



Program: Doctor of Veterinary Medicine
Course title: Veterinary Orthopedics
Course code: VSCL 446

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 ๔๔๖ ออร์โธพีดิกส์ทางสัตวแพทย์
In English VSCL 446 Veterinary Orthopedics

2. Number of Credits 1(1-0-2)

(Theory 1 hrs. Practice 0 hrs. Self-Study 2 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 Phingphol Charoonrut
E.mail: Phingphol.cha@mahidol.edu Tel.0818598395
4.2 Lecturers Assist. Prof. Phingphol Charoonrut (PC)
Dr. Somsak Wattananit (SW)

5. Semester/Class Level

5.1 Semester 1 / Class Level 4
5.2 Number of Students Allowed Approximately 80 Students

6. Pre-requisite

VSPA 222, VSPA 223

7. Co-requisites

VSCL 443

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

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

30 June 2022

Section 2 Aims and Objectives

1. Course Goals

Organize learning experiences in the principles of veterinary orthopedics: classification of bone fracture, the bone healing process, diagnostic and fixation methods, post-operative care, complications in orthopedics

2. Objectives of Course Development/Revision

2.1 Course Objectives

This course aims to provide knowledge and abilities as follows:

1. Explain the fracture classification correctly
2. Explain the bone healing process correctly
3. Explain the various type of fracture fixation technique: internal fixation and external fixation correctly
4. Explain the diagnostic technique in orthopedic problems in dogs and cats correctly
5. Explain the post-operative care of orthopedic patient correctly

2.2 Course-level Learning Outcomes: CLOs

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

1. CLO1 Explain the fracture classification correctly
2. CLO2 Explain the bone healing process correctly
3. CLO3 Explain the various type of fracture fixation technique: internal fixation and external fixation correctly
4. CLO4 Explain the diagnostic technique in orthopedic problems in dogs and cats correctly
5. CLO5 Explain the post-operative care of orthopedic patient correctly

Section 3 Course Description and Implementation

1. Course Description

มหากยวภาคประยุกต์ในออร์โธพีดิกส์ทางสัตวแพทย์ ลักษณะการหัก กระบวนการเชื่อมของกระดูก การตรวจวินิจฉัย วิธียึดกระดูกหัก การดูแลสัตว์ป่วย ภาวะแทรกซ้อนหลังการผ่าตัดในส่วนกระดูกและข้อต่อ

Applied anatomy of veterinary orthopedics, classification of bone fracture, the bone healing process, diagnostic and fixation methods, post-operative care, complications in orthopedics

2. Number of hours per semester

Theory (hours)	Practice (hours)	Self-study (hours)
15	0	30

3. Number of Hours per Week for Individual Advice

1 hour per week

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 fracture classification correctly
2. CLO2 Explain the bone healing process correctly
3. CLO3 Explain the various type of fracture fixation technique: internal fixation and external fixation correctly
4. CLO4 Explain the diagnostic technique in orthopedic problems in dogs and cats correctly
5. CLO5 Explain the post-operative care of orthopedic patient 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			
	Lecture					MCQ			
CLO1	x					x			
CLO2	x					x			
CLO3	x					x			
CLO4	x					x			
CLO5	x					x			

SECTION 5 LESSON PLAN AND EVALUATION

1. Lesson Plan

Teaching Period	Topics/Details	Number of hours		Methods: Teaching Media	Lecturer
		Theory*	Prac-tice**		
1	Orthopedic examination	1		Lectures	PC
2	Classification of Bone Fracture	1		Lectures	PC
3	Bone healing and PFAS	1		Lectures	PC
4	Reduction & Immobilization: external fixation	1		Lectures	SW
5	Internal fixation: IM pin & wire	1		Lectures	SW
6	Internal fixation: rush pin, cross pin & tension band wire	1		Lectures	SW
7	External skeletal fixation	1		Lectures	PC
8	Plate & screws	1		Lectures	PC
9	Decision making	1		Lectures	PC
10	Arthrology: shoulder, elbow	1		Lectures	PC
11	Arthrology: hip	1		Lectures	PC
12	Arthrology: stifle	1		Lectures	PC
13	Growth deformity	1		Lectures	SW
14	Disease affecting bone, Management of muscle and tendon injuries	1		Lectures	SW
15	Post-operative care for orthopedic patient and Rehabilitation	1		Lectures	SW

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)
CLO1 Explain the fracture classification correctly	MCQ	8
CLO2 Explain the bone healing process correctl	MCQ	8
CLO3 Explain the various type of fracture fixation technique: internal fixation and external fixation correctly	MCQ	38
CLO4 Explain the diagnostic technique in orthopedic problems in dogs and cats correctly	MCQ	38
CLO5 Explain the post-operative care of orthopedic patient correctly	MCQ	8
รวม		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) Brinker, Piermatti, and Flo 's. 2015. Handbook of small animal orthopedics and fracture repair, 5th edition, WB. Saunder.
- 2) Marvin L. Olmstead. 1995. Small animal orthopedics, Mosby.
- 3) Piermattei. 2013. An Atlas of surgical approach of the bones and joints of the dog and cat, 5 th edition. WB. Saunder.
- 4) Leo Brunnberg. 2001. Diagnosing Lameness in Dogs, Blackwell
- 5) Ann L. Johnson. 2005 . Atlas of orthopedic surgical procedures of the dog and cat. ELSEVIER Saunders
- 6) Otto M. Randostitis. 2000 . Veterinary Clinical Examination and Diagnosis. W.B. Saunders
- 7) Slatter. 2003 . Textbook of Small Animal Surgery. 3 rd edition . Saunders
- 8) Montavon P.M., Katja and Langley-Hobb S.J., 2009. Feline Orthopedic Surgery and Musculoskeletal Disease

2. Suggested Materials

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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

Veterinary Orthopedics	PLOs							
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
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Table 2 Relations between CLOs and PLOs (ไม่ต้องระบุ subLos)

VSCL 446	PLOs							
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
CLO1 Explain the fracture classification correctly	1.1							
CLO2 Explain the bone healing process correctly	1.1,1.2							

CLO3 Explain the various type of fracture fixation technique: internal fixation and external fixation correctly	1.1,1.2							
CLO4 Explain the diagnostic technique in orthopedic problems in dogs and cats correctly	1.1,1.2							
CLO5 Explain the post-operative care of orthopedic patient correctly	1.1,1.2							