                                                                    |
| 1          | Genetic tests and population genomic.                                                                                                                             |
| 1          | Other application of epidemiology: Health technology assessment.<br>Health Impact Assessment.                                                                     |
| 1          | Health informative system.                                                                                                                                        |
| 1          | National health service: law and organization.                                                                                                                    |
| <b>Hrs</b> | <b>Practice</b>                                                                                                                                                   |
| 1          | Use of health databases and research tools (Medline, Pubmed).                                                                                                     |