



Course Descriptor
VTMD392 Veterinary Microbiology Lab

Proposed Academic Year	2021 - 22	Last Reviewed Academic Year	
Course Code	VTMD392	Course Title	Veterinary Microbiology Lab
Credit hours	1	Level of study	Undergraduate
College / Centre	CAHS	Department	VTMD
Co-requisites	VTMD322	Pre-requisites	BIOL281

1. COURSE OUTLINE

The course will be the practical aspect of VTMM322 course. The course provides introduction to the culture, biochemical reactions and identification of pathogenic bacteria, fungi and viruses isolated from different animal species.

2. AIMS

This course aims to introduce students to veterinary microbiology laboratory techniques and procedures. Students will use techniques to investigate the diversity, growth, and pathogenicity of microbes, focusing on the importance of microbes in animal health and disease.

3. LEARNING OUTCOMES, TEACHING, LEARNING and ASSESSMENT METHODS

Learning Outcomes (Definitive)	Teaching and Learning methods (Indicative)	Assessment (Indicative)
Upon successful completion of this course, students will be able to:		
1. Explain the basic principles of microbiology, the study of microbes, and how microbes are classified.	Lecture and Demonstration Lab Work ,Group work	Lab work sheet, Pre lab assignment
2. Describe the mechanisms by which microorganisms cause disease and analyze the normal immunological methods and the chemotherapeutic methods used to combat these mechanisms.	Lecture and Demonstration Lab Work ,Group work	Lab work sheet, Pre lab assignment Quiz
3. Evaluate the requirements necessary to promote the growth and multiplication of bacterial and bacteria-like organisms.	Lecture and Demonstration Lab Work ,Group work	Lab work sheet, Pre lab assignment Quiz
4. Identify a variety of types of pathogenic	Lecture and Demonstration Lab Work ,Group work	Lab work sheet, Pre lab assignment



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microorganisms and the diseases they produce in the host.		Quiz
Perform basic microbiological techniques used in the laboratory setting of a veterinary hospital.	Lecture and Demonstration Lab Work ,Group work	Lab work sheet, Pre lab assignment Quiz

4. ASSESSMENT WEIGHTING

Assessment	Percentage of final mark (%)
Assignment	20%
Lab report	20%
Mid-term Examination	20%
Final Examination	40%
TOTAL	100%

5. ACHIEVING A PASS

Students will achieve **1** credit hours for this course by passing **ALL** of the course assessments [*Quizzes, Midterm and Final Exams*] and achieving a **minimum overall score of 50%**

NB *Ensure that ALL learning outcomes are taken into account

6. COURSE CONTENT (Indicative)



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BACTERIA AND FUNGI:

- Family Enterobacteriaceae.
- Enterobacteriaceae: Escherichia.
- Enterobacteriaceae: Salmonella.
- Enterobacteriaceae: Yersinia.
- Enterobacteriaceae: Shigella.
- Pasteurellaceae: Avibacterium, Bibersteinia, Mannheimia, and Pasteurella.
- Pasteurellaceae: Actinobacillus.
- Pasteurellaceae: Haemophilus and Histophilus.
- Bordetella.
- Brucella.
- Burkholderia mallei and Burkholderiapseudomallei.
- Francisellatularensis.
- Moraxella.
- Pseudomonas.
- Taylorella.
- Spiral-Curved Organisms I: Borrelia.
- Spiral-Curved Organisms II: Brachyspira (Serpulina) and Lawsonia.
- Spiral-Curved Organisms III: Campylobacter and Arcobacter.
- Spiral-Curved Organisms IV: Helicobacter.
- Spiral-Curved Organisms V: Leptospira.
- Staphylococcus.
- Streptococcus and Enterococcus.
- Arcanobacterium.
- Bacillus.
- Corynebacterium.
- Erysipelothrix.
- Listeria.
- Rhodococcus.
- Gram-Negative, Non-spore-Forming Anaerobes.
- Clostridium.
- Filamentous Bacteria: Actinomyces, Nocardia, Dermatophilus, and Streptobacillus.
- Mycobacterium.
- Chlamydiaceae.
- Mollicutes.
- Rickettsiaceae and Coxiellaceae: Rickettsia and Coxiella.
- Anaplasmataceae: Ehrlichia and Neorickettsia.
- Anaplasmataceae: Anaplasma.
- Bartonellaceae.

Yeasts—Cryptococcus, Malassezia, and Candida.

- Dermatophytes.
- Agents of Subcutaneous Mycoses.



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VIRUSES:

- Parvoviridae and Circoviridae.
- Asfarviridae and Iridoviridae.
- Papillomaviridae and Polyomaviridae.
- Adenoviridae.
- Herpesviridae.
- Poxviridae.
- Picornaviridae.
- Caliciviridae.
- Togaviridae and Flaviviridae.
- Orthomyxoviridae.
- Bunyavirida.
- Paramyxoviridae, Filoviridae, and Bornaviridae.
- Rhabdoviridae.
- Coronaviridae.
- Arteriviridae and Roniviridae.
- Reoviridae.
- Birnaviridae.
- Retroviridae
- Transmissible Spongiform Encephalopathies

TOTAL HOURS	42
Plus RECOMMENDED INDEPENDENT STUDY HOURS	15
TOTAL COURSE HOURS	57

7. RECOMMENDED REFERENCES

Core text/s:

P. J. Quinn, B. K. Markey, M. E. Carter, W. J. Donnelly, F. C. Leonar (Editors): Veterinary Microbiology and Microbial Disease, 2nd Edition, Wiley. USA. (2011)

Library + online resources:

Open Educational Resources: