



Program: Doctor of Veterinary Medicine
Course title: Theriogenology 2
Course code: VSCL 445

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 445 วิทยาการสืบพันธุ์ 2

In English VSCL 445 Theriogenology 2

2. Number of Credits 4 (3-3-7)

(Theory 3 hrs. Practice 3 hrs. Self-Study 7 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. Panida Chanapiwat

Tel. 2229

Department of Clinical Sciences and Public Health

E-mail: panida.chn@mahidol.edu

Asst.Prof.Dr. Nawarus Prapaiwan

Tel. 2213

Department of Clinical Sciences and Public Health

E-mail: nawarus.pra@mahidol.edu

4.2 Lecturers

Assoc.Prof.Dr. Bunlue Kornmatitsuk (BK)

Tel. 1537

Department of Clinical Sciences and Public Health

E-mail: bunlue.kor@mahidol.edu

Assoc.Prof.Dr. Sudsaijai Kornmatitsuk (SK)

Tel. 1531

Department of Clinical Sciences and Public Health

E-mail: sudsaijai.kor@mahidol.edu

Instructor Prasprapa Jandee (PJ)

Tel. 2210

Department of Clinical Sciences and Public Health

E-mail: pusprapa.jan@mahidol.ac.th

Assoc.Prof.Dr. Kampon Kaeoket (KK)

Tel. 1526

Department of Clinical Sciences and Public Health

E-mail: kampon.kae@mahidol.edu



Program: Doctor of Veterinary Medicine
Course title: Theriogenology 2
Course code: VSCL 445

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

Assoc.Prof.Dr. Panida Chanapiwat (PC)	Department of Clinical Sciences and Public Health
Tel. 2229	E-mail: panida.chn@mahidol.edu
Assoc.Prof.Dr. Sukanya Manee-In (SM)	Department of Clinical Sciences and Public Health
Tel. 2210	E-mail: sukanya.man@mahidol.edu
Asst.Prof.Dr. Nawarus Prapaiwan (NP)	Department of Clinical Sciences and Public Health
Tel. 2213	E-mail: nawarus.pra@mahidol.edu
Instructor. Dr. Grisnarong Wongbandue (GW)	Department of Clinical Sciences and Public Health
Tel. 2210	E-mail: grisnarong.won@mahidol.edu
Assoc.Prof.Dr. Theerawat Tharasanit (TT)	Faculty of Veterinary Science, Chulalongkorn University
Tel. -	E-mail: theerawat.t@chula.ac.th

5. Semester/Class Level

5.1 Semester 2 / Class Level 4

5.2 Number of Students Allowed Approximately 80 Students

6. Pre-requisite

VSCL 444 Theriogenology I

7. Co-requisites

-

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

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

2nd March 2020

Section 2 Aims and Objectives

1. Course Goals

Providing learning opportunities to support students gain knowledge and understanding of the processes of diagnosis and solving plans of reproductive disorders, including clinical skills in evaluating animal's reproductive performances which is beneficial to manage animal's reproductive problems according to professional standards.



Program: Doctor of Veterinary Medicine
Course title: Theriogenology 2
Course code: VSCL 445

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

2. Objectives of Course Development/Revision

2.1 Course Objectives

This course aims to provide knowledge and abilities as follows:

1. Knowledge and understanding of the process of diagnosing reproductive disorders in various animal species.
2. Plan solutions for reproductive disorders of various animal species.
3. Skilled in evaluating the reproductive performance of various animal species.
4. Have morals and ethics and follow the principles of animal welfare properly.

2.2 Course-level Learning Outcomes: CLOs

On completion of the course, the students will be able to (CLOs)

1. CLO1 Explain the principles of accurate reproductive disorders diagnosis in pets and livestock.
2. CLO2 Evaluate reproductive performance in pets and livestock accurately.
3. CLO3 Plan the management of reproductive disorders in pets and livestock correctly.

Section 3 Course Description and Implementation

1. Course Description

(Thai) ปัญหาการสืบพันธุ์เพศผู้และเพศเมียในสัตว์ต่างชนิด ปัญหาการผสมไม่ติด การไม่แสดงอาการเป็นสัด การคลอดยากและการแก้ไข การแท้ง ปัจจัยด้านอาหารและฤดูกาล การใช้ยาและฮอร์โมนในการจัดการทางระบบสืบพันธุ์ การประเมินประสิทธิภาพทางการสืบพันธุ์
(English) Male and female reproductive disorders in various species; repeat breeding, anestrus, dystocia and correction, abortion, nutrition and seasonal effects; the pharmacological and hormonal use on reproduction, evaluation of the reproductive performance

2. Number of hours per semester

Theory (hours)	Practice (hours)	Self-study (hours)
45 (15x3)	45 (15x3)	105 (15x7)

3. Number of Hours per Week for Individual Advice

Make an appointment with the instructor through a course coordinator for 1 hour per week. (only Wednesday)



Program: Doctor of Veterinary Medicine
 Course title: Theriogenology 2
 Course code: VSCL 445

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

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 the principles of accurate reproductive disorders diagnosis in pets and livestock.
2. CLO2 Evaluate reproductive performance in pets and livestock accurately.
3. CLO3 Plan the management of reproductive disorders in pets and livestock correctly.

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				
	Lec- tures	Group assign- ment	Prac- tices	Presen- tation	Written exams	Practice exams	Assignment quality	In-class observa- tion	Presen- tation skill
CLO1	X	X			X		X	X	
CLO2	X	X	X		X	X	X	X	
CLO3	X	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	Reproductive disorders and disorders in cattle	3:00		Lecture: ppt	BK, SK
			3:00	Laboratory practice	
2	Dystocia and postpartum abnormalities in cattle	3:00		Lecture: ppt	BK, SK
			3:00	Demonstration	
3	Ovarian cyst, anestrus, infertility problems, and hormonal	3:00		Lecture: ppt	BK, SK
			3:00	Case study analysis	



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

Program: Doctor of Veterinary Medicine

Course title: Theriogenology 2

Course code: VSCL 445

Teaching Period	Topics/Details	Number of hours		Methods: Teaching Media	Lecturer
		Theory*	Practice**		
	use in the reproduction of cattle				
4	Calving assistance and diagnosis of reproductive disorders in dairy cows	3:00		Lecture: ppt	BK, SK
			3:00	Laboratory practice	
5	Reproductive disorders and hormonal use in the reproduction of stallion	3:00		Lecture: ppt	PJ, TT
			3:00	Case study analysis	
6	Reproductive disorders and hormonal use in the reproduction of mare	3:00		Lecture: ppt	PJ, TT
			3:00	Case study analysis	
7	Other equine reproductive disorders and their solutions Biotechnology in equine reproduction	3:00		Lecture: ppt	PJ, TT
			3:00	Laboratory practice	
8	Swine reproductive disorders and their solutions 1	3:00		Lecture: ppt	KK, PC
			3:00	Case study analysis	
9	Hormonal use in the reproduction of pigs Factors affecting the reproductive system of pigs	3:00		Lecture: ppt	KK, PC
			3:00	Case study analysis	
10	Swine reproductive disorders and their solutions 2	3:00		Lecture: ppt	KK, PC
			3:00	Case study analysis	
11	Diagnosis and management of reproductive disorders in pigs	3:00		Lecture: ppt	KK, PC
			3:00	Laboratory practice	
12	Reproductive disorders in male dogs and cats	3:00		Lecture: ppt	SM, NP, GW
			3:00	Case study analysis	
13		3:00		Lecture: ppt	

Academic degree level ☒ Bachelor ☐ Graduate Diploma ☐ Master☐ Higher Graduate Diploma ☐ Doctor

Program: Doctor of Veterinary Medicine

Course title: Theriogenology 2

Course code: VSCL 445

Faculty / College / Institute: Faculty of Veterinary Science

Department of Clinical sciences and Public Health

Teaching Period	Topics/Details	Number of hours		Methods: Teaching Media	Lecturer
		Theory*	Practice**		
	Reproductive disorders in non-pregnant dogs and cats		3:00	Case study analysis	SM, NP, GW
14	Reproductive disorders in pregnant dogs and cats	3:00		Lecture: ppt	SM, NP, GW
			3:00	Case study analysis	
15	Biotechnology in small animal reproduction	3:00		Lecture: ppt	SM, NP, GW
			3:00	Case study analysis	
	Total hours of the entire semester	45	45		

2. 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)
	Written exam	Practice exam	Assignment quality	Presentation skill	
CLO1 Explain the principles of accurate reproductive disorders diagnosis in pets and livestock.	20		5		25
CLO2 Evaluate reproductive performance in pets and live-stock accurately.	20	10	5		35



Program: Doctor of Veterinary Medicine
 Course title: Theriogenology 2
 Course code: VSCL 445

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

CLO3 Plan the management of reproductive disorders in pets and livestock correctly.	30		5	5	40
รวม	70	10	15	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



Program: Doctor of Veterinary Medicine
Course title: Theriogenology 2
Course code: VSCL 445

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

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) Chanapiwat P, Kaeoket K. The effect of dose and route of administration of D-cloprostenol and cloprostenol on the parturient response of sows. Thai Agri Sci. 2008; 41(1-2):19-27.
- 2) Coffey RD, Parker GR, Laurent KM. Manipulation of the Estrous Cycle in Swine. University of Kentucky College of Agriculture Cooperative Extension Service, Kentucky, USA. 1997.
- 3) Hafez E-SE, Hafez, B. Reproduction in Farm Animal. (7th ed). Lippincott William & Wilkins: Pennsylvania; 2000.
- 4) Kuster CE, Althouse GC. Current therapy in large animal Theriogenology. 2nd Edition. Youngquist RS, Threlfall WR. (Eds) Missouri: Saunders; 2007.
- 5) McCracken TO, Kainer RA, Spurgeon TL. Spurgeon's Color atlas of Large Animal Anatomy: The Essentials. Lippincott William & Wilkins: Pennsylvania; 1999.
- 6) Naoakes DE, Parkinson TJ, England GCW. Arthur's veterinary reproduction and obstetrics. (8th ed). W.B. Saunder: London; 2001.

2. Suggested Materials

- 1) Jeffcoate I. Physiology and endocrinology of reproduction in female dogs. In: Simpson GM, England G, Harvey M, editors. BSAVA Manual of small animal reproduction and neonatology. Cheltenham: British Small Animal Veterinary Association; 1998. p. 1-10.
- 2) Kaeoket K. Study on the oestrous synchronization in gilts by using progestin altrenogest and hCG: its effect on the follicular development, ovulation time and subsequent reproductive performance. Reprod Domest Anim. 2008; 43(1):127-9.
- 3) Kaeoket K. The effect of dose and route of administration of R-cloprostenol on the parturi-ent response of sows. Reprod Domest Anim. 2006; 41(5):472-6.
- 4) Mcdonald LE, editor. Veterinary endocrinology and reproduction. London: Lea&Febiger; 1980.

3. Other Resources (if any)



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



Program: Doctor of Veterinary Medicine
 Course title: Theriogenology 2
 Course code: VSCL 445

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

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	PLOs							
Theriogenology 2	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
(Course Code) VSCL 445	R, P	R, P	R	R		R	R	R

Table 2 Relations between CLOs and PLOs (ไม่ต้องระบุ subLos)

(Course Code)	PLOs							
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
CLO1 Explain the principles of accurate reproductive disorders diagnosis in pets and livestock.	X							X
CLO2 Evaluate reproductive performance in	X	X	X	X			X	X



Academic degree level ☒ Bachelor ☐ Graduate Diploma ☐ Master

☐ Higher Graduate Diploma ☐ Doctor

Program: Doctor of Veterinary Medicine

Course title: Theriogenology 2

Course code: VSCL 445

Faculty / College / Institute: Faculty of Veterinary Science

Department of Clinical sciences and Public Health

pets and livestock accurately.								
CLO3 Plan the management of reproductive disorders in pets and livestock correctly.	X		X			X		X