UNIVERSITY of NICOSIA

Year 2

Course Title	**Veterinary Microbiology**				
Course Code	**Vet-203**				
Course Type	Required				
Level	Undergraduate				
Year / Semester	Year 2/ Semester 1 (Fall)				
Teacher's Name	**Course Lead:** Dr. Eleni Gentekaki **Contributors:** Dr. Peter Karayiannis, Dr. Daphne Mavrides				
ECTS	6	Lectures / week	3	Laboratories / week	2
Course Purpose and Objectives	The main objectives of the course are: ● Explain the basic principles of microbiology in some detail ● Differentiate between bacteria, viruses and fungi ● Discuss select pathogens of veterinary importance and the diseases they cause in some detail ● Recognize the connection between animal health, human health and the environment using specific examples ● Become aware of the classical and modern techniques used in veterinary microbiology				
Learning Outcomes	LOB=learning objectives Week 1 **LOBs covered during lectures:** 1. Understand the importance of veterinary microbiology 2. Understand the ubiquitous nature of microbes and their interactions with other microorganisms, macroorganisms and the environment 3. Define what microbiome is and its components and describe its relationship with the host 4. Become aware of the difference between pathogenic, non-pathogenic and opportunistic microbes 5. Describe structure and characteristics of bacterial cells in detail 6. Explain bacterial growth and the factors that influence it 7. Understand the metabolic plasticity of bacteria 8. Connect between metabolic plasticity, ability to survive in various environments and utilization of nutritional				

resources
9. Define unique features of bacterial genetics

Laboratory: aseptic inoculation of sterile media, colony streaking
Lectures: 1-4

Week 2

LOBs covered during lectures:

10. Become aware of the sources of pathogenic and potentially pathogenic bacteria
11. Describe portals of entry in some detail
12. Understand the determining factors of host-parasite interaction
13. Outline the modes of antibiotic activity
14. Describe the mechanisms bacteria use to counter antibiotic activity
15. Define antimicrobial resistance (AMR), and multidrug resistance (MDR)
16. Connect between metabolic plasticity and AMR/MDR
17. Define antimicrobial susceptibility testing (AST) and describe the most common methods used to test for it
18. Define minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MIB) and explain their usefulness

Laboratory: Gram staining, microscopy
Lectures: 5-8

Week 3

LOBs covered during lectures:

19. Define the features, pathogenesis, associated diseases and diagnosis of Enterobacteriaceae

Laboratory: Antibiotic sensitivity
Lectures: 9-11

Week 4

LOBs covered during lectures:

20. Define the features, pathogenesis, associated diseases and diagnosis of *Brucella*, *Campylobacter*, *Taylorella* and *Mycobacterium* (mycobacteria)

Lectures: 12-14

Week 5

LOBs covered during lectures:

21. Discuss the features, pathogenesis, associated diseases and diagnosis of *Pasteurella*, *Haemophilus*, *Bordetella*, *Moraxella*, *Erysipelothrix* and *Listeria*

Tutorial
Lectures: 15-17

Week 6

LOBs covered during lectures:

22. Discuss the features, pathogenesis, associated diseases and diagnosis of *Corynebacterium*, *Rhodococcus equi* and spirochaetes
23. Define the features, pathogenesis, associated diseases and diagnosis of staphylococci and streptococci

Lectures: 18-21

Week 7

LOBs covered during lectures

24. Define the features, pathogenesis, associated diseases and diagnosis of *Bacillus*
25. Understand strict anaerobes (clostridia) and associated diseases
26. Explain the features, pathogenesis, associated diseases and diagnosis of Chlamydia and Rickettsiales

Tutorial
Lectures: 22-24

Week 8

LOBs covered during lectures:

27. Discuss origin of viruses and viruses in nature
28. Describe viral structure, virion components and their assembly
29. Discuss criteria of viral classification
30. Explain viral tropism
31. Understand viral replication and protein synthesis

Tutorial
Lectures: 25-28

	Week 9 **LOBs covered during lectures:** 32. Explain viral genetics and evolution 33. Discuss viral pathogenesis: portals of entry, dissemination, shedding 34. Describe virus-host cell interactions *Lectures*: 29-32 Week 10 **LOBs covered during lectures:** 35. Define the features, pathogenesis and clinical infections of Rhabdoviridae, Parvoviridae, Poxviridae, Retroviridae and Paramyxoviridae *Lectures*: 33-36 Week 11 **LOBs covered during lectures:** 36. Discuss fungi in nature 37. Outline the morphological features and forms of fungi 38. Discuss criteria of fungal classification 39. Define dimorphic fungi and their importance in veterinary medicine 40. Describe mycoses and mycotoxicoses *Lectures*: 37-39 Week 12 **LOBs covered during lectures:** 41. Define features, pathogenesis, associated diseases and diagnosis of dermatophytes, yeasts, basal fungi (Mucorales), *Aspergillus* 42. Discuss of mixed fungal infections *Lectures*: 40-42		
Prerequisites	None	Required	None
Teaching Methodology	Lectures, laboratory practical sessions and tutorials		
Bibliography	1. Veterinary microbiology and microbial disease-P.J. Quinn, B.K. Markey, F.C. Leonard, E.S. FitzPatrick, S Fanning, P.J. Hartigan 2. Clinical Veterinary Microbiology-P.J. Quinn, M.E.		

	Carter, B. Markey, G.R. Carter
Assessment	Final examination: 60% Coursework: 30% Participation: 10%
Language	English