



Course Descriptor VTMD323 Veterinary Immunology

Proposed Academic Year	2021 - 22	Last Reviewed Academic Year	
Course Code	VTMD323	Course Title	Veterinary Immunology
Credit hours	3	Level of study	Undergraduate
College / Centre	CAHS	Department	VTMD
Co-requisites		Pre-requisites	BIOL201

1. COURSE OUTLINE

The course provides theoretical and practical knowledge in immunology. The course provides a review of the immune system, and its functions as well as routine immunological assays. The course is being taught in a classroom setting as well as in the lab where students will learn to perform the assays and analyze and troubleshoot their data. The basic aspects of humoral and cell-mediated immunity, the role of immunological reactions in infectious disease pathogenesis, hypersensitivity, and autoimmune disease. Students will study the principles of immunity to bacteria, viruses and parasites and the fundamentals of vaccination. Students will also be familiarized with diagnostic techniques for assessing the immune system and for diagnosis of immune mediated disease.

2. AIMS

This course aims to developing a deep understanding of cells, molecules, and mechanisms of the immune system besides developing skills in carrying out routine immunological assays.

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. Identify the molecules cells, tissues and organs involved in immune response.	Power point presentations, lab work, discussion	Work sheets and written examinations
2. Describe the mechanism of functioning of the immune system.	Power point presentations, lab work, discussion	Work sheets and written examinations
3. Carry out immunological assays.	Power point presentations, lab work, discussion	Work sheets and written examinations
4. Analyze the immunological reactions in infectious disease pathogenesis.	Power point presentations, lab work, discussion	Work sheets and written examinations

4. ASSESSMENT WEIGHTING

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

5. ACHIEVING A PASS

Students will achieve **3** credit hours for this course by passing **ALL** of the course assessments [*Quizzes, Mid-term, Final Examinations**] and achieving a **minimum overall score of 50%**

NB *Ensure that ALL learning outcomes are taken into account

6. COURSE CONTENT (Indicative)

1. Surviving in a Microbial World
2. Innate Immunity: How to Detect Invaders
3. Humoral Innate Immunity: Inflammatory Mediators
4. Humoral Innate Immunity: The Complement System
5. Cellular Innate Immunity: Neutrophils and Phagocytosis
6. Cellular Innate Immunity: Macrophages and Recovery from Inflammation
7. Sickness: The Body's Innate Responses
8. How Immune Cells Communicate: Cytokines and Their Receptors
9. Antigens: Triggers of Adaptive Immunity
10. Dendritic Cells and Antigen Processing
11. The Major Histocompatibility Complex
12. Organs of the Immune System
13. Lymphocytes
14. Helper T Cells and Their Response to Antigens
15. B Cells and Their Response to Antigens
16. Antibodies: Soluble Antigen Receptors
17. How Antigen-Binding Receptors Are Made
18. T Cells and the Destruction of Cell-Associated Invaders
19. Innate Lymphoid Cells
20. Regulation of Adaptive Immunity
21. The Microbiota and the Immune System
22. Immunity at Body Surfaces
23. Immunity in the Fetus and Newborn
24. Vaccines and Their Production
25. The Use of Vaccines
26. Immunity to Bacteria and Fungi
27. Immunity to viruses
28. Immunity to Parasites
29. Mast Cell and Eosinophil Mediated Hypersensitivity
30. Allergic Syndromes



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31. Red Cell Antigens and Antibody-mediated Hypersensitivity
32. Immune-complexes and Neutrophil-mediated Hypersensitivity
33. T Cell-mediated Hypersensitivity
34. Organ Graft Rejection and Pregnancy
35. Cancer Immunology and Immunotherapy
36. Autoimmunity: General Principles
37. Organ-Specific Autoimmune Diseases
38. Immune-mediated Inflammatory Diseases
39. Primary Immunodeficiencies
40. Secondary Immunological Defects
41. Drugs and Other Agents that Affect the Immune System
42. Immunodiagnostic Techniques
43. Evolution of the Immune System

TOTAL HOURS	45
Plus RECOMMENDED INDEPENDENT STUDY HOURS	15
TOTAL COURSE HOURS	60

7. RECOMMENDED REFERENCES

Core text/s:

[Tizard \(Editor\): Veterinary Immunology, 9th Edition, Saunders Company, USA.2012](#)

Library + online resources:

Open Educational Resources: