

## Clinical Microbiology - Infection Control

FACULTY			
<b>FACULTY</b>	<b>HEALTH SCIENCES</b>		
<b>DEPARTMENT</b>	<b>NURSING</b>		
<b>LEVEL OF EDUCATION</b>	<b>UNDERGRADUATE</b>		
<b>LESSON CODE</b>	<b>0805.2.005.0</b>	<b>SEMESTER OF STUDIES</b>	<b>2<sup>nd</sup></b>
<b>COURSE TITLE</b>	<b>CLINICAL MICROBIOLOGY – INFECTION CONTROL</b>		
SELF-ENDED TEACHING ACTIVITIES			
	<b>HOURS OF TEACHING / WEEK</b>	<b>CREDIT UNITS</b>	
<b>Theory</b>	<b>2</b>		
<b>Coaching school</b>			
<b>Laboratory</b>			
<b>Clinical exercise</b>			
<b>Total</b>	<b>2</b>	<b>3</b>	
<b>COURSE TYPE:</b>	<b>COMPULSORY</b>		
<b>PREREQUISITE COURSES:</b>	<b>NO</b>		
<b>LANGUAGE OF TEACHING and EXAMINATIONS:</b>	<b>Greek</b>		
<b>THE COURSE IS OFFERED TO ERASMUS STUDENTS:</b>	<b>NO</b>		
<b>website COURSE</b>	<b><a href="https://eclass.hmu.gr/courses/NURS181/">https://eclass.hmu.gr/courses/NURS181/</a></b>		
Learning results			
<p>After completing the course students will be able to:</p> <ul style="list-style-type: none"> <li>• name important milestones and events that contributed to the establishment of microbiology and the connection between microbes and infections as well as modern developments in microbiology.</li> <li>• know that microbes are essential for the maintenance of life as we know it and for the processes that support life. Humans use microorganisms and their products.</li> <li>• understand that taxonomy aims to establish the relationships between organisms. Classification facilitates identification. They can name methods of classification and identification of microorganisms (such as morphological characteristics, biochemical tests for enzyme detection, serological tests, lysotyping GC base pair ratio in genetic material to ribosomal RNA base sequence)</li> <li>• compare the structure of prokaryotic cells with eukaryotic cells.</li> <li>• understand that some microorganisms cause diseases, they know that different types of microscopes are necessary for the observation of microorganisms and that sample preparation and staining are required before microscopy.</li> </ul>			

- know that the survival and growth of each microorganism in a specific environment depends on its metabolic characteristics for microbial growth in the laboratory requires special conditions and special culture materials for each type of microbe.
- name the ways and methodology of controlling microbial growth.
- understand that cellular and viral microorganisms can interact both with humans and other hosts, in a beneficial, neutral or harmful way, they can describe the ways of transmission of infections, they can classify infections according to their frequency of occurrence and to determine acute and chronic infection. They understand preventive measures for infections associated with health facilities.
- know that innate (natural) immunity does not require recognition of the microbe in a specific way but acts against all microbes in the same way, contrary to what happens with acquired immunity.
- know the main microbial infections of the nervous, cardiovascular, respiratory, digestive and genitourinary systems.
- know the main modes of action of antimicrobial drugs and which they belong to each group, name the main bacterial mechanisms of antibiotic resistance, also know the main antifungal, antiviral, antiprotozoal and anthelmintic drugs.

#### General Skills

Decision making, Freelance work, Teamwork, Promotion of free, creative and inductive thinking.

#### Course content - Theory outline

1 <sup>st</sup> week	Brief history of microbiology and infectious disease. How microbes affect our lives.
2 <sup>nd</sup> week	Bacteria, Fungi, Protozoa, multicellular Parasites (helminths) Viruses. The structure of prokaryotic cells.
3 <sup>rd</sup> week	Classification of microorganisms (the three domains: bacteria, archaea and eukaryotes), Taxonomic hierarchy Domain, Kingdom, Genus, Class, Order, Family, Genus, Species). Methods of classification and identification of microorganisms.
4 <sup>th</sup> week	Microscopy and types of microscopes. Simple stains, differential stains, special stains (negative staining for sheaths, endospore staining, flagellum staining). Microbial growth, bacterial growth curve, microbial control development (physical and chemical methods)
5 <sup>th</sup> week	Pathogenesis of infections. Microbial mechanisms of pathogenicity. Infections that linked to health structures.
6 <sup>th</sup> week	Natural Immunity (non-specific defense of the host)-Acquired Immunity (specific defense of the host humoral cellular )-Types of acquired immunity.
7 <sup>th</sup> week	Microbial infections of the respiratory system.
8 <sup>th</sup> week	Microbial infections of the nervous system.
9 <sup>th</sup> week	Microbial infections of the digestive system.
10 <sup>th</sup> week	Microbial infections of the cardiovascular and lymphatic system.
11 <sup>th</sup> week	Microbial infections of the urinary and genital tract.
12 <sup>th</sup> week	Microbial infections of the skin and eyes.
13 <sup>th</sup> week	Antimicrobial drugs and mode of action. Mechanisms of bacterial resistance to antibiotics. Antifungal, antiviral, antiprotozoal and anthelmintic drugs.

TEACHING and LEARNING METHODS - EVALUATION	
<b>TEACHING METHOD</b>	Traditional lectures using powerpoint software. Questions and answers for students. Presentation of works by the students.
<b>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</b>	Use of the e-class electronic platform to store presentations in digital format for easy access by students. Communication with students on issues related to the educational process through the same platform. View video in digital format. Using powerpoint slides.
<b>TEACHING ORGANIZATION</b>	<b>Activity Semester Workload</b> Lectures (total 13X3) Total Course: 120
<b>STUDENT EVALUATION</b>	<b>Theoretical part of the course</b> 60% from a written final exam. 40% from the midterm written assessment. The mid-term assessment may also include group assignments.
RECOMMENDED BIBLIOGRAPHY (into Greek language)	
<ul style="list-style-type: none"> <li>● Εισαγωγή στη Μικροβιολογία Συγγραφείς: Tortora Gerard, Funke Berdell, Case Christine 2η έκδοση 2017 . Διαθέτης (Εκδότης): BROKENHILLPUBLISHERSLTD. ISBN: 9789963274482. Κωδικός Βιβλίου στον Εύδοξο: 68373275</li> <li>● SCHAECHTER ΜΗΧΑΝΙΣΜΟΙ ΤΩΝ ΜΙΚΡΟΒΙΟΛΟΓΙΚΩΝ ΑΣΘΕΝΕΙΩΝ. N. Cary Engleberg, Victor Dirita, Terence S. Dermody. Έκδοση: 1<sup>η</sup> 2014. Διαθέτης (Εκδότης): ΠΑΡΙΣΙΑΝΟΥ ΑΝΩΝΥΜΗ ΕΚΔΟΤΙΚΗ ΕΙΣΑΓΩΓΙΚΗ ΕΜΠΟΡΙΚΗ ΕΤΑΙΡΙΑ ΕΠΙΣΤΗΜΟΝΙΚΩΝ ΒΙΒΛΙΩΝ. ISBN: 978-960-394-670-0. Κωδικός Βιβλίου στον Εύδοξο: 41965267</li> <li>● Ανασκόπηση Ιατρικής Μικροβιολογίας και Ανοσολογίας. LEVINSON. Έκδοση: 1η/2013. Διαθέτης (Εκδότης): ΠΑΡΙΣΙΑΝΟΥ ΑΝΩΝΥΜΗ ΕΚΔΟΤΙΚΗ ΕΙΣΑΓΩΓΙΚΗ ΕΜΠΟΡΙΚΗ ΕΤΑΙΡΙΑ ΕΠΙΣΤΗΜΟΝΙΚΩΝ ΒΙΒΛΙΩΝ, ISBN: 978-960-394-915-2. Κωδικός Βιβλίου στον Εύδοξο: 12861176</li> <li>● Ιατρική Μικροβιολογία GreenwoodD., SlackR. Έκδοση: 1η έκδ./2011 Διαθέτης (Εκδότης): BROKENHILLPUBLISHERSLTD. ISBN: 9789604892617. Κωδικός Βιβλίου στον Εύδοξο: 13256946</li> <li>● ΤΑ ΜΙΚΡΟΒΙΑ ΚΑΙ Ο ΑΝΘΡΩΠΟΣ. Στέλιος Π. Χατζηπαναγιώτου, Νικόλαος-Στέφανος Λεγάκης. Έκδοση: 2η/2017. Διαθέτης (Εκδότης): ΑΙΚΑΤΕΡΙΝΗ ΛΟΥΚΙΣΑ. ISBN: 978-618-83363-0-8. Κωδικός Βιβλίου στον Εύδοξο: 68371460</li> </ul>	