



Program: Doctor of Veterinary Medicine
Course title Environmental and Occupational Health
Course code VSPA 226

Academic degree level ☒ Bachelor ☐ Graduate Diploma ☐ Master
☐ Higher Graduate Diploma ☐ Doctor
Faculty / College / Institute: Faculty of Veterinary Science
Department of Pre-clinic and Applied Animal Science

TQF 3 Course Specification

Section 1 General Information

1. Course Code and Title

In Thai สปปส ๒๖๐ อนามัยสิ่งแวดล้อมและอาชีวอนามัย
In English VSPA 260 Environmental and Occupational Health

2. Number of Credits 2 (2-0-4)

(Theory 2 hrs. Practice 0 hrs. Self-Study 4 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

4.1.1 Assoc.Prof.Dr. Tanasak Changbunjong
Department: Pre-clinic and Applied Animal Science
Telephone number: 084-7020633 E-mail: tanasak.cha@mahidol.edu
4.1.2 Asst.Prof.Dr. Nlin Arya
Department: Pre-clinic and Applied Animal Science
Telephone number: 099-3249753 E-mail: nlin.arya@mahidol.edu

4.2 Lecturers

4.2.1 Assoc.Prof.Dr. Tanasak Changbunjong
Department: Pre-clinic and Applied Animal Science
Telephone number: 084-7020633 E-mail: tanasak.cha@mahidol.edu
4.2.2 Asst.Prof.Dr. Nlin Arya
Department: Pre-clinic and Applied Animal Science
Telephone number: 099-3249753 E-mail: nlin.arya@mahidol.edu

4.2.3 Asst.Prof.Dr. Charoonluk Jirapattharasate (CJ)

Department: Pre-clinic and Applied Animal Science

Telephone number: 081-5622462 E-mail: charoonluk.jir@mahidol.edu

4.2.4 Dr. Kridsada Chaichoun

Department: Pre-clinic and Applied Animal Science

Telephone number: 081-0150838 E-mail: kridsada.cha@mahidol.edu

4.2.5 Asst.Prof.Dr. Sasitorn Rungarunlert

Department: Pre-clinic and Applied Animal Science

Telephone number: 081-7987003 E-mail: sasitorn.run@mahidol.edu

4.2.6 Asst.Prof.Dr. Norasuthi Bangphoomi

Department: Pre-clinic and Applied Animal Science

Telephone number: 080-4322992 E-mail: norasuthi.ban@mahidol.edu

4.2.7 Assoc.Prof.Dr. Shutipen Buranasinsup

Department: Pre-clinic and Applied Animal Science

Telephone number: 089-6104954 E-mail: shutipen.bur@mahidol.edu

4.2.8 Dr. Nae Tanpradit

Department: Department of Clinical Sciences and Public Health

Telephone number: 081-2578067 E-mail: nae.tan@mahidol.edu

4.2.9 Asst.Prof.Dr. Boonrat Chantong

Department: Pre-clinic and Applied Animal Science

Telephone number: 081-6848882 E-mail: boonrat.cha@mahidol.edu

4.2.10 Asst.Prof.Dr. Waraphan Toniti

Department: Pre-clinic and Applied Animal Science

Telephone number: 081-4876173 E-mail: waraphan.ton@mahidol.edu

4.2.11 Asst.Prof.Dr. Paranee Yatmark

Department: Pre-clinic and Applied Animal Science

Telephone number: 081-8567181 E-mail: paranee.yat@mahidol.edu

4.2.12 Dr. Jeerawat Soonthornsit

Department: Pre-clinic and Applied Animal Science

Telephone number: 086-7606209 E-mail: jeerawat.soo@mahidol.edu

4.2.13 Miss Arunee Jangsangthong

Department: Pre-clinic and Applied Animal Science

Telephone number: 087-9959014 E-mail: arunee.jan@mahidol.edu

4.2.14 Dr. Warunya Chakritbudsabong

Department: Pre-clinic and Applied Animal Science

Telephone number: 089-4897004 E-mail: warunya.cha@mahidol.edu

4.2.15 Miss Sirikron Pamonsupornvichit

The Monitoring and Surveillance Center for Zoonotic Diseases in Wildlife and Exotic Animals (MOZWE)

Telephone number: 088-2514010 E-mail: sirikron.pas@mahidol.edu

5. Semester/Class Level

5.1 Semester 1 / Class Level 2

5.2 Number of Students Allowed Approximately 80 Students

6. Pre-requisite

None

7. Co-requisites

None

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

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

3 March, 2020

Section 2 Aims and Objectives

1. Course Goals

Provide learning experiences for students to obtain knowledge and understanding of the causes and problems of environmental pollution, soil pollution, water pollution, air pollution, environmental management in livestock farms, waste management from veterinary hospitals and clinics, laws and assessment requirements, occupational health risks in the veterinary profession.

2. Objectives of Course Development/Revision

2.1 Course Objectives

This course aims to provide knowledge and abilities as follows:

2.1.1 Knowledge of principles and concepts of public health and sanitation as well as the causes and problems of various environmental pollution from water, air and soil pollution that affects health and environment.

2.1.2 Knowledge of solid waste and livestock waste management as well as food sanitation, pest control and pathogenic microorganisms.

2.1.3 Knowledge of the spread of toxins in the environment.

2.1.4 Knowledge of measures or laws to control and solve environmental problems.

2.1.5 Knowledge on one health.

2.1.6 Knowledge of occupational health for veterinarians and animal workers.

2.1.7 Knowledge of the principles of good laboratory practice and can be applied in professional practice

2.2 Course-level Learning Outcomes: CLOs

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

1. CLO1 To describe the principles and concepts of public health and sanitation, as well as the causes and problems of various environmental pollution from water, air and soil pollution that affect health and the environment.

2. CLO2 To describe the management of solid waste and livestock waste, as well as food sanitation and control of vectors and pathogenic microorganisms.

3. CLO3 To describe the spread of toxins in the environment.

4. CLO4 To describe the measures or laws to control and solve environmental problems.

5. CLO5 To describe the one health concept.

6. CLO6 To describe the principles of hygiene for veterinarians and animal workers.

7. CLO7 To describe the principles of good laboratory practice and can be applied in professional practice.

Section 3 Course Description and Implementation

1. Course Description

สาเหตุและปัญหาด้านมลภาวะแวดล้อม มลภาวะทางดิน มลภาวะทางน้ำ มลภาวะทางอากาศ การจัดการสิ่งแวดล้อมในฟาร์มปศุสัตว์ การจัดการของเสียจากโรงพยาบาลและคลินิกสัตว์แพทย์ กฎหมายและข้อกำหนดต่างๆ การประเมินความเสี่ยง ชีวนามัยในวิชาชีพสัตวแพทย์

Causes and effects of the environmental pollution, soil pollution, water pollution, air pollution, farm environmental management; veterinarian hospital and clinic waste management; law and its regulation, risk assessment, and occupational health in veterinary medicine.

2. Number of hours per semester

Theory (hours)	Practice (hours)	Self-study (hours)
30	-	60

3. Number of Hours per Week for Individual Advice

2-3 hr/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 To describe the principles and concepts of public health and sanitation, as well as the causes and problems of various environmental pollution from water, air and soil pollution that affect health and the environment.
2. CLO2 To describe the management of solid waste and livestock waste, as well as food sanitation and control of vectors and pathogenic microorganisms.
3. CLO3 To describe the spread of toxins in the environment.
4. CLO4 To describe the measures or laws to control and solve environmental problems.
5. CLO5 To describe the one health concept.
6. CLO6 To describe the principles of hygiene for veterinarians and animal workers.
7. CLO7 To describe the principles of good laboratory practice and can be applied in professional practice.

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 work	Presentation	MCQ	Assay	Presentation	Oral examination
CLO1	/	/	/	/	/	/	
CLO2	/			/	/		
CLO3	/			/	/		

CLO4	/			/	/		
CLO5	/			/	/		
CLO6	/			/	/		
CLO7	/			/	/		/

SECTION 5 LESSON PLAN AND EVALUATION

1. Lesson Plan

Teaching Period	Topics/Details	Number of hours		Methods: Teaching Media	Lecturer
		Theory*	Practice**		
1	Occupational health	2		Lecture: ppt and handout	Dr. Kridsada
	Occupational health in laboratory practice	2		Lecture: ppt and handout	Dr. Shutipen
	Occupational hazards for veterinarian and animal handling	4		Lecture: ppt and handout	Dr. Sasitorn
	Hospital waste	2		Lecture: ppt and handout	Dr. Norasuthi
	Animal farms and waste management	2		Lecture: ppt and handout	Dr. Tanasak
	Thailand and Global environmental issue One health	2		Lecture: ppt and handout	Dr. Nae
	Environmental infection control	2		Lecture: ppt and handout	Dr. Charoonluk
	Environmental pollution	2		Lecture: ppt and handout	Dr. Tanasak
	Soil pollution	2		Lecture: ppt and handout	Dr. Tanasak
	Water pollution	2		Lecture: ppt and handout	Dr. Tanasak
	Air pollution	2		Lecture: ppt and handout	Dr. Tanasak
	Review environmental pollution	2		Lecture: ppt and handout	Dr. Tanasak

Teaching Period	Topics/Details	Number of hours		Methods: Teaching Media	Lecturer
		Theory*	Practice**		
	Occupational Health Practice and oral exam	4		Lecture: ppt and handout	All lecturer
	Total hours of the entire semester	30	-		

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)
	MCQ, Assay	Group work, Presentation	Oral examination	
CLO1 To describe the principles and concepts of public health and sanitation, as well as the causes and problems of various environmental pollution from water, air and soil pollution that affect health and the environment.	13	10		23
CLO2 To describe the management of solid waste and livestock waste, as well as food sanitation and control of vectors and pathogenic microorganisms.	10			10
CLO3 To describe the spread of toxins in the environment.	5			5
CLO4 To describe the measures or laws to control and solve environmental problems.	2			2

CLO5 To describe the one health concept.	5			5
CLO6 To describe the principles of hygiene for veterinarians and animal workers.	15			15
CLO7 To describe the principles of good laboratory practice and can be applied in professional practice.	10		30	40
รวม	60	10	30	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) Blumenthal, D. S., and Ruttenber, A. J. (1995). Introduction to environmental health. Second Edition. New York: Springer.
- 2) Philp, R. B. (1995). Environmental hazards and human health. Boca Raton: Lewis Publishers.
- 3) Moeller, D. W. (1997). Environmental health (Revised ed.). Cambridge: Harvard University Press.
- 4) Koren, H. (2017). Best Practices for Environmental Health. New York: Taylor & Francis.

2. Suggested Materials: None

3. Other Resources (if any): None

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 Environmental and Occupational Health (Course Code) VSPA260	PLOs							
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
	R			R				I

Table 2 Relations between CLOs and PLOs

(Course Code) VSPA260	PLOs							
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
CLO1 To describe the principles and concepts of public health and sanitation, as well as the causes and problems of various environmental pollution from water, air and soil pollution that affect health and the environment.	x			x				
CLO2 To describe the management of solid waste and livestock waste, as well as food sanitation and control of vectors and pathogenic microorganisms.	x			x				
CLO3 To describe the spread of toxins in the environment.	x			x				
CLO4 To describe the measures or laws to control and solve environmental problems.	x							x
CLO5 To describe the one health concept.	x			x				
CLO6 To describe the principles of hygiene for veterinarians and animal workers.	x			x				

CLO7 To describe the principles of good laboratory practice and can be applied in professional practice.

x

x