Course syllabus
Second Semester Academic Year 2025

1. Faculty of Veterinary Technology **Department:** Veterinary Nursing
2. Course code: 01603217 **Course title:** Immunology for Veterinary Nursing
Course credit: 2 (2-0-4)
Prerequisite: None
Sec 230
Date/Time/Location Tuesday 13.00 – 15.00
Room 1-403 Veterinary technology teaching and laboratory Building

3. Instructors

1. Assoc.Prof.Dr.Nattakan Meekhanon (NM) Course coordinator
2. Assoc.Prof.Dr.Sarawan Kaewmongkol (SK) Co-Instructor
3. Asst.Prof.Dr.Samak Sutjarit (SS) Co-Instructor
4. Asst.Prof.Dr.Suchanit Ngamkala (SN) Co-Instructor
5. Asst.Prof.Dr.Natnaree Inthong (NI) Co-Instructor

4. Academic advising and consultation

1. Assoc.Prof.Dr.Nattakan Meekhanon
   Room 729, Veterinary technology teaching and laboratory Building
   Office hours: Monday-Friday 8.30 – 16.30 (appointment required)
   Tel. 0-2579-8573-5 ext 616022 E-mail: cvtnkl@ku.ac.th

5. Course objectives

Knowledge of the immune system is essential in veterinary nursing. It provides a fundamental basis for understanding animal health care, including the mechanisms of hypersensitivity and immune-related diseases. It also supports disease diagnosis based on immunological principles and enables the application of this knowledge to disease prevention and control.

6. Mapping of CLOs with Sub-PLOs

CLOs	Course learning outcomes: CLOs	Related Sub-PLOs (100%)				
		1	2	3	4	5
1	Explain the principles of the immune system and the basic procedures of immunological tests used in the laboratory. (60%)				1.5	
2	Explain the role of immunity in the prevention of infectious diseases among animals and zoonotic diseases. (30%)				1	
3	Demonstrate leadership and teamwork skills, along with responsibility and punctuality.(10%)			0.1		

Remark: Program learning outcome: PLOs and SubPLOs

PLO1 Graduates capable performing veterinary nursing practices through the integration of professional nursing knowledge and clinical analytical reasoning

SubPLO1. Apply the fundamental principles, concepts, and processes of veterinary nursing and related animal health sciences.

SubPLO2. Perform veterinary nursing procedures with technical accuracy and safety.

SubPLO3. Perform veterinary nursing practices with ethical standards, responsibility, communication, and collaborative teamwork in accordance with relevant laws.

PLO2 Graduate perform duties in animal nutrition, rehabilitation, disease control and prevention

SubPLO4. Apply the principles of animal nutrition, immunology, and epidemiology to manage disease prevention, zoonoses control, and post-nursing care protocols.

PLO3 Graduate use and maintain veterinary nursing equipment and tools correctly according to academic principles

SubPLO5. Handle veterinary drugs, instruments, equipment, and medical supplies safely and accurately.

7. Course Description

Immune system, immune response, hypersensitivities and immunological diseases in animal. Vaccine. Immunotherapy.

8. Teaching and learning strategies

Lectures with multimedia, collaborative learning activities, Team-based learning, self-directed learning through textbooks, scientific articles, instructor handouts, student presentations and reports.

9. Teaching materials

Computer projector, lecture handouts, slide presentations.

10. Assessment and Evaluation

10.1 Exam (80%)	
1) Midterm Exam	44%
2) Final Exam	36%
10.2 Team-based learning	10%
10.3 Assignment report/Responsibility/Group participant	5%
10.4 Class participation and behavior	5%
Total	100%

11. Achievement indicator

80% of students passed the course.

12. Course Evaluation

The grading criteria are in accordance with the University's academic regulations. Grades are determined using either the criterion-referenced or norm-referenced evaluation method. In the case of criterion-referenced grading, the following standard is applied:

Score 100-80	Grade A	Score 64-60	Grade C
Score 79-75	Grade B+	Score 59-55	Grade D+
Score 74-70	Grade B	Score 54-50	Grade D
Score 69-65	Grade C+	< Score 50	Grade F

13. Teaching textbooks and references

1. Textbooks relate with Veterinary immonology

2. Abbas A.K. and Lichtman A.H. 2012. Basic immunology functions and disorders of the immune system. 4th ed. Saunders, Philadelphia.
3. Actor J.K. 2011. Elsevier s integrated Immunology and microbiology. 2nd ed. Saunders, Elsevier, China.
4. Burmester G. and Pezzutto A. 2003. Color atlas of immunology. Georg Thieme Verlag. Germany.
5. Delves P.J., Martin S.J., Burton D.R. and Roitt I.M. 2011. Roitt's Essential immunology. 12th ed. Blackwell publishing, U.K
6. Lydyard P., Whelan A. and Fanger M.W. 2011. Instant notes immunology. 3th ed. Bios Scientific publishing, London and New York.
7. Tizard I.R. 2012. Veterinary immunology an introduction. 9th ed. Elsevier Saunders, U.S.A.
8. Turgeon M.L. 2013. Immunology & Serology in laboratory medicine. 5th ed. Elsevier Mosby, Missouri.
9. Lecture's handout

14. Course Contents

Week	Date	Title	Instructor	Lesson Learning Outcomes (LLO)	Course Learning Outcomes (CLOs)	Teaching learning approaches	Assessment method
1	25 Nov 25 13.00-15.00	Course description and Introduction to immune system	NM	- Understand the basic structure and fundamental mechanisms of the immune system - Explain the role of immunity in the animal body	CLO1	Lecture teaching	Paper-based test
2	2 Dec 25 13.00-15.00	Immune-related cells and lymphoid organs	NM	- Identify major immune cells - Explain the functions of each type of immune cell - Understand the function of lymphoid organs	CLO1	Lecture teaching	Paper-based test
3	9 Dec 25 13.00-15.00	Antigen and antibodies	NM	- Classify types and structures of antigens and antibodies - Understand how antibodies bind to antigens and their roles in immune responses	CLO1	Lecture teaching	Paper-based test Assignment

Week	Date	Title	Instructor	Lesson Learning Outcomes (LLO)	Course Learning Outcomes (CLOs)	Teaching learning approaches	Assessment method
4	16 Dec 25 13.00-15.00	Cytokines and the immune system	NM	Explain the functions of cytokines and their roles in regulating immune responses	CLO1	Lecture teaching	Paper-based test Assignment
5	23 Dec 25 13.00-15.00	Immune systems (7%) - Innate immune system - Adaptive immune system	NM	Explain the mechanisms of innate and adaptive immunity	CLO1	Lecture teaching Team-based learning	Paper-based test Assignment
6	30 Dec 25 13.00-15.00	Antigen - Antibody reactions (6%)	NM	- Explain antigen–antibody reactions and their outcomes - Identify clinical applications of antigen–antibody reactions	CLO2	Lecture teaching (Online)	Paper-based test
7	6 Jan 26 13.00-15.00	Complement system (6%)	SN	Explain the functions and roles of the complement system in immune processes	CLO1	Lecture teaching	Paper-based test Assignment
Midterm examination 10 – 18 January 2026 (Lecture 44%)							
8	20 Jan 26 13.00-15.00	Immune response and its regulation (6%) - Immune tolerance	SN	- Explain immune responses and their regulation	CLO2	Lecture teaching	Paper-based test Assignment

Week	Date	Title	Instructor	Lesson Learning Outcomes (LLO)	Course Learning Outcomes (CLOs)	Teaching learning approaches	Assessment method
		- Control of immune responses - Regulatory cells		- Understand the roles of cells involved in controlling and preventing abnormal immune responses			
9	27 Jan 26 13.00-15.00	Immunopathology (6%)	SN	Explain the immunopathology of the immune system in various conditions	CLO2	Lecture teaching	Paper-based test Assignment
10	3 Feb 26 13.00-15.00	Immunotherapy (6%)	NM	Explain the principles and different approaches of immunotherapy	CLO1	Lecture teaching (Online)	Paper-based test Assignment
11	10 Feb 26 13.00-15.00	Immunity to microbial infection (Virus, bacteria, fungi and parasites) (6%)	SS	Explain immune responses to infections caused by viruses, bacteria, fungi, and parasites	CLO2	Lecture teaching	Paper-based test Assignment
12	17 Feb 26 13.00-15.00	Vaccine and vaccine production (6%)	SK	- Understand the role of vaccines in the prevention and control of infectious diseases in animals - Explain the basic principles of vaccines and vaccine production	CLO2	Lecture teaching	Paper-based test Assignment

Week	Date	Title	Instructor	Lesson Learning Outcomes (LLO)	Course Learning Outcomes (CLOs)	Teaching learning approaches	Assessment method
13	24 Feb 26 13.00-15.00	Hypersensitivities (6%)	NI	Explain the types, mechanisms, and consequences of hypersensitivity reactions	CLO1	Lecture teaching	Paper-based test Assignment
14	3 Mar 26	Public holiday for Makha Bucha Day					
15	10 Mar 26 13.00-15.00	Presentation	NM	Communicate scientific information accurately	CLO2	Oral presentation	Assignment
Final examination 16 –27 March 2026 (Lecture 36%)							

(Assoc.Prof.Dr.Nattakan Meekhanon)
7 November 2025