



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Medicina di Precisione in area Medica, Chirurgica e Critica		
ACADEMIC YEAR	2023/2024		
MASTER'S DEGREE (MSC)	DENTISTRY		
INTEGRATED COURSE	MICROBIOLOGY AND GENERAL PATHOLOGY - INTEGRATED COURSE		
CODE	05209		
MODULES	Yes		
NUMBER OF MODULES	2		
SCIENTIFIC SECTOR(S)	MED/04, MED/07		
HEAD PROFESSOR(S)	GIAMMANCO GIOVANNI	Professore Ordinario	Univ. di PALERMO
OTHER PROFESSOR(S)	GIAMMANCO GIOVANNI	Professore Ordinario	Univ. di PALERMO
	CANDORE GIUSEPPINA	Professore Ordinario	Univ. di PALERMO
CREDITS	11		
PROPAEDEUTICAL SUBJECTS			
MUTUALIZATION			
YEAR	2		
TERM (SEMESTER)	1° semester		
ATTENDANCE	Mandatory		
EVALUATION	Out of 30		
TEACHER OFFICE HOURS	CANDORE GIUSEPPINA Monday 12:00 14:00 Patologia generale - Corso Tukory 211 Wednesday 12:00 14:00 Patologia generale- Corso Tukory 211 GIAMMANCO GIOVANNI Wednesday 13:00 14:00 Dipartimento di Promozione della Salute, Materno-Infantile, di Medicina Interna e Specialistica di Eccellenza "G. D'Alessandro", Via del Vespro 133, 90127, Palermo, Piano 2°		

DOCENTE: Prof. GIOVANNI GIAMMANCO

PREREQUISITES	Basic knowledge on the following disciplines: general and organic chemistry, biochemistry, physics, biology, genetics.
LEARNING OUTCOMES	Knowledge and understanding Acquisition of tools for the understanding of the pathogenesis and pathophysiology of the disease. Ability of using technical language of these disciplines. Knowledge of features of microorganisms and of the main pathogens affecting the oral cavity. The students will achieve the following objectives: 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. To demonstrate the ability to apply their knowledge and understanding to the main issues of oral microbiology. Making judgments To be able to evaluate independently the results of studies investigating the pathogenesis and pathophysiology of diseases. Acquire sufficient knowledge of the world of microorganisms to interpret microbiological data relating to dental practice Communication skills Ability to explain easily and exhaustively the acquired knowledge. Ability to communicate with colleagues, healthcare professionals, patients and their relatives. Ability of learning Ability to update the acquired knowledge by consulting the scientific publications concerning the disciplines in question. Ability to participate, using the knowledge acquired during the course, in continuous updating initiatives in the professional field.
ASSESSMENT METHODS	Oral exam. The candidate 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. ECTS grades: A – A+ Excellent (30-30 cum laude) - Grade descriptors : 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. ECTS grade : B Very good (27-29) - Grade descriptors: Good knowledge of the teaching contents and excellent language control; students should show analytical and synthetic skills and be able to apply their knowledge to solve problems of medium and, in some cases, even higher complexity. ECTS grade: C Good (24-26)- Grade descriptors: Good knowledge of teaching contents and good language control; the students should be able to apply their knowledge to solve problems of medium complexity ECTS grade: D Satisfactory (21-23)- Grade descriptors: Average knowledge of the teaching contents, in some cases limited to the main topic; acceptable ability to use the specific discipline language and independently apply the acquired knowledge. ECTS grade: E Sufficient (18-20) - Grade descriptors: Minimum teaching content knowledge, often limited to the main topic; modest ability to use the subject specific language and independently apply the acquired knowledge. ECTS grade: F Fail (1-17) - Grade descriptors: Lack of an acceptable knowledge of the main teaching content knowledge; very little or no ability to use the specific subject language and apply independently the acquired knowledge. Exam failed
TEACHING METHODS	Lectures

MODULE
MICROBIOLOGY AND CLINICAL MICROBIOLOGY

Prof. GIOVANNI GIAMMANCO

SUGGESTED BIBLIOGRAPHY

R.J. Lamont, R.A. Burne, M.S. Lantz, D.J. Leblanc, "Microbiologia ed Immunologia del cavo orale" - Casa Editrice EMSI - 2010 - ISBN 9788886669740
M. La Placa, PRINCIPI DI MICROBIOLOGIA MEDICA - EDISES - XIV Edizione - 2014 - ISBN 9788879598101
S. De Grazia, D. Ferraro, G. Giammanco "MICROBIOLOGIA E MICROBIOLOGIA CLINICA PER LE PROFESSIONI SANITARIE E ODONTOIATRIA" - Casa Editrice Pearson Education Italia - 2021 - ISBN 9788891902283
M.P. Conte, F. Berlutti "MICROBIOLOGIA DEL CAVO ORALE" - Società Editrice ESCULAPIO - 2019 - ISBN 9788893851213

AMBIT	50446- Diagnostica di laboratorio
INDIVIDUAL STUDY (Hrs)	75
COURSE ACTIVITY (Hrs)	50

EDUCATIONAL OBJECTIVES OF THE MODULE

Acquire a basic knowledge of the world of microorganisms, including their cellular, metabolic and genetic organization. Know the microbial ecology of the oral cavity and the possible interactions between microorganisms and host. Understand the mechanisms of the pathogenic action of microorganisms in general and of some important pathogens of the oral cavity in particular. Acquire the ability to correlate the microbiological knowledge to the dental practice.

SYLLABUS

Hrs	Frontal teaching
2	Introduction to microbiology: the impact of microorganisms on humans and on the environment. The historical roots of microbiology. Microbial diversity: prokaryote and eukaryote microorganisms, viruses.
4	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	Relations between host and microorganisms, inter-microbial relationships, microbial ecology of the oral cavity, bacterial biofilms.
4	Main determinants of pathogenicity and virulence of microorganisms: adhesion factors, invasiveness, exoenzymes and microbial toxins.
4	General characteristics of viruses: biology, structure, replication cycle.
2	General characteristics of fungi: the fungal cell, modes of reproduction, pathogenic role in humans.
2	Microbiology laboratory techniques: principles of isolation and identification of microorganisms.
2	Antimicrobial agents: general characteristics. Antimicrobial resistance in microorganisms.
2	Vaccines and immune sera.
9	Characteristics of the main pathogenic bacteria of dental interest: staphylococci, streptococci, pneumococci, Neisserie, Clostridia, Mycobacteria, Actinomycetes, obligate anaerobes of the oral cavity.
3	Characteristics of the main fungal pathogens of dental interest: Candida, Aspergillus.
8	Characteristics of the main viral pathogens of dental interest: Herpesviruses, Papillomavirus, Orthomyxoviruses, viral agents of hepatitis, Retroviruses, Coronaviruses.

MODULE GENERAL PATHOLOGY

Prof.ssa GIUSEPPINA CANDORE

SUGGESTED BIBLIOGRAPHY

F. Mainiero, R. Misasi, M. Sorice - PATOLOGIA GENERALE – VI Edizione - Piccin, 2019, ISBN 978-88-299-2963-4
KUMAR – ROBBINS - LE BASI PATOLOGICHE: PATOLOGIA GENERALE – 9 ED Vol I, Edra Masson, giugno 2017, ISBN: 978-88-214-4748-8

A.K. Abbas , A.H. Lichtman- LE BASI DELL'IMMUNOLOGIA- V Edizione - Edra Masson, 2017, ISBN 978-88-214-4255-1
M Parola: Patologia generale ed Elementi di Fisiopatologia - II ed. - Edises UNIVERSITA', 2020 - ISBN 978-88-3623-0136

AMBIT	50449-Discipline mediche di rilevanza odontoiatrica
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INDIVIDUAL STUDY (Hrs)	90
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COURSE ACTIVITY (Hrs)	60
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EDUCATIONAL OBJECTIVES OF THE MODULE

To acquire the necessary skills to understand the etiology and pathophysiological mechanisms of diseases, the alterations of the structure, functions and control mechanisms of cells and systems. The student must also have the basic information on the main diagnostic techniques, especially on molecular field. The knowledge acquired in the course will represent the indispensable substrate for a correct clinical approach.

SYLLABUS

Hrs	Frontal teaching
2	The idea of homeostasis and disease. Etiology and pathogenesis
2	Cells of immune-inflammatory response
2	The components of the immune system. Antigens and Immunogenicity. Cells and Tissues. Lymphoid organs
2	The recognition of antigen by T and B cells : TCR and BCR
2	MHC: the major histocompatibility complex and its functions. HLA and diseases
2	Antigen presentation to T and B lymphocytes: molecular mechanisms
2	Antibodies: structure and functions. T cell-mediated immunity. The humoral immune response
2	Cytokines
1	The complement system and innate immunity
3	The classification of hypersensitivity reactions. Type I hypersensitivity and Allergic reactions. Type II hypersensitivity. Type III hypersensitivity and Immuno-complex diseases. Type IV hypersensitivity: tuberculin reaction and contact hypersensitivity reaction
2	Immune Tolerance and Autoimmunity: mechanisms
2	Overview of inflammation: cells and mediators. Local and Systemic Inflammatory response
2	Pattern recognition in the immune-inflammatory response
4	Acute inflammation. Cellular and plasmatic mediators. Preformed and newly synthesized mediators. Actions of anti-inflammatory-drugs. Adhesion molecules and cellular recruitment. Phagocytosis. Exudate and Transudate
2	Chronic Inflammation: causes and mechanisms. Chronic inflammatory cells and mediators. Granulomatous inflammation. Granulomatosis pulmonary diseases
2	Tissue repair: cell regeneration and fibrosis. Granulation tissue. Wound Healing
2	Acute phase proteins in the monitoring of inflammatory response: CRP and ESR. The changes of the electrophoretic pattern and quantitative assay methods of plasmatic proteins
2	Pathophysiology of body temperature: fever and hyperthermia . Pyrogens and cryogens. Types of fever and pathophysiological significance
2	Effects of inflammatory cytokines on the CNS: the sickness behaviour. Leukocytosis and leukopenia
2	The adaptive responses: atrophy, hypertrophy, hyperplasia and metaplasia. Cell injury: causes and mechanisms
2	Overview of neoplasia. Definitions and Nomenclature
2	Characteristics of benign and malignant neoplasms. Elements of epidemiology
2	Oncogenes
2	Cancer suppressor genes
2	Carcinogenesis and alterations of cellular cycle
2	Chemical and Radiation Carcinogenesis
2	Oncogenic Viruses. Viral and microbial carcinogenesis
2	Tumor progression. Invasion and Metastasis. Angiogenesis
2	Tumor immunity. Immunosurveillance and carcinogenesis