



# UNIVERSITÀ DEGLI STUDI DI PALERMO

<b>DEPARTMENT</b>	Promozione della Salute, Materno-Infantile, di Medicina Interna e Specialistica di Eccellenza "G. D'Alessandro"		
<b>ACADEMIC YEAR</b>	2022/2023		
<b>BACHELOR'S DEGREE (BSC)</b>	PREVENTION TECHNIQUES FOR THE ENVIRONMENT AND WORKPLACE		
<b>INTEGRATED COURSE</b>	MICROBIOLOGY AND INFECTIOUS DISEASES - INTEGRATED COURSE		
<b>CODE</b>	15174		
<b>MODULES</b>	Yes		
<b>NUMBER OF MODULES</b>	2		
<b>SCIENTIFIC SECTOR(S)</b>	MED/17, MED/07		
<b>HEAD PROFESSOR(S)</b>	BONURA CELESTINO	Professore Associato	Univ. di PALERMO
<b>OTHER PROFESSOR(S)</b>	BONURA CELESTINO	Professore Associato	Univ. di PALERMO
	DI CARLO PAOLA	Professore Associato	Univ. di PALERMO
<b>CREDITS</b>	6		
<b>PROPAEDEUTICAL SUBJECTS</b>			
<b>MUTUALIZATION</b>			
<b>YEAR</b>	1		
<b>TERM (SEMESTER)</b>	1° semester		
<b>ATTENDANCE</b>	Mandatory		
<b>EVALUATION</b>	Out of 30		
<b>TEACHER OFFICE HOURS</b>	<p><b>BONURA CELESTINO</b> Friday 10:00 11:00 Dipartimento di Promozione della Salute, Materno Infantile, Medicina Interna e Specialistica di Eccellenza "G. D'Alessandro" (PROMISE). Piano 2°</p> <p><b>DI CARLO PAOLA</b> Tuesday 12:30 14:30 Day Hospital di Malattie Infettive, sito dietro aula Ascoli Thursday 9:00 12:00 U.O.C. di Malattie infettive</p>		

DOCENTE: Prof. CELESTINO BONURA

<b>PREREQUISITES</b>	Basic knowledge (high school level) on the following disciplines: general and organic chemistry, biology and biochemistry.
<b>LEARNING OUTCOMES</b>	<p>Knowledge and understanding: by the end of this course, students should have acquired knowledge of the structural and biological characteristics of microorganisms, of the interactions between microorganisms and host, and the characteristics of the main infectious diseases.</p> <p>Ability to apply knowledge and understanding: students should be able to apply their knowledge to the main themes of Microbiology and Infectious Diseases and be able to select and use appropriate approaches to particular problems in the field of infectious disease prevention, identifying their advantages and limitations.</p> <p>Autonomous judgement: students should be able to identify solutions to problems in the fields of the course disciplines through critical analysis of data in the international literature and case study analysis.</p> <p>Communication skills: students should be able to clearly present works they have carried out individually or in groups.</p> <p>Learning skills: students should be able to find pertinent data for professional update and training and be prepared for subsequent study levels (specialisation degree, Master courses etc.).</p>
<b>ASSESSMENT METHODS</b>	<p>Oral exam with evaluation expressed using a 30-point scale.</p> <p>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.</p> <p>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.</p> <p>The sufficiency threshold will be reached if the student shows knowledge and understanding of the issues at least in broad outline, and has application skills sufficient for solving simple practical cases; he must also have presentation and argumentative skills allowing the transmission of his knowledge to the examiner. Below this threshold, the examination will be insufficient.</p> <p>The more the candidate will be able to interact with the examiner with his argumentative and presentation skills, and the more his knowledge and application capabilities will go into detail on the subjects under evaluation, the more the judgement will be positive, according to the following scheme:</p> <ul style="list-style-type: none"><li>- ECTS grade: A- A+ Excellent – Italian Grade: 30-30 cum laude Eccellente.</li></ul> <p>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.</p> <ul style="list-style-type: none"><li>- ECTS grade: B Very good – Italian Grade: 27-29 Ottimo.</li></ul> <p>Grade descriptors: Very 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.</p> <ul style="list-style-type: none"><li>- ECTS grade: C Good – Italian Grade: 24-26 Buono.</li></ul> <p>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.</p> <ul style="list-style-type: none"><li>- ECTS grade: D Satisfactory – Italian Grade: 21-23 Discreto.</li></ul> <p>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.</p> <ul style="list-style-type: none"><li>- ECTS grade: E Sufficient – Italian Grade: 18-20 Sufficiente.</li></ul> <p>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.</p> <ul style="list-style-type: none"><li>- ECTS grade: F Fail – Italian Grade: 1-17 Insufficiente.</li></ul> <p>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.</p>
<b>TEACHING METHODS</b>	Lectures; preparation and discussion of a dissertation; presentation and discussion of works published in scientific journals.

## MODULE MICROBIOLOGY

*Prof. CELESTINO BONURA*

### SUGGESTED BIBLIOGRAPHY

- S. De Grazia, D. Ferraro, G. Giammanco "MICROBIOLOGIA E MICROBIOLOGIA CLINICA PER LE PROFESSIONI SANITARIE E ODONTOIATRIA" - Terza edizione - Casa Editrice Pearson, 2021  
 - M.T. Madigan, J.M. Martinko, D.A. Stahl, K.S. Bender – D.H. Buckley, "BROCK - BIOLOGIA DEI MICRORGANISMI", 14° edizione - Casa Editrice Pearson, 2016  
 - Tortora GJ, Funke BR, Case CL, "Elementi di microbiologia", Casa Editrice Pearson, 2008

<b>AMBIT</b>	10358-Scienze biomediche
<b>INDIVIDUAL STUDY (Hrs)</b>	45
<b>COURSE ACTIVITY (Hrs)</b>	30

### 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 microbiological control of food, the environment, surfaces, and the air.

## SYLLABUS

Hrs	Frontal teaching
1	Introduction to microbiology: the impact of microorganisms on humans and on the environment.
1	The historical roots of microbiology.
1	Microbial diversity: prokaryote and eukaryote microorganisms, viruses.
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. 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. Types of vaccines.
4	Culture media, microbiological laboratory techniques: principles of isolation and identification of bacteria; techniques for the microbiological control of food, the environment, air and surfaces.

**MODULE  
INFECTIOUS DISEASES**

*Prof.ssa PAOLA DI CARLO*

**SUGGESTED BIBLIOGRAPHY**

**RECOMMENDED**

READING Material will be provided by the lecturer through the Unipa website and national and international databanks.  
S De Grazia, D Ferraro, G Giammanco "MICROBIOLOGIA E MICROBIOLOGIA CLINICA PER LE PROFESSIONI SANITARIE" - Casa Editrice Pearson, 2017

<b>AMBIT</b>	10362-Scienze medico-chirurgiche
<b>INDIVIDUAL STUDY (Hrs)</b>	45
<b>COURSE ACTIVITY (Hrs)</b>	30

**EDUCATIONAL OBJECTIVES OF THE MODULE**

**LEARNING OBJECTIVES OF MODULE 2 "INFECTIOUS DISEASES"**

To know the causes of the main infectious diseases, including emerging and re-emerging diseases, the relationships between microorganism and host and the main means for diagnosing infectious diseases. To identify the places and categories of subjects particularly at risk of contracting infectious diseases. To know and apply principles of infection risk prevention, taking into account ministerial directives and the cost/benefit ratio for the patient. To learn how to use data banks of epidemiological interest and relevant periodic updates.

Emerging Infectious Disease

**SYLLABUS**

<b>Hrs</b>	<b>Frontal teaching</b>
2	Objectives of the discipline and its subdivisions. Principles of pathogenesis, diagnostic and clinical approach to some infectious diseases which impact the workplace and some categories at risk.
2	Principles of infectious disease transmission SARS-CoV 2 infection
3	Tuberculosis: latent infection and disease in different age groups and risk group; diagnosis and prevention in work placement, food and tourist industries
3	Communicable Disease Control Plan Best Management Guide for Industrial Camps: blood-borne infectious diseases
2	Privacy police in infectious diseases by age and cultural habits
2	HIV infections AND AIDS definition, Diagnostic-therapeutic paths for the prevention and control of HIV infection; sexually-transmitted diseases.
3	Occupational infectious diseases among office personnel and then extended to include healthcare workers working in hospitals, residents, and schoolchildren: trend and prevention
3	environmental and infectious disease: proximity of camp to reservoirs of infectious disease (e.g. presence of animal and/or insect vectors).
3	aeraulic and water contamination and transmission of infectious diseases: trend diagnosis and prevention
2	Emerging infectious diseases: their impact on the workplacement and current regulations regarding prevention in geographic area and in particular settings.
2	Strategies to reduce the risk of transmission (including outbreaks) of infections endemic in Italy among foreign workers who may not have the same immunity as residents of Italy (i.e. as a result of vaccination schedules and coverage in home countries, a lack of prior exposure to certain pathogens, etc.). and Any infectious diseases that are endemic in the country(ies) of origin of workers
3	infectious diseases from animals to humans through direct contact or though food, water, and the environment, are commonly referred to as "zoonoses.": old and emerging disease