

Course Specification

Name of Institution Mahidol University
Campus/Faculty/Department Faculty of Veterinary Science

Section 1 General Information

1. Course Code and Title

VSPA 710 Causes and Progression of Disease

สปปส 710 สาเหตุและขบวนการเกิดโรค

2. Number of Credits

3 (2-3-5) Credits (lecture – laboratory – self-study)

3. Curriculum and Course Type

Program of Study Master of Science Program in Veterinary Biomedical Sciences

Course Type Core Required Electives

4. Faculty Member in Charge of this Course and Advisor of Internship

4.1 Faculty Member in Charge of this Course

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4.2 Lecturers

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- Lect.Dr.Apsit Pornthummawat (AP)

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5. Semester/The training experience required in the curriculum

Semester 1 / Class Level or year 1

6. Pre-requisite

N/A

7. Co-requisite

N/A

8. Venue of Study

Faculty of Veterinary Science, Mahidol University

9. Date of Latest Revision

25 July 2023

Section 2 Goals and Objectives

1. Course Goals

Specifically this course is designed to increase the student's knowledge and understanding as follows:

- 1) Various terminologies used in veterinary pathology related to the concept of cell injury caused by infectious and non-infectious agents, the changes produces thereby in the different tissues, organs, and the organ system.
- 2) The concepts of neoplasia with reference to the etiology, gross and microscopic features, diagnosis and prognosis in different tissues and organs of the body.
- 3) The causes and pathological changes in various organ systems in the animal's body, how these changes affect the body and how they are reflected in the results of pathology laboratory investigations and facilitate the overcoming of the functional consequences of morphological changes
- 4) Detailed analysis of specific diseases, together with discussion of relevant diagnostic and will enable the student to begin to integrate in the different fields of study

Objectives of Course Development/Revision Field Experience Course

Update the curriculum to raise student achievement

2. Course-level Learning Outcomes: CLOs

This course aims to provide knowledge and abilities as follows:

- 1) Identify changes in the cell, tissue, and organ systems of the animal body associated with the pathological process resulted from infectious and non-infectious agents.
- 2) Recognize and describe basic macroscopic and microscopic features of both basic pathological processes and selected diseases using the correct vocabulary.
- 3) Correctly classify and explain different lesions with different causes, consequences, or concomitants of disease processes.
- 4) Correlate clinical features, investigation, management and prevention of disease with causes and mechanisms of disease.

Section 3 Course Management

1. Course Description

(Thai) สาเหตุของการเกิดโรคติดเชื้อและโรคไม่ติดเชื้อ การเปลี่ยนแปลงทางพยาธิสรีรวิทยาของเซลล์ เนื้อเยื่อ อวัยวะ กลไกการบาดเจ็บ การเสื่อม การปรับตัว การตายของเซลล์ การอักเสบ การซ่อมแซม เนื้อเยื่อ การเจริญของเซลล์ที่ผิดปกติ การเกิดมะเร็ง (English) Etiology of infectious and non-infectious diseases, pathophysiological change of cells, tissues and organ; mechanism of cell injury, degeneration, adaptation and cell death, inflammation, tissue healing, abnormal cell growth and neoplasia

2. Credit Hours per Semester

Lecture	2	Hours
Laboratory	3	Hours
Self Study	5	Hours

3. Number of hours that lecturers provide counseling and guidance to individual student

3 hr.

Section 4 Development of Students' Learning Outcome

1. A brief summary of the knowledge or skills expected to develop in students; the level expected learning outcomes (CLOs) On completion of the course, students will be able to:

1. CLO1: Identify changes in the cell, tissue, and organ systems of the animal body associated with the pathological process resulted from infectious and non-infectious agents.
2. CLO2: Recognize and describe basic macroscopic and microscopic features of both basic pathological processes and selected diseases using the correct vocabulary.
3. CLO3: Correctly classify and explain different lesions with different causes, consequences, or concomitants of disease processes.
4. CLO4: Correlate clinical features, investigation, management and prevention of disease with causes and mechanisms of disease.

2. How to organize learning experiences to develop the knowledge or skills stated in number 1 and how to measure the learning outcomes

CLOs	Teaching and learning experience management		Learning outcomes measurements		
	Lecture	Lab practice	MCQ, short answer/essay, take home essay	Practical exam	Seminar/ group presentation
CLO1	X	X	X	x	x
CLO2	X	X	X	x	x
CLO3	X	X	X	x	x
CLO4	X		X	x	x

Section 5 Teaching and Evaluation Plans

1. Teaching Plan

Week or No.	Topic	Hours			Teaching Methods / Media	CLOs	Lectur ers
		Lecture	Laboratory	Self Study			
1	Cellular reaction to injury	2	3	5	Lecture/ppt, histopath. lab practice & discussion	1,2,3,4	PW
2	Cell adaptation	2	3	5	Lecture/ppt, histopath. lab practice & discussion	1,2,3,4	PW
3	Hemodynamic Disorders/ Inflammation I	2	3	5	Lecture/ppt, histopath. lab practice & discussion	1,2,3,4	AP/TI
4	Inflammation II & wound healing	2	3	5	Lecture/ppt, histopath. lab practice & discussion	1,2,3,4	TI
5	Cancer biology	2	3	5	Lecture/ppt, histopath. lab practice & discussion	1,2,3,4	PS
6	Immune Response I	2	3	5	-Lecture & discussion -Demonstrate lab & discussion	1,4	DG/KC
7	Immune Response II	2	3	5	-Lecture & discussion -Demonstrate lab & discussion	1,4	NB/DG

Week or No.	Topic	Hours			Teaching Methods / Media	CLOs	Lectur ers
		Lecture	Laboratory	Self Study			
8	Diseases related to fungal infection	2	3	5	-Lecture & discussion -Demonstrate lab & discussion	1,4	NB & staff
9	Diseases related to viral and prion infections	2	3	5	-Lecture & discussion -Demonstrate lab & discussion	1,4	KC
10	Diseases related to bacterial infection	2	3	5	-Lecture & discussion -Demonstrate lab & discussion	1,4	NP
11	Diseases related to toxin	2	3	5	-Lecture & discussion -Demonstrate lab & discussion	1,4	BC/SB
12	Diseases related to parasitic infection I	2	3	5	- Lecture & discussion -Demonstrate lab & discussion	1,4	CJ
13	Diseases related to parasitic infection II	2	3	5	- Lecture & discussion -Demonstrate lab & discussion	1,4	SS/TC
14	Immunopathology	2	3	5	- Lecture & discussion	1,2,3,4	NA
15	Diseases related to nutrition and environmental factors	2	3	5	- Lecture & discussion	1,2,3,4	NA
รวมจำนวนชั่วโมงตลอดภาคการศึกษา		30	45	75			

2. Evaluation Plan

Learning Outcomes	Evaluation Method			
	MCQ, short answer/ essay, take home essay	Practical exam	Seminar/Group presentation	(Percentage)
CLO1 Identify changes in the cell, tissue, and organ systems of the animal body associated with the pathological process resulted from infectious and non-infectious agents.	13	9	12	34
CLO2 Recognize and describe basic macroscopic and microscopic features of both basic pathological processes and selected	6	3	7	16
CLO3 Correctly classify and explain different lesions with different causes, consequences, or concomitants of disease processes	6	3	7	16
CLO4 Correlate clinical features, investigation, management, and prevention of disease with causes and mechanisms of disease.	13	9	12	34
Total	38	24	38	100

Note*

1. Show the methods/tools and weight for measuring and evaluating each CLO.
2. Total the weight from every tool and CLO to 100

3. Verify the information to be consistent with the evaluation methods shown in Section 4 Table.

3. Measurement and evaluation

The assessment is performed during the course to measure the progress and development of students' learning by observing the behavior change and improvement of students' behavior and performance. The assessment results will be notified to the students (feedback) so that the students are constantly able to improve themselves. The assessment results are not included with the test scores at the end of the course.

4. Students' Appeal

Should the students have any suspicion or appeals to the teaching and learning activities and the grade assessment, students could make the appeal by filling in the form at MUVS' Academic Affairs. The appeal will be proposed to the course coordinator to consider the request. If the appeal could not be addressed at this point, it will be further process by the program's Teaching and Learning Development Committee. In case that the committee suggested further investigation should be done, the appeal will be purposed to the faculty's appealing committee to address the issue.

Section 6 Teaching Materials and Resources

1. Textbooks and Main Documents

1. Abbas AK, Lichtman AH, Pillai S. Cellular and Molecular Immunology. 10th ed. Philadelphia: Elsevier/Saunders; 2021.
2. Callahan GN. Basic Veterinary Immunology. Boulder: University Press of Colorado; 2014.
3. Jones TC, Hunt RD, King NW. Veterinary Pathology. 6th edition. Williams & Wilkins; 1997
4. McGavin MD, Carlton WW, Zachary JF. Thomson's Special Veterinary Pathology. 3rd edition. Mosby Inc; 2001.
5. McGavin MD, ZACHARY JF. Pathologic Basic of Veterinary Disease. 5th edition. Mosby Elsevier; 2012.
6. Tizard IR. Veterinary Immunology. 10th ed. St. Louis, Missouri: Elsevier; 2018.
7. Zachary JF. Pathologic Basic of Veterinary Disease. 6th edition. Elsevier Inc; 2017.

8. Zachary JF. Pathologic Basis of Veterinary Disease. 7th Edition. Elsevier Inc; 2021.

2. Documents and Important Information

Pubmed, Science Direct, Google Scholar

3. Documents and Recommended Information

Pubmed, Science Direct, Google Scholar, MU library website

Section 7 Evaluation and Improvement of Course Management

1. Strategies for Evaluation of Course Effectiveness by Students

At the end of each course, it is required for the students to assess the teaching of each instructor based on the following criteria: punctuality, good role model, application of morals and ethics for the instruction, ability to convey knowledge and encourage students to learn, giving opportunities for students to ask questions and to comment during the study.

The overall outcomes of each course will also be assessed by the students for the following issues: the instructor's knowledge and competency, the course's effectiveness, student's satisfaction with the study, and other comments from students. The evaluation is conducted through online platform.

2. Strategies for Evaluation of Teaching Methods

The instructors or the course coordinators are assigned to conduct the evaluation as follows.

2.1 the students' evaluation for the instruction and overall outcomes of the course in accordance to criteria mentioned in No. 1 – Strategy for Course Effectiveness by Students.

2.2 The instructors must perform self-assessment for the following criteria.

(1) Appropriate time spent to prepare for the teaching.

(2) The instructor's satisfaction with the teaching results.

(3) Solutions or recommendations for the program's teaching improvement or self-improvement for the next class/academic year.

3. Improvement of Teaching Methods

Prior to each academic year, there are meetings/seminars for the instructors of each course to plan to improve the course's teaching and learning management based on the following information.

(1) the students' academic performance

- (2) the students' evaluation results
- (3) the instructors' assessment results

4. Verification of Students' Learning Outcome

The verification of the standard of the Learning Outcome for the Course is conducted by the course coordinators based on the following aspects.

- (1) The goals of the learning outcomes are clear and feasible.
- (2) The learning experience is aligned with the expected goals.
- (3) The learning experience encourages the students to research and practice self-learning skills.
- (4) The evaluation methods are appropriate to assess the expected goals and learning experience.
- (5) The program applied the educational theory and the results from the previous evaluation to plan for improvement.

At the end of each academic year, the course coordinators, instructors, the Program Committee, and the Teaching and Learning Development Committee will consider the assessment results and the Learning Outcome for the Course to plan for the improvement of the next academic year.

5. Review and Plan to Improve Course Effectiveness

After the course evaluation and verification, the course effectiveness will be improved through the following:

- (1) The course is revised every 3 years according to the evaluation and verification.
- (2) Rotation or changing of instructors so students get different research points of view.

Appendix

Relations between the course and the program

Table 1 Relations between the course and the PLOs

	PLOs					
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6
VSPA 710 / Causes and Progression of Disease/ 2 (2-3-5)		M	M	P	P	

Program Learning Outcomes (TQF.2)

PLO 1 Manage ethical and moral problems in field practice with evidence-base approaches and leadership together with appropriate logic and value.

PLO 2 Prioritize scientific information in biomedical veterinary science and apply the beneficial output to develop laboratory practice and research study.

PLO 3 Integrate the theory and experiences together with scientific evidences to develop the new knowledge in veterinary science through research study.

PLO 4 Communicate efficiently with multidisciplinary academic colleagues and staff by using the communicate appropriately with the individual groups, both in academic and professional

PLO 5 Utilize digital and information technology (IT) to encourage working network communication, data analysis together with presentation and research publication.

PLO 6 Evaluate principles, purposes, strong critical-thinking with problem-solving skills, to utilizing veterinary science literacy as integral part of the thought process.

Table 2 Relations between CLOs and PLOs

CLOs	PLOs					
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6
CLO1 Identify changes in the cell, tissue, and organ systems of the animal body associated with the pathological process resulted from infectious and non infectious agents.		M	M			
CLO2 Recognise and describe basic macroscopic and microscopic features of both basic pathological processes and selected diseases using the correct vocabulary.		M	M			
CLO3 Correctly classify and explain different lesions with different causes, consequences, or concomitants of disease processes		M	M	P	P	
CLO4 Correlate clinical features, investigation, management and prevention of disease with causes and mechanisms of disease.		M	M	P	P	

Course schedule

Week or No.	Date	Topic	Hours			Teaching Methods/ Media	Lecturers
			Lecture	Laboratory	Self Study		
1	*17/08/2023	Cellular Reactions to Injury Cell adaptation	4		10	Lecture, ppt	PW
2		Hemodynamic Disorders	1		2.5	Lecture, ppt	AP
		Introduction to Inflammation	1		2.5	Lecture, ppt	TI
3	21/08/2023	Inflammation & wound healing	2		5	Lecture, ppt	TI
		Cellular Reactions to Injury Cell adaptation		6		Histopath. Lab practice ,discussion	PW
4	24/08/2023	Hemodynamic Disorders		1.5		Histopath. Lab practice, discussion	AP
		Inflammation & wound healing		4.5		Histopath. Lab practice, discussion	TI
5	28/08/2023	Cancer biology	2	3	5	Lecture/ Histopath. Lab practice, discussion	PS
6	31/08/2023	Immune Response I	2	3	5	Lecture/demonstrate lab	DG/KC
7	4/09/2023	Immune Response II	2	3	5	Lecture/demonstrate lab	NB
8	11/09/2023	Diseases related to fungal infection	2	3	5	Lecture/demonstrate lab	NB
9	14/09/2023	Diseases related to virus and prion infections	2	3	5	Lecture/demonstrate lab	KC
10	21/09/2023	Diseases related to bacterial infection	2	3	5	Lecture/demonstrate lab	NP
11	**25/09/2023	Diseases related to toxin**	2	3	5	Lecture/demonstrate lab	BC/SB
12	28/09/2023	Diseases related to parasite I	2	3	5	Lecture/demonstrate lab	CJ
13	2/10/2023	Diseases related to parasite II	2	3	5	Lecture/demonstrate lab	SS/TC

Week or No.	Date	Topic	Hours			Teaching Methods/ Media	Lecturers
			Lecture	Laboratory	Self Study		
14,15	5/10/2023	Immunopathology, Diseases related to nutrition and environmental factors	4	6	10	Lecture/discussion	NA

Venue

1. Lecture: Seminar room 4, Library, Floor 3, Faculty of Veterinary Science.

* Krisornrachaswe Meeting Room, Floor 4, Faculty of Veterinary Science.

** Sakul Krisorn Meeting Room, Floor 5, Faculty of Veterinary Science

2. Practice: Laboratory rooms, Floor 6, 7, 9