



# 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>	2024/2025		
<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>	DI CARLO PAOLA	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>		

<p><b>PREREQUISITES</b></p>	<p>Among the prerequisites, the student must possess the following key skills:</p> <ul style="list-style-type: none"> <li>- Literacy competence.</li> <li>- Multilingual competence.</li> <li>- Digital competence.</li> <li>- Personal, social and learning to learn competence.</li> <li>- Citizenship competence</li> </ul> <p>In particular, the student must be able to identify, understand, express and interpret concepts, facts and opinions, both orally and in writing, using visual, audio and digital materials to obtain functional, digital and multilingual literacy in the context of the disciplines identified as basic knowledge: general and organic chemistry, biochemistry, biology and genetics. The student must possess personal and social competence and the ability to learn how to manage time and information effectively, work constructively with others, remain resilient and manage their learning and career as a university student.</p>
<p><b>LEARNING OUTCOMES</b></p>	<p><b>INTENDED LEARNING</b></p> <p>Knowledge and understanding. At the end of the Microbiology and Infectious Diseases course, students will have to acquire:</p> <ul style="list-style-type: none"> <li>- knowledge of the structural and biological characteristics of microorganisms</li> <li>- knowledge of the interactions between microorganisms and host</li> <li>- knowledge of the etiopathogenetic mechanisms of infectious diseases (routes of transmission and pathogenesis of the main infectious diseases covered by the course)</li> <li>- knowledge of the primary diagnostic methods used to identify the microorganism and define the stage of infection;</li> <li>- knowledge of methods of prevention and treatment of infectious diseases, ability to apply knowledge and understanding</li> </ul> <p><b>Making judgements</b></p> <p>The student will have to acquire the ability to indicate measures for the control and prevention of infectious diseases through the knowledge acquired in the context of the IC courses in question, as well as from the critical analysis of data available in the international literature and the analysis of case studies.</p> <p><b>Communication skills</b></p> <p>Have the ability to use appropriate scientific language to present and communicate what has been learned.</p> <p><b>Learning skills</b></p> <p>The student will have to demonstrate the ability to find useful data for constant professional updating through the consultation of scientific publications specific to the sector and other network resources of recognized scientific value. The final exam will verify the acquisition of this knowledge.</p>
<p><b>ASSESSMENT METHODS</b></p>	<p>ECTS grade Italian Grade Grade descriptors</p> <p>A – A+ Excellent 30-30 cum laude Eccellente 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> <p>B Very good 27-29, 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> <p>C Good 24- 26, Buono 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> <p>D Satisfactory 21-23 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> <p>E Sufficient 18-20 Sufficient 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> <p>F Fail Insufficient Lack of 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> <p>“Compensatory tools and dispensatory measures will be guaranteed by the Disability and Neurodiversity Center - University of Palermo (Ce.N.Dis.) to students with disabilities and neurodiversity, based on specific needs and in implementation of current legislation.”</p>
<p><b>TEACHING METHODS</b></p>	<p>Traditional frontal teaching supported by images and videos and with multilingual online education website</p>

## 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 Education Italia - 2021 - ISBN 9788891902283

<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**

Malattie infettive di: Roberto Esposito, Mauro Moroni, Spinello Antinori Editore: Edra Masson Edizione: 8; linee guida standardizzate per il sito web internazionale; conoscenza dei dati e dei testi forniti dal docente;  
Internationale website standardized guidelines ; data and text knowledge provided by the teacher.

<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**

Hrs	Frontal teaching
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