



Program: Doctor of Veterinary Medicine
Course title Ruminant Medicine
Course code VSCL 555

Academic degree level ☒ Bachelor ☐ Graduate Diploma ☐ Master
☐ Higher Graduate Diploma ☐ Doctor
Faculty / College / Institute: Faculty of Veterinary Science
Department of Clinical Sciences and Public Health

TQF 3 Course Specification

Section 1 General Information

1. Course Code and Title

In Thai	สพวค ๕๕๕	เวชศาสตร์สัตว์เคี้ยวเอื้อง
In English	VSCL 555	Ruminant Medicine

2. Number of Credits 6

(Theory 4 hrs. Practice 6 hrs. Self-Study 10 hrs./week)

3. Curriculum and Course Type

3.1 Curriculum Bachelor Degree Program (Thai)

3.2 Course Type Specific Course ☒ Compulsory Course ☐ Electives

4. Course Coordinator and Lecturer

4.1 Course Responsible Lecturers Assoc.Prof. Dr. Bunlue Kornmatitsuk
Department of Clinical Sciences and Public Health
Phone number 024415242 ext. 1537
e-mail bunlue.kor@mahidol.edu
Assoc.Prof. Dr. Jitkamol Thanasak
Department of Clinical Sciences and Public Health
Phone number 024415242 ext. 1528
e-mail jitkamol.tha@mahidol.edu

4.2 Lecturers

1. Assist. Prof. Chowalit Nakthong
2. Assoc. Prof. Dr. Bunlue Kornmatitsuk
3. Assoc.Prof. Dr. Jitkamol Thanasak
4. Assoc. Prof. Dr. Sudsaijai Kornmatitsuk
5. Lect. Dr. Sineenard Jiemtaweeboon
6. Lect. Dr. Sarawut Taksinoros
7. Dr. Tanit Kasantikul

5. Semester/Class Level

5.1 Semester 2 / Class Level 5

5.2 Number of Students Allowed Approximately 80 Students

6. Pre-requisite

VSPA 436, VSCL 441, VSCL 445, VSCL 446

7. Co-requisites

None

8. Study Site Location Faculty of Veterinary Science, Mahidol University

9. Date of Preparation/Latest Revision of the Course Specifications

24th February 2020

Section 2 Aims and Objectives

1. Course Goals

The students can:

1. Explain diagnosis and treatment procedures, history taking, clinical examination by body system and fundamental clinical skills;
2. Explain diagnosis and differential diagnosis of certain diseases in large and small ruminants, treatment procedures, prevention and control, anesthesia procedure and essential surgery;

2. Objectives of Course Development/Revision

2.1 Course Objectives

This course aims to provide knowledge and abilities as follows: Diagnosis and treatment procedures, history taking, clinical examination by body system and fundamental clinical skills, diagnosis and differential diagnosis of certain diseases in large and small ruminants, treatment procedures, prevention and control, anesthesia procedure and essential surgery and how to apply on farm.

2.2 Course-level Learning Outcomes: CLOs

On completion of the course, the students will be able to

1. CLO1 Explain Diagnosis and treatment procedures, history taking, clinical examination by body system including treatment procedures, prevention and control.

2. CLO2 Perform differential diagnosis of certain diseases in large and small ruminants.
3. CLO3 Explain and perform fundamental clinical skills and other skills associated with herd health management.

Section 3 Course Description and Implementation

1. Course Description

การตรวจร่างกาย การวินิจฉัย และการรักษาโรคติดเชื้อ และไม่ติดเชื้อในระบบหัวใจและหลอดเลือด ทางเดินหายใจ ทางเดินอาหาร กล้ามเนื้อและกระดูก ผิวหนัง ตา หัวนมและเต้านม ระบบสืบพันธุ์ ทางเดินปัสสาวะ เมแทบอลิซึม และโรคที่เกี่ยวข้องกับหลายระบบ สารพิษและภาวะขาดแคลนสารอาหารของโค กระบือ แพะ แกะ การระงับความเจ็บปวดและศัลยกรรมในสัตว์เคี้ยวเอื้องขนาดใหญ่

Clinical examination, diagnosis and treatment of infectious and non-infectious diseases in cardio-vascular, respiratory, gastrointestinal, musculoskeletal, skin, eyes, mammary gland, reproductive, urinary, metabolism and polysystemic diseases; feeding and related diseases, parasitic diseases in ruminant and small ruminant, pain management, anesthesia and surgery in large ruminants

2. Number of hours per semester

Theory (hours)	Practice (hours)	Self-study (hours)
60 (15 x 4)	90 (15 x 6)	150 (15 x 10)

3. Number of Hours per Week for Individual Advice

At least 1 hour per week on Wednesday or at appointment (via electronic mail or other online platform).

Section 4: Development of the expected learning outcomes

1. A brief summary of the knowledge or skills expected to develop in students; the course-level expected learning outcomes (CLOs)

On completion of the course, students will be able to:

1. CLO1 Explain Diagnosis and treatment procedures, history taking, clinical examination by body system including treatment procedures, prevention and control.
2. CLO2 Perform differential diagnosis of certain diseases in large and small ruminants.
3. CLO3 Explain and perform fundamental clinical skills and other skills associated with herd health management.

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	Group discussion	Demonstration	Practice	Seminar	MEQ/MEQ	Group report	Practice exams	Behavior assessment
CLO1	x	x				x			
CLO2	x	x			x	x	x		
CLO3	x		x	x		x		x	x

SECTION 5 LESSON PLAN AND EVALUATION

1. Lesson Plan

Teaching Period	Topics/Details	Number of hours		Methods: Teaching Media	Lecturer
		Theory*	Practice**		
1	History taking & Physical examination (systemic approach)	4		Lecture Group discussion	Assist. Prof. Chowalit Nakthong
	History taking, Physical examination, BCS & Blood collection		6	Demonstration Practice	All
2	Bovine respiratory disease complex and common cardiac anomalies	4		Lecture Group discussion	Assist. Prof. Chowalit Nakthong
	CBC, Blood biochemical tests, Blood gas analyses & Drug administrations		6	Demonstration Practice	All
3	Metabolic disturbances I – Bloat, Traumatic reticulostomatitis, Milk fever & Downer cow syndrome	4		Lecture Group discussion	Assoc.Prof. Dr. Jitkamol Thanasak
	Stomach tubing, Magnet insertion, Bloat & Hardware disease detection		6	Demonstration Practice	Assoc.Prof. Dr. Jitkamol Thanasak Assist. Prof. Chowalit Nakthong

Teaching Period	Topics/Details	Number of hours		Methods: Teaching Media	Lecturer
		Theory*	Practice**		
4	Metabolic disturbances II – NEB, Fatty liver and Rumen acidosis	4		Lecture Group discussion	Assoc.Prof. Dr. Jitkamol Thanasak
	Cow-side tests for ketone bodies, Ruminocentesis, Liver biopsy		6	Demonstration Practice	Assoc.Prof. Dr. Jitkamol Thanasak Assist. Prof. Chowalit Nakthong
5	Reproductive diseases I (Brucellosis, Ureaplasmosis, Trichomoniasis & Campylobacteriosis)	4		Lecture Group discussion	Assoc. Prof. Dr. Sudsaijai Kornmatitsuk
	Brucellosis tests (Rapid plate test, Tube agglutination & Complement fixation test)		6	Demonstration Practice	Assoc. Prof. Dr. Sudsaijai Kornmatitsuk Lect. Dr. Sineenard Jiemta-weeboon
6	Reproductive diseases II (BHV-I, BVDV, BTV & Neosporosis)	4		Lecture Group discussion	Assoc. Prof. Dr. Bunlue Kornmatitsuk
	ELISA (BHV-I, BVDV, BTV & Neosporosis)		6	Demonstration Practice	Assoc. Prof. Dr. Bunlue Kornmatitsuk Lect. Dr. Sineenard Jiemta-weeboon
7	Common intestinal and blood parasitic diseases (including coccidiosis and cryptosporidium)	4		Lecture Group discussion	Lect. Dr. Sineenard Jiemta-weeboon
	Blood & Fecal examination, Blood transfusion & Deworming		6	Demonstration Practice	Lect. Dr. Sineenard Jiemta-weeboon
8	Neurological diseases	4	6	Lecture Demonstration Practice	Lect. Dr. Sarawut Taksinoros
9	Musculoskeletal, Skin & Eyes (Lameness, Ephemeral fever, Actinomycosis, Actinobacillosis, IBK, Ringworm)	4		Lecture Group discussion	Assist. Prof. Chowalit Nakthong
	Lameness assessment & Hoof trimming		6	Demonstration Practice	All
10	Bovine mastitis – Pathogens,	4		Lecture	Assoc.Prof. Dr. Jitkamol

Teaching Period	Topics/Details	Number of hours		Methods: Teaching Media	Lecturer
		Theory*	Practice**		
	Clinical signs, Diagnosis, Treatment, Prevention and control program			Group discussion	Thanasak
	Bovine mastitis tests, Bacterial identification, Drug sensitivity & Intramammary infusion		6	Demonstration Practice	Assoc.Prof. Dr. Jitkamol Thanasak
11	Polysystemic diseases I (FMD, Hemorrhagic Septicemia, Tuberculosis, Anthrax & Bovine Leucosis)	4		Lecture Group discussion	Lect. Dr. Sineenard Jiemta-weeboon Lect. Dr. Sarawut Taksinoros
	PCR-based detection of BLV		6	Demonstration Practice	Lect. Dr. Sineenard Jiemta-weeboon
12	Polysystemic diseases II (Paratuberculosis, Leptospirosis, Listeriosis, Blackleg & Tetanus)	4		Lecture Group discussion	Assist. Prof. Chawalit Nakthong
	Bovine necropsy		6	Demonstration Practice	Dr. Tanit Kasantikul
13	Neonatal diseases & Health and diseases of buffaloes	4		Lecture Group discussion	Assoc. Prof. Dr. Bunlue Kornmatitsuk Assoc. Prof. Dr. Sudsaijai Kornmatitsuk
	Mineral determination (Ca, P, Cu, Zn & Se)		6	Demonstration Practice	Lect. Dr. Sineenard Jiemta-weeboon
14	Common diseases of sheep and goat I	4		Lecture Group discussion	Assist. Prof. Chawalit Nakthong
	Case study I		6	Seminar	All
15	Common diseases of sheep and goat II	4		Lecture Group discussion	Lect. Dr. Sineenard Jiemta-weeboon
	Case study II		6	Seminar	All
	Total hours of the entire semester	45	45		

. Plan for Assessment of Expected Course-Level Learning Outcomes (CLOs)

2.1 Measurement and Evaluation of learning achievement

A. Formative Assessment

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.

B. Summative Assessment

(1) Tool and weight for measurement and evaluation

Learning Outcomes	Evaluation Method*			Weight (Percentage)
	MCQ/ MEQ	Practice ex- ams	Behavior assessment	
CLO1 Explain Diagnosis and treatment procedures, history taking, clinical examination by body system including treatment procedures, prevention and control.	30	-	-	30
CLO2 Perform differential diagnosis of certain diseases in large and small ruminants.	35	-	-	35
CLO3 Explain and perform fundamental clinical skills and other skills associated with herd health management.	-	30	5	35
Total	65	30	5	100

(2) Measurement and evaluation

The measurement and evaluation use either the criteria-based or group-based system, according to the conditions and methods for academic results evaluation of the Faculty of Veterinary Science, Mahidol University. The grading symbols are: A, B+, B, C+, C, D+, D, and F. Students must receive a 'D' grade or above to pass the criteria.

(3) Re-examination (if the course allows any.)

In case that students received an 'F' grade, the course coordinator and the program's Teaching and Learning Development Committee should, altogether, agreed to allow the students to take the re-examination or extra-course work to pass the course with the following conditions.

For the course with the mean score is higher than 75.00 and the minimum score is not less than 45.00. Students must receive the score higher than 47.50 to take to re-examination or extra-course work.

For the course with the mean score between 60.00 – 74.99, students must receive the score higher than 40.00. However, when the mean score is less than 60.00, students, then, should receive the score higher than 40.00 in order to take the re-examination or extra-course work.

Once students took the re-examination (extra-course work) and the course coordinator had considered the students' re-examination/course work to pass the criteria, then the students will receive the 'D' grade. While waiting for the re-examination or extra-course work result, the students' score should be indicated as 'I' grade.

3. 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 Resources

1. Required Texts

- 1) Brand, A., Noordhuizen, J.P.T.M., Schukken, Y.H. 1997. Herd health and production management in dairy practice. Wageningen Press, Wageningen, The Netherlands. 308 pp.
- 2) Howard, J.L. 1993. Current Veterinary Therapy 3. Food Animal Practice. W.B. Saunders Company, Philadelphia, USA. 966 pp.
- 3) Hulsen, J. 2010. Cow Signals: A practical guide for dairy farm management. Roodbont Publishers B.V., The Netherlands. 96 pp.

2. Suggested Materials

- 1) Rebhun, W.C., Guard, C. & Richards, C.M. 1995. Diseases of Dairy Cattle. Williams & Wilkins. Baltimore. 530 pp.

- 2) Susan E. Aiello & Asa Mays. 1998. The Merck Veterinary Manual. Eighth edition. Merck & Co., Inc. Whitehouse station, N.J., USA. 2305 pp.

3. Other Resources (if any)

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Section 7 Evaluation and Improvement of Course Implementation

1. Strategy for Course Effectiveness Evaluation 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. Strategy for Teaching Evaluation

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. Teaching Improvement

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 Standard of Learning Outcome for the Course

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.

Appendix

Relations between the course and the program

Table 1 Relations between the course and the PLOs

Course Name Ruminant Medi- cine	PLOs							
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
(Course Code) VSCL 555	R	P	R	R		P	R	R

Table 2 Relations between CLOs and PLOs

(Course Code) VSCL 555	PLOs							
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
CLO1 Explain Diagnosis and treatment procedures, history taking, clinical examination by body system including treatment procedures, prevention and control.	1.1 1.2	2.1 2.2 2.4 2.5 2.6				6.1	7.1 7.3	8.1 8.2
CLO2 Perform differential diagnosis of certain diseases in large and small ruminants.	1.1 1.2	2.1 2.2 2.4 2.5				6.1	7.1 7.3	8.1 8.2
CLO3 Explain and perform fundamental clinical skills and other skills associated with herd health management.	1.1 1.2	2.4 2.5	3.1 3.2	4.2		6.1	7.1 7.3	8.1 8.2