



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Promozione della Salute, Materno-Infantile, di Medicina Interna e Specialistica di Eccellenza "G. D'Alessandro"		
ACADEMIC YEAR	2023/2024		
BACHELOR'S DEGREE (BSC)	NURSING		
INTEGRATED COURSE	GENERAL PATHOLOGY AND MICROBIOLOGY - INTEGRATED COURSE		
CODE	20316		
MODULES	Yes		
NUMBER OF MODULES	2		
SCIENTIFIC SECTOR(S)	MED/04, MED/07		
HEAD PROFESSOR(S)	BONURA CELESTINO	Professore Associato	Univ. di PALERMO
OTHER PROFESSOR(S)	BONURA CELESTINO	Professore Associato	Univ. di PALERMO
	SHEKARKAR AZGOMI MOJTABA	Ricercatore a tempo determinato	Univ. di PALERMO
CREDITS	6		
PROPAEDEUTICAL SUBJECTS			
MUTUALIZATION			
YEAR	1		
TERM (SEMESTER)	2° semester		
ATTENDANCE	Mandatory		
EVALUATION	Out of 30		
TEACHER OFFICE HOURS	BONURA CELESTINO Friday 10:00 11:00 Dipartimento di Promozione della Salute, Materno Infantile, Medicina Interna e Specialistica di Eccellenza "G. D'Alessandro" (PROMISE). Piano 2°		

DOCENTE: Prof. CELESTINO BONURA

PREREQUISITES	Basic Knowledge of general pathology, biology, genetics
LEARNING OUTCOMES	<p>Knowledge and understanding</p> <p>Acquisition of tools for the understanding of the pathogenesis and pathophysiology of the disease.</p> <p>Ability of using technical language of these disciplines. Knowledge of features of microorganisms and main pathogens.</p> <p>The students will achieve the following objectives:</p> <p>Ability to apply knowledge and understanding; Ability to recognize and apply the cognitive tools and the methodological approach of General Pathology for the scientific and rational practise of the profession.</p> <p>To demonstrate the ability to apply their knowledge and understanding to the main themes of microbiology.</p> <p>Making judgments</p> <p>To be able to evaluate independently the results of studies developed with the aim to clarify pathogenesis and pathophysiology of diseases.</p> <p>To acquire enough microbiology knowledge to critically analyze data</p> <p>Communication skills</p> <p>Ability to explain easily and exhaustively the knowledge. Ability to communicate with colleagues, healthcare professionals, patients and their relatives.</p> <p>Ability of learning</p> <p>Ability to update scientific publications about these disciplines Attendance to meeting, congress and seminars</p>
ASSESSMENT METHODS	<p>Oral exam: The student will have to answer at least four questions posed orally, at least two for each of the two modules, covering the different parts of the program, with reference to the recommended texts. Final assessment aims to evaluate whether the student has knowledge and understanding of the topics has acquired the skills to interpret the notions and judge independently. The evaluation is expressed using a 30-point scale. See at http://www.unipa.it/scuole/dimedicinaechirurgia</p>
TEACHING METHODS	Lectures

MODULE MICROBIOLOGY

Prof. CELESTINO BONURA

SUGGESTED BIBLIOGRAPHY

- S De Grazia, D Ferraro, G Giammanco "MICROBIOLOGIA E MICROBIOLOGIA CLINICA PER LE PROFESSIONI SANITARIE E ODONTOIATRIA" - Casa Editrice Pearson, 2021- ISBN: 8891915823

AMBIT	10304-Scienze biomediche
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INDIVIDUAL STUDY (Hrs)	45
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COURSE ACTIVITY (Hrs)	30
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EDUCATIONAL OBJECTIVES OF THE MODULE

To acquire a basic knowledge of the world of microorganisms, including their structural and biological characteristics and the interactions between microorganisms and host. To know and understand the mechanisms of the pathogenic action of microorganisms in general and of some important pathogens in particular. Students will learn some applications of microbiology, focusing in particular on methods for the control of microbial infections and the general principles of microbiological diagnosis. Students will need to demonstrate to be able to relate microbiological knowledge to nursing practice.

SYLLABUS

Hrs	Frontal teaching
3	Introduction to microbiology: the impact of microorganisms on humans and on the environment. Microbial diversity: prokaryote and eukaryote microorganisms, viruses. The historical roots of microbiology.
3	Structure and functions of the bacterial cell: morphology, aggregation, size; cell wall in Gram-positive and Gram-negative bacteria; cytoplasmic membrane; cytoplasm and essential cytoplasmic components; nuclear region and the chromosome; extracellular polymeric substances; flagella, fimbriae; spores and sporulation process.
4	Principles of genetics of microorganisms. Bacterial metabolism: energy production and molecular biosyntheses. Environmental factors influencing bacterial growth, the growth curve of a bacterial population, quantitative measure of microbial growth.
4	Main determinants of pathogenicity and virulence of microorganisms: adhesion factors, invasiveness, exoenzymes and microbial toxins.
3	Characteristics of the main pathogenic bacteria.
4	General characteristics of viruses: biology, structure, replication cycle. Cell-virus and host-virus interactions. Characteristics of the main pathogenic viruses.
2	General characteristics of fungi: the fungal cell, modes of reproduction, pathogenic role in humans. Major fungi of medical interest.
3	Antimicrobial agents: general characteristics. Mechanisms of antimicrobial-resistance. Types of vaccines. Disinfection and sterilization.
4	Principles of microbiological diagnosis. Correct choice of clinical samples. Microbiological laboratory techniques: isolation and identification of microbes

MODULE GENERAL PATHOLOGY

Prof. MOJTABA SHEKARKAR AZGOMI

SUGGESTED BIBLIOGRAPHY

Robbins Essential Pathology, Authors: Vinay Kumar Abul Abbas Jon.C. Aster Andrea Deyrup. Imprint: Elsevier. ISBN: 978-0-323-64025-1
 Robbins Basic Pathology Editors: Vinay Kumar Abul Abbas Jon Aster. Imprint: Elsevier. ISBN: 9780323353175
 G.M. pontieri: Elementi di patologia Generale e Fisiopatologia Generale. IV edizione (2018). PICCIN NUOVA LIBRARIA S.P.A., PADUA. ISBN: 978-88-299-2912-2

AMBIT	10304-Scienze biomediche
INDIVIDUAL STUDY (Hrs)	45
COURSE ACTIVITY (Hrs)	30

EDUCATIONAL OBJECTIVES OF THE MODULE

Knowledge and understanding
 Acquisition of tools for understanding pathological etiopathogenetic mechanisms of the disease. Ability to use the specific language of this discipline.
 Ability to apply knowledge and understanding
 Ability to recognize and apply the cognitive tools and the methodological rigor of the
 General pathology for the rational exercise of any activity connected directly and indirectly to health protection.
 Autonomy of judgment
 Being able to know how to independently evaluate the results of studies aimed at clarifying the etiopathogenetic and pathological mechanisms of diseases.
 Communication skills
 Ability to explain the acquired knowledge of pathological processes in a simple, immediate and comprehensive way.
 Learning skills
 Ability to update by consulting the scientific publications of the
 discipline in question. Ability to participate, using the knowledge acquired during the course, in continuous updating initiatives in the professional field

SYLLABUS

Hrs	Frontal teaching
2	Concept of homeostasis, disease, etiology, and pathogenesis
2	The adaptive responses: hypertrophy, hyperplasia, metaplasia, atrophy. Cell injury and death: necrosis and apoptosis.
2	Leucocytes: generation and morphology. Function in health and disease of lymphocytes, monocytes, neutrophils, eosinophils, basophils. Normal and pathological leucocytes cell count
6	Acute inflammation and vascular modifications. Cellular and plasmatic mediators: preformed and newly synthesized mediators. Cells involved in inflammation, Adhesion molecules, cellular migration, phagocytosis. Exudates. Tissue repair wound healing. Chronic inflammation: nonspecific and granulomatous
2	Electrophoresis of plasma proteins. Acute-phase proteins in the monitoring of inflammatory response: CRP and ESR
2	Pathophysiology of body temperature: fever and hyperthermia. Pyrogens. Types of fever and pathophysiological significance
6	Innate and adaptive immune response. Cells and tissues of the immune system. Cytokines, Antigens, Antibodies, Complement system, HLA and blood groups, Hypersensitivity reactions. Autoimmunity and Immunodeficiencies (basic knowledge)
4	Anemia and laboratory diagnosis of anemias. Iron deficiency anemia, anemia of chronic disease, megaloblastic anemias, thalassemia, hemolytic anemias due to both intra- and extracellular defects. Polycythemia
4	Characteristics of benign and malignant neoplasms and nomenclature. Tumor progression and metastasis. Angiogenesis. Carcinogenic agents. Oncogenes and cancer suppressor genes. Elements of epidemiology.