



Program: Doctor of Veterinary Medicine
Course title Laboratory of Food Safety
Course code VSCL563

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 ๕๖๑ ความปลอดภัยทางอาหาร 1
In English VSCL 561 Food Safety I

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 Assistant Professor Dr. Natharin Ngamwongsatit
Department of Clinical Sciences and Public Health
Contact: 02-4415242 Ext.1106 e-mail address: natharin.nga@mahidol.edu
4.1.2 Lecturer Dr. Khuanwalai Maklon
Department of Clinical Sciences and Public Health
Contact: 02-4415242 Ext.2246 e-mail address: khuanwalai.mal@mahidol.edu

4.2 Lecturers

4.2.1 Assistant Professor Dr. Natharin Ngamwongsatit
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4.2.2 Lecturer Dr. Khuanwalai Maklon
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4.2.3 Lecturer Dr. Rapeewan Thampaisarn
Department of Clinical Sciences and Public Health
Contact: 02-4415242 Ext.2234 e-mail address: rapeewan.tha@mahidol.edu

4.2.4 Lecturer Dr. Dulyatad Gronsang

Department of Pre-clinic and Applied Animal Science

Contact: 02-4415242 Ext.1505 e-mail address: dulyatad.gro@mahidol.edu

4.2.5 Assistant Professor Dr. Norasuthi Bangphoomi

Department of Pre-clinic and Applied Animal Science

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4.2.6 Associate Professor Dr. Sivapong Sungpradit

Department of Pre-clinic and Applied Animal Science

Contact: 02-4415242 Ext.1525 e-mail address: sivapong.sun@mahidol.edu

4.2.7 Assistant Professor Dr. Waraphan Toniti

Department of Pre-clinic and Applied Animal Science

Contact: 02-4415242 Ext.1512 e-mail address: waraphan.ton@mahidol.edu

5. Semester/Class Level

5.1 Semester 2 / Class Level Year 5

5.2 Number of Students Allowed Approximately 80 Students

6. Pre-requisite

VSPA 330

7. Co-requisites

7.1 VSCL562 Food Safety 2

7.2 VSCL563 Laboratory for Food Safety

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

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

Day 23 Month June Year 2022

Section 2 Aims and Objectives

1. Course Goals

This course is designed for undergraduate students to know and understand food safety, standard human food safety criteria in field of chemical, biological and physical, food quality measurement related to the veterinary public health and be able to apply the knowledge to professional and keep pace with the novel technology changes.

2. Objectives of Course Development/Revision

2.1 Course Objectives

This course aims to provide knowledge and abilities as follows:

2.1.1 To explain the knowledge about food safety according to professional standards for Veterinarian Practitioners

Guideline

2.1.2 To be able to work as team, search information on food safety and veterinary public health and present

2.2 Course-level Learning Outcomes: CLOs

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

1. CLO1 Explain the role of beneficial food microorganisms and pathogens to consumers and pathogenesis of each pathogens and their toxins that cause food poisoning under Professional standards for Veterinarian Practitioners Guideline 2009 Section 21 (3)
2. CLO2 Explain the food sample collection, sampling plan and microbiological food quality measurements under Professional standards for Veterinarian Practitioners Guideline 2009 Section 21 (3)
3. CLO3 Explain hazards, problem and solution of contamination from chemical, biological and physical hazards that originated from livestock under Professional standards for Veterinarian Practitioners Guideline 2009 Section 21 (3 and 6)
4. CLO4 Apply the basic knowledge and continuously improve ourselves to scientific searching that related with food safety

Section 3 Course Description and Implementation

1. Course Description

(Thai) สุขศาสตร์และความปลอดภัยของอาหาร ความสำคัญและปัจจัยต่อการเจริญเติบโตของจุลินทรีย์ในอาหาร อันตรายจากจุลินทรีย์และสารพิษที่ทำให้เกิดโรคอาหารเป็นพิษ การตรวจสอบคุณภาพอาหารทางจุลชีววิทยา อันตรายจากยาและสารเคมีที่ปนเปื้อนในอาหาร ปัญหาและการแก้ไขอันตรายที่เกิดจากเชื้อจุลินทรีย์ ยาและสารเคมีในอาหารและผลิตภัณฑ์อาหารจากสัตว์

(English) Food hygiene and safety, importance and factors affecting the growth of microorganisms of food, biological hazard and its toxins related to food borne diseases; quality control, testing, problems, and corrections on food microbiology, drug residues, and chemical hazard contaminated in food and animal products

2. Number of hours per semester

Theory (hours)	Practice (hours)	Self-study (hours)
30	0	60

3. Number of Hours per Week for Individual Advice

The first point of directly contact should be your Course Responsible Lecturers. Lecturers are contactable during the University day on the 2nd floor Department of Clinical Sciences and Public Health, Faculty of Veterinary Science, Monday-Friday 8.30-16.30. In an emergency, students can be contacted lecturers directly via phone or email: natharin.nga@mahidol.edu or khuanwalai.mal@mahidol.edu

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 role of beneficial food microorganisms and pathogens to consumers and pathogenesis of each pathogens and their toxins that cause food poisoning under Professional standards for Veterinarian Practitioners Guideline 2009 Section 21 (3)
2. CLO2 Explain the food sample collection, sampling plan and microbiological food quality measurements under Professional standards for Veterinarian Practitioners Guideline 2009 Section 21 (3)
3. CLO3 Explain hazards, problem and solution of contamination from chemical, biological and physical hazards that originated from livestock under Professional standards for Veterinarian Practitioners Guideline 2009 Section 21 (3 and 6)
4. CLO4 Apply the basic knowledge and continuously improve ourselves to scientific searching that related with food safety

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	MCQ	Group report	presentation	Behavior assessment	Participation
CLO1	✓		✓				
CLO2	✓		✓				
CLO3	✓		✓				
CLO4	✓	✓		✓	✓	✓	✓

SECTION 5 LESSON PLAN AND EVALUATION

1. Lesson Plan

Teaching Period	Topics/Details	Number of hours		Methods: Teaching Media	Lecturer
		Theory*	Practice**		
1	Veterinary Public Health: role to food safety in human consumption	2.00	-	Lecture/ Slide presentation	Natharin and Khuanwalai
2	The importance of food micro-organisms and factors effect the growth of microorganism in food	2.00	-	Lecture/ Slide presentation	Natharin
3	Sample collection and microbial contamination in food and standard for food safety analysis in food and water	2.00	-	Lecture/ Slide presentation	Natharin
4	Gram-negative bacterial food-borne pathogen and their toxins causing food poisoning 1	2.00	-	Lecture/ Slide presentation	Natharin
5	Gram-negative bacterial food-borne pathogen and their toxins causing food poisoning 2	2.00	-	Lecture/ Slide presentation	Natharin

Teaching Period	Topics/Details	Number of hours		Methods: Teaching Media	Lecturer
		Theory*	Practice**		
6	Gram-positive bacterial food-borne pathogen and their toxins causing food poisoning	2.00	-	Lecture/ Slide presentation	Natharin
7	Viral and prion foodborne pathogens	2.00	-	Lecture/ Slide presentation	Khuanwalai
8	Fungal and mycotoxin causing food poisoning	2.00	-	Lecture/ Slide presentation	Norasuthi
9	Biofilm and food quality	2.00	-	Lecture/ Slide presentation	Natharin
10	Parasite causing food and waterborne diseases	2.00	-	Lecture/ Slide presentation	Khuanwalai
11	Antimicrobial resistant in Thailand	2.00	-	Lecture/ Slide presentation	Natharin
12	Chemical and carcinogen problems in food	2.00	-	Lecture/ Slide presentation	Khuanwalai
13	Antibiotics and pesticides residue in food	2.00	-	Lecture/ Slide presentation	Khuanwalai
14	Special current problem related food safety 1	2.00	-	Lecture/ Slide presentation	Staff
15	Special current problem related food safety 2	2.00	-	Presentation	Staff
	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	Group work	Participation	Behavior assessment	Presentation	
CLO1 Explain the role of beneficial food microorganisms and pathogens to consumers and pathogenesis of each pathogens and their toxins that cause food poisoning under Professional standards for Veterinarian Practitioners Guideline 2009 Section 21 (3)	56	0	0	0	0	56
CLO2 Explain the food sample collection, sampling plan and microbiological food quality measurements under Professional standards for Veterinarian Practitioners Guideline 2009 Section 21 (3)	7	0	0	0	0	7
CLO3 Explain hazards, problem and solution of contamination from chemical, biological and physical hazards that originated from livestock under Professional standards for Veterinarian Practitioners Guideline 2009 Section 21 (3 and 6)	21	0	0	0	0	21

CLO4 Apply the basic knowledge and continuously improve ourselves to scientific searching that related with food safety	0	5	0.5	0.5	10	16
total	84	5	0.5	0.5	10	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) Bhunia, AK. Foodborne microbial pathogens mechanisms and pathogenesis. New York: Springer. 2008.
- 2) Forsythe, S.J. The microbiological risk assessment of food. Oxford: Blackwell Science 2002.
- 3) Jay, JM, Loessner, MJ, Golden, DA. Modern food microbiology. 7th ed. New York: Springer. 2005.
- 4) Ray, B. Fundamental food microbiology. 3rd ed. London: CRC Press. 2004.
- 5) ศศิ เจริญพนธ์ และวิมล จิระชนะวัฒน์ กรมปศุสัตว์ ยาสัตว์ดักค้ำง ความปลอดภัยทางอาหารและการคุ้มครองผู้บริโภค 2545 กรุงเทพฯ
โรงพิมพ์ชุมนุมสหกรณ์การเกษตรแห่งประเทศไทย

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

Course Name Laboratory of Food Safety (Course Code) VSCL 561	PLOs							
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
				R				

Remarks: Show the level of the course management with the symbols I, R, P, and M. This must correspond to the curriculum mapping written in the TQF2

Table 2 Relations between CLOs and PLOs (ไม่ต้องระบุ subLos)

(Course Code) VSCL 563	PLOs							
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
CLO1 Explain the role of beneficial food microorganisms and pathogens to consumers and pathogenesis of each pathogens and their toxins that cause food poisoning under Professional standards				4.1, 4.2				

for Veterinarian Practitioners Guideline 2009 Section 21 (3)								
CLO2 Explain the food sample collection, sampling plan and microbiological food quality measurements under Professional standards for Veterinarian Practitioners Guideline 2009 Section 21 (3)				4.1, 4.2				
CLO3 Explain hazards, problem and solution of contamination from chemical, biological and physical hazards that originated from livestock under Professional standards for Veterinarian Practitioners Guideline 2009 Section 21 (3 and 6)				4.1, 4.2				
CLO4 Apply the basic knowledge and continuously improve ourselves to scientific searching that related with food safety				4.1, 4.2				