Doctor of Philosophy Program in Interdisciplinary Veterinary Science

International Program

(New Program, 2009)

1. Degree Program

Doctor of Philosophy Program in Interdisciplinary Veterinary Science

2. Degree Offered

Doctor of Philosophy (Interdisciplinary Veterinary Science)

Ph.D. (Interdisciplinary Veterinary Science)

3. Responsible Faculties

Faculty of Veterinary Medicine and Graduate School, Khon Kaen University.

4. Rational, Philosophy, and Objectives

4.1 Rationale

The vision of Khon Kaen University is a leading university in Asia with academic excellence. The university has the mission to expand the university research to serve the community. Generally, research goals are to advance the understanding of interesting research topics, excel in the generation of knowledge in basic sciences leading to new discovery, international publications, and most importantly the transfer of research findings to public use in industrial, agricultural and environmental issues. The Faculty of Veterinary Medicine has agreed to develop cooperation in academic and research advances by signing the MOU with Hue University in Vietnam and Nabong University in LAO, PDR. One of the agreement issues is to cooperate in graduate study for the staff of the partnership university.

In order to accomplish the stated plan must be carried out: to expand graduate studies and to develop quality and standards of research so as to raise the standard of the university to be the same level of other leading universities in Asia or in the World.

The Faculty of Veterinary Medicine consists of seven academic departments: Anatomy, Physiology, Pharmacology and Toxicology, Veterinary Public Health, Pathobiology, Medicine, and Surgery and Theriogenology. Three departments (Surgery and Theriogenology, Veterinary Public Health, and Medicine) have offered master degree programs and the faculty has been offering Ph.D. in Interdisciplinary Veterinary Science (regular program). This indicates that they have great potentialities to develop to academic excellence in veterinary science in accordance with the university's vision. From a needs survey on the demand for a doctoral program in veterinary science in 2008, a number of questionnaires were sent to the staffs of livestock department, university and other related offices. The

results showed that 54.92% of them mentioned that their offices could support them to study for doctorates. In addition, about half of them suggested that the program to be offered should be an international program. The demand indicates that it is necessary for faculty of veterinary medicine to strengthen their capabilities in producing graduates and conducting research studies of an international standard leading to academic excellence and to save money from sending staffs to study abroad.

Over two decades of development, the faculty has established to become a recognized educational institute providing academic programs with research strength in various disciplines. The nature of veterinary science study and development is multidisciplinary. A multidisciplinary approach is appropriate for solving animal and human health problems resulted from exposure to animal or animal food products which are usually complicated. Any program that provides advanced knowledge related to veterinary medicine and health sciences needs to have components that allow students to integrate veterinary science concepts into their health related disciplines. At present, the faculty has 67 full-time teaching staffs. There are a number of Ph.D. holders in the seven academic departments. Having an Interdisciplinary program should be one way to utilize human resources efficiently in accordance with the nature of animal science disciplines that need a multidisciplinary approach to solve problems. Thus, all seven departments of veterinary medicine have agreed to offer a Ph.D. program in Interdisciplinary veterinary science (international program), to increase capabilities and standards of the faculty in producing international standards of qualified Ph.D. graduates and researches.

4.2 Curriculum philosophy

This program is an advanced academic program from a variety of backgrounds related to veterinary medicine and veterinary related sciences which aim to develop the advanced professional skills. To provide the students with knowledge, ethic and morality in combination with related fields in order to apply in animal health or human protection from exposure to animal or animal food products. The students must have quality equal to or more than the national and international standard, be able to build new knowledge, be able to develop analyze and solve problems in veterinary science correctly and appropriately.

4.3 Objectives

The Doctoral Degree program in Interdisciplinary Veterinary Science intends to produce graduates who are qualified as follows:

4.3.1 Knowledge in principles and theories of veterinary science as a multidisciplinary sciences, and able to apply the principles and theories for problem-solving in the field of veterinary science.

4.3.2 Skills in problem analysis, development plan in veterinary science, as well as skills in conducting and analyzing research on the physical circumstances, society, economy, technology and environment of an individual locality.

4.3.3 Communication and exchanging the knowledge of veterinary science and related topics efficiently.

4.3.4 Conduct veterinary occupation professionally with ethics and morality.

4.4 Prominent point or strength of program

Students can select dissertation research topic in any fields related to Veterinary Science as of the students' interest.

5. Effective dates

The program shall be starting from the first semester of the academic year 2010.

6. **Eligibility requirements**

6.1 The program type 1.1

6.1.1) Eligible applicants must meet the qualification as specified in the 1998 Khon Kaen University Regulations of the Graduate Studies Level, Section 5, Item 26.4 or as specified in its latest revised version.

6.1.2) For those holding a Master Degree in Master of Science programs or equivalent programs with approval from the Faculty of Veterinary Medicine KKU and KKU Graduate School, and have at least 3.50 GPA or a presentation in a peer-review conference or a published scientific paper.

6.1.3) Eligible applicants must pass English language tests such as TOEFL with 500 marks or better, or IELTS with 5.5 marks or better, or other English language test institute with equivalent standards depends upon the consent of the curriculum administrative committee.

6.2 The program type 2.2

6.2.1) Eligible applicants must meet the qualification as specified in the 1998 Khon Kaen University Regulations of the Graduate Studies Level, Section 5, Item 26.4 or as specified in its latest revised version.

6.2.2) For those holding a Master Degree in Master of Science programs or equivalent programs with approval from the Program Executive Committee and KKU Graduate

School, and have at least 3.50 GPA or a presentation in a peer-review conference or a published scientific paper or

6.2.3) For those studying in the Master of Science Programs of the Faculty of Veterinary Medicine, holding at least 18 credits and at least 3.50 GPA can apply to the PhD program with approval from the Program Executive Committee, both of the MS and PhD programs, and KKU Graduate school.

6.2.4) Eligible applicants must pass English language tests such as TOEFL with 500 marks or better, or IELTS with 5.5 marks or better, or other English language test institute with equivalent standards depends upon the consent of the curriculum administrative committee.

6.3 The program type 2.1

6.3.1) Eligible applicants must meet the qualification as specified in the 1998 Khon Kaen University Regulations of the Graduate Studies Level, Section 5, Item 26.4 or as specified in its latest revised version.

6.3.2) For those holding a Bachelor's Degree no longer than 5 years or studying in the last semester of Bachelors of Science program or equivalent programs. The eligibly BSc programs are Veterinary Medicine, Science, Animal Science, Biology, Nursing, Associated Medical Sciences, Veterinary Technology and Public Health or equivalent programs with approval from the Program Executive Committee and KKU Graduate School can apply.

6.3.3) Eligible applicants in 6.3.2 must have the GPA greater than 3.25 (for DVM degree) or 3.50 (for other degrees) with permission from the Program Executive Committee and KKU Graduate School or

6.3.4) For those holding a Doctor of Veterinary Medicine degree (DVM) and have at least 1 year experience in teaching in The Faculty of Veterinary Medicine.

6.3.5) Eligible applicants must pass English language tests such as TOEFL with 500 marks or better, or IELTS with 5.5 marks or better, or other English language test institute with equivalent standards depends upon the consent of the curriculum administrative committee.

7. Admission Requirements

As specified in the 1998 Khon Kaen University Regulations of the Graduate Studies Level, Section 5, Item 27 and 28 (see details in Appendix 135) or as specified in its latest revised version.

8. Educational System

As specified in the 1998 Khon Kaen University Regulations of the Graduate Studies Level, all items in Section 2, and section 3 Item 11.4 and 12.3 (see details in Appendix 131-132) or as specified in its latest revised version.

9. Duration of the Program

The total study time for the Doctor of Philosophy Program in Interdisciplinary Veterinary Science Program does not exceed 6-8 academic years; as specified in the 1998 Khon Kaen University Regulations of the Graduate Studies Level, Section 3, Item 14.3 (see details in Appendix 132) or as specified in its latest revised version.

10. Registration

As specified in the 1998 Khon Kaen University Regulations of the Graduate Studies Level, Section 6 (see details in Appendix 137) or as specified in its latest revised version.

11. Evaluation and Graduation

11.1) The PhD candidate must pass the following requirement to achieve the PhD degree.

Degree evaluations as specified in the 1998 Khon Kaen University Regulations of the Graduate Studies Level, all items in Section 7 excepts Items 36.2 and 36.4, and all items in Section 9 excepts Items 54.1 and 54.2 (see details in Appendix 137, 142) or as specified in its latest revised version.

11.3) The PhD candidates needed to be the first author of a published/accepted international scientific paper.

11.4) The PhD candidate must have at least one oral presentation in a national or international scientific conference.

12. Instructors

12.1 Lecturer Responsible for Program

No.	First Name – Last Name	Qualification	Academic Position	Institution
1	Mr.Korawuth Punareewattana	D.V.M., M.S., Ph.D. (Veterinary Pharmacology)	Assistant Professor	Department of Pharmacology and Toxicology
2	Mr.Peerapol Suk-on	D.V.M., Ph.D.(Comparative Veterinary Medicine)	Assistant Professor	Department of Anatomy
3	Ms.Jaruwan Kampa	D.V.M.(Honors), M.Sc., Ph.D. (Ruminant Medicine)	Lecturer	Department of Pathobiology

12.2 Lecturer of Program

No.	First Name – Last Name	Qualification	Academic Position	Institution
1	Mr.Thaworn Mingsakul	B.Sc., M. Sc., Ph.D. (Anatomy)	Associate Professor	Department of Anatomy
2	Mr.Korawuth Punareewattana	D.V.M., M.S., Ph.D. (Veterinary Pharmacology)	Assistant Professor	Department of Pharmacology and Toxicology
3	Mr.Peerapol Suk-on	D.V.M., Ph.D. (Comparative Veterinary Medicine)	Assistant Professor	Department of Anatomy
4	Ms.Jaruwan Kampa	D.V.M.(Honors), M.Sc., Ph.D. (Ruminant Medicine)	Lecturer	Department of Pathobiology
5	Mr.Aran Chanlun	D.V.M., M.Sc., Ph.D. (Ruminant Medicine)	Lecturer	Department of Medicine

12.3 Teaching Staff

12.3.1 Regular teaching staff

No.	First Name – Last Name	Qualification	Academic Position	Institution
1	Ms.Kanlaya Chuachan	D.V.M., M.Sc. (Avian Medicine)	Associate Professor	Department of Medicine
2	Mr.Komkrich Pimpukdee	D.V.M.(Honors), Ph.D.(Veterinary Toxicology)	Associate Professor	Department of Veterinary Public Health
3	Mr.Thaworn Mingsakul	B.Sc., M.Sc., Ph.D. (Anatomy)	Associate Professor	Department of Anatomy
4	Ms.Bongkot Noppon	B.Sc.(Biology), M.P.H., M. Phil. (Food Technology)	Associate Professor	Department of Veterinary Public Health

No.	First Name – Last Name	Qualification	Academic Position	Institution
5	Mr.Bundit Tengjaroenkul	D.V.M., Ph.D.(Veterinary Medicine)	Associate Professor	Department of Medicine
6	Mr.Prasarn Tangkawattana	D.V.M.(Honors), Ph.D. (Veterinary Anatomy)	Associate Professor	Department of Anatomy
7	Mr.Preenun Jitasombuti	D.V.M., M.Sc.(Veterinary Surgery)	Associate Professor	Department of Surgery and Theriogenology
8	Mr.Mongkol Prongcharoen	D.V.M., F.R.V.C.S.	Associate Professor	Department of Surgery and Theriogenology
9	Mr.Somboon Saengmaneedet	D.V.M.(Honors), Ph.D. (Veterinary Parasitology)	Associate Professor	Department of Pathobiology
10	Ms.Suneerat Aiumlamai	D.V.M.(Honors), M.Sc., Ph.D. (Veterinarmedicine Doktorsexamen Amnet Obstetrik och Gynekologi)	Associate Professor	Department of Surgery and Theriogenology
11	Mr.Sutthisak Nopwinyoowong	D.V.M., M.Sc. (Veterinary Pathology)	Associate Professor	Department of Pathobiology
12	Ms.Arinee Chatchawanchonteera	D.V.M.	Associate Professor	Department of Pathobiology
13	Ms.Kochakorn Direksin	D.V.M.,(Honors), M.S., Ph.D.(Swine Medicine)	Assistant Professor	Department of Medicine
14	Mr.Korawuth Punareewattana	D.V.M., M.S., Ph.D. (Veterinary Pharmacology)	Assistant Professor	Department of Pharmacology and Toxicology
15	Ms.Kwankate Kanisthanon	D.V.M.(Honors), M.S., Ph.D.(Veterinary Epidemiology)	Assistant Professor	Department of Physiology
16	Mr.Kanit Chukanhom	D.V.M., Ph.D. (Aquatic Medicine)	Assistant Professor	Department of Medicine
17	Mr.Narison Na-gnam	D.V.M., M.Sc., Ph.D. (Tropical Medicine)	Assistant Professor	Department of Veterinary Public Health
18	Mr.Prapansak Chaveerach	D.V.M., Ph.D.(Veterinary Public Health)	Assistant Professor	Department of Veterinary Public Health

No.	First Name – Last Name	Qualification	Academic Position	Institution
19	Ms.Prapaporn Tungthanathanit	B. Sc., D.V.M.(Honors), M.Sc., Ph.D.(Physiology)	Assistant Professor	Department of Physiology
20	Mr.Prawit Butudom	D.V.M.(Honors), M.S., Ph.D.(Equine Clinical Medicine and Exercise Physiology)	Assistant Professor	Department of Medicine
21	Mr.Pisit Suwannachot	D.V.M., Ph.D.(Physiology)	Assistant Professor	Department of Physiology
22	Mr.Peerapol Suk-on	D.V.M., Ph.D.(Comparative Veterinary Medicine)	Assistant Professor	Department of Anatomy
23	Ms. Fanan Suksawat	D.V.M.(Honors), M.S., Ph.D. (Comparative Biomedical Sciences)	Assistant Professor	Department of Medicine
24	Mr.Sunpetch Angkititrakul	D.V.M., M.Sc., Ph.D. (Public Health)	Assistant Professor	Department of Veterinary Public Health
25	Mr.Sarthorn Porntrakulpipat	D.V.M., Dr. med.vet.(Swine Disease)	Assistant Professor	Department of Medicine
26	Mr.Anantachai Chaiyotwittayakun	D.V.M.(Honors), M.Sc., Ph.D.(Bovine Clinical Immunobiology)	Assistant Professor	Department of Medicine
27	Ms.Jaruwan Kampa	D.V.M., M.Sc., Ph.D. (Ruminant Medicine)	Lecturer	Department of Pathobiology
28	Mr.Naruepon Kampa	D.V.M., M.Sc., Ph.D. (Veterinary Radiology)	Lecturer	Department of Surgery and Theriogenology
29	Mr.Saksiri Siristien	D.V.M., Ph.D. (Reproductive Physiology)	Lecturer	Department of Surgery and Theriogenology
30	Mr.Aran Chanlun	D.V.M., M.Sc., Ph.D. (Ruminant Medicine)	Lecturer	Department of Medicine

12.3.2 Special teaching staff (qualified persons outside KKU)

No.	First Name – Last Name	Qualification/Discipline	Academic Position	Institution
1	Mr. Jiroj Sasipreeyajan	B.Sc.(Animal Sciences), D.V.M(Honors.), Ph.D. (Veterinary Microbiology)	Professor	Faculty of Veterinary Sciences, Chulalongkorn University

No.	First Name – Last Name	Qualification/Discipline	Academic Position	Institution
2	Ms. Chollada Buranakarl	B.Sc.(Honors.), D.V.M.(Honors.), M.Sc.,(Physiology), Ph.D. (Comparative Medical Science)	Professor	Faculty of Veterinary Sciences, Chulalongkorn University
3	Mr. Cherdchai Ratanasethakul	D.V.M.(Honors.), M.Sc., Ph.D.(Avian Pathology)	Professor	Pension Government officer
4	Mr. Mongkol Techakamphu	D.V.M.(Honors.), Doctorat de 3e cycle (Reproductive Physiology)	Professor	Faculty of Veterinary Sciences, Chulalongkorn University
5	Mr. Annop Kunavongkrit	B.Sc.(Animal Sciences), D.V.M., F.R.V.C.S., Ph.D.	Professor	Faculty of Veterinary Sciences, Chulalongkorn University
6	Mr. Weerasak Wongsrikeao	D.V.M., M.S., Ph.D. (Animal Science)	Associate Professor	Pension Government Officer
7	Mr. Satis Pholpark	D.V.M., Doc. med. vet. (Dairy Health)	Veterinary Level 8	Veterinary Research and Development Center (Upper Northeastern Region), Department of Livestock Development

12.3.3 Thesis/Dissertation supervisor

No.	First Name – Last Name	Qualification/Discipline	Academic Position	Institution/
1	Ms. Kalaya Chuachan	D.V.M., M. Sc., (Avian Medicine)	Associate Professor	Department of Veterinary Medicine
2	Mr. Komkrich Pimpukdee	D.V.M,(Honors.), Ph.D. (Veterinary Toxicology)	Associate Professor	Department of Veterinary Public Health

No.	First Name – Last Name	Qualification/Discipline	Academic Position	Institution/
3	Mr. Thaworn Mingsakul	B. Sc., M. Sc., Ph.D. (Anatomy)	Associate Professor	Department of Anatomy
4	Ms. Bongkot Noppon	B.Sc.(Biology), M.P.H., M.phil. (Food Tech.)	Associate Professor	Department of Veterinary Public Health
5	Mr. Bundit Tengjaroenkul	D.V.M., Ph.D.(Veterinary Medicine)	Associate Professor	Department of Veterinary Medicine
6	Mr. Prasarn Tungkawattana	D.V.M.(Honors.), Ph.D. (Veterinary Anatomy)	Associate Professor	Department of Anatomy
7	Mr. Preenun Jitasombuti	D.V.M., M.Sc.(Veterinary Surgery)	Associate Professor	Department of Surgery and Theriogenology
8	Mr. Mongkol Prongcharoen	D.V.M., F.R.V.C.S.	Associate Professor	Department of Surgery and Theriogenology
9	Mr. Somboon Saengmaneedet	D.V.M.,(Honors), M.S., Ph.D.(Veterinary Parasitology)	Associate Professor	Department of Pathobiology
10	Ms. Suneerat Aiumlamai	D.V.M.(Honors.), M.Sc., Ph.D. (Veterinarmedicine Doktorsexamen Amnet Obstetrik och Gynekologi)	Associate Professor	Department of Surgery and Theriogenology
11	Mr. Sutthisak Nopwinyoowong	D.V.M., M.Sc.(Vet. Pathology)	Associate Professor	Department of Pathobiology
12	Ms. Arinee Chatchawanchonteera	D.V.M.	Associate Professor	Department of Pathobiology
13	Ms. Kochakorn Direksin	D.V.M.,(Honors), M.S., Ph.D.(Swine Medicine)	Assistant Professor	Department of Veterinary Medicine
14	Mr. Korawuth Punareewattana	D.V.M., M.S., Ph.D. (Veterinary Pharmacology)	Assistant Professor	Department of Pharmacology and Toxicology

No.	First Name – Last Name	Qualification/Discipline	Academic Position	Institution/
15	Ms. Kwankate Kanistanon	D.V.M.,(Honors.), M.S., Ph.D.(Veterinary Epidemiology)	Assistant Professor	Department of Physiology
16	Mr. Kanit Chukanhom	D.V.M., Ph.D.(Aquatic Medicine)	Assistant Professor	Department of Veterinary Medicine
17	Mr. Prapansak Chaveerach	D.V.M., Ph.D.(Veterinary Public Health)	Assistant Professor	Department of Veterinary Public Health
18	Ms. Prapaporn Tungthanathanich	B.Sc., D.V.M.,(Honors.), M.Sc., Ph.D.(Physiology)	Assistant Professor	Department of Physiology
19	Mr. Prawit Butudom	D.V.M.(Honors), M.S., Ph.D.(Equine Clinical Medicine and Exercise Physiology)	Assistant Professor	Department of Veterinary Medicine
20	Mr. Pisit Suwannachot	D.V.M., Ph.D.(Physiology)	Assistant Professor	Department of Physiology
21	Mr. Peerapol Suk-on	D.V.M., Ph.D. (Comparative Veterinary Medicine)	Assistant Professor	Department of Anatomy
22	Ms. Fanan Suksawat	DVM.(Honors), M.S., Ph.D. (Comparative Biomedical Sciences)	Assistant Professor	Department of Veterinary Medicine
23	Mr. Sunpetch Angkititrakul	D.V.M., M.Sc., Ph.D. (Public Health)	Assistant Professor	Department of Veterinary Public Health
24	Mr. Sathorn Porntrakulpipat	D.V.M., Dr. med.vet.(Swine Disease)	Assistant Professor	Department of Veterinary Medicine
25	Mr. Anantachai Chaiyotwittayakun	D.V.M., M.Sc., Ph.D. (Bovine Clinical Immunobiology)	Assistant Professor	Department of Veterinary Medicine
26	Ms. Jaruwan Kampa	D.V.M., M.Sc., Ph.D. (Ruminant Medicine)	Lecturer	Department of Pathobiology

No.	First Name – Last Name	Qualification/Discipline	Academic Position	Institution/
27	Mr. Naruepon Kampa	D.V.M., M.Sc., Ph.D. (Veterinary Radiology)	Lecturer	Department of Surgery and Theriogenology
28	Mr. Saksiri Siristien	D.V.M., Ph.D.(Reproductive Physiology)	Lecturer	Department of Surgery and Theriogenology
29	Mr. Aran Chanlun	D.V.M., M.Sc., Ph.D. (Ruminant Medicine)	Lecturer	Department of Veterinary Medicine

13. Student Population

The minimum number of students admitted to the program in each academic year and the expected number of graduates are shown in the table below.

Total Number of Students (Including All Admission Types)

Batch of Students	Academic Year														
	2010			2011			2012			2013			2014		
	1.2	2.1	2.2	1.2	2.1	2.2	1.2	2.1	2.2	1.2	2.1	2.2	1.2	2.1	2.2
1st year	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
2nd year	-	-	-	5	5	5	5	5	5	5	5	5	5	5	5
3rd year	-	-	-	-	-	-	5	5	5	5	5	5	5	5	5
4th year	-	-	-	-	-	-	-	-	-	-	-	5	-	-	5
Number of Students	5	5	5	10	10	10	15	15	15	15	15	20	15	15	20
Total Number of Students	15			30			45			50			50		
Expected Number of Graduates	-	-	-	-	-	-	5	5	-	5	5	5	5	5	5

14. Facilities and Teaching Equipments

Facilities and teaching equipments for the program are located in all Departments of the Faculty of Veterinary Medicine, in Research and Farm Station in Wang Saphung District, Loei Province, in related faculties (Faculty of Agriculture, Faculty of Pharmacy, and Faculty of Science) of Khon Kaen University, and in animal farms of a private sector.

14.1 Rooms, Locations, Capacities, and Purposes of Use

Rooms	Locations	Capacities (Meter ^{2})	Purposes of Use
1. Office of the Program	Building 3 (5th floor)	40	- Program administration
2. Conference room	Building 3 (6th floor)	80	- Committee meeting - Storing of documents and journals
3. Recreation room	Building 3 (6th floor)	20	- Guest reception - Relaxing activity
4. Storeroom	Building 3 (6th floor)	33	- Material storage
5. Room for teaching small classes	Building 3 (6th floor)	65	- Teaching small classes -
6. Cow Barn	Building 3 (1st floor)	63	Laboratory for artificial insemination
7.Dog housing	Building for animal housing	80	- Dog housing
8.Veterinary Teaching Hospital	- 1st floor	96	-Swine keeping
- Swine pen	- 1st floor	96	-Chicken keeping
- Chicken pen	- 1st floor	96	- Dog keeping
- Dog pen	- 1st floor	96	- Cat keeping
- Cat pen	- 1st floor	24	- Administrative area
- Administrative area	- 1st floor	16	- Drug preparation
- Room for drug preparation	- 1st floor	16	- Veterinary patient's record
- Room for veterinary patient's record	- 1st floor	12	- Clinical examination and treatment
- Room 1 for clinical examination and treatment	- 1st floor	12	- Clinical examination and treatment
- Room 2 for clinical	- 1st floor	10	- Clinical examination and

examination and treatment			treatment
- Room 3 for clinical examination and treatment	- 1st floor	10	- Clinical examination and treatment
- Room 4 for clinical examination and treatment	- 1st floor	12	- Clinical examination and treatment
- Room 5 for clinical examination and treatment	- 1st floor	10	- Eye and skin inspection
- Room for eye and skin inspection	- 1st floor	28	- Circulating academic journals
- Room for circulating academic journals	- 1st floor	28	- Veterinarian room
- Veterinarian room	- 1st floor	20	- Computer room
- Computer room	- 1st floor	25	- Instructor room
- Instructor room	- 1st floor	16	- Pharmacy room
- Pharmacy room	- 1st floor	40	- Film storage and student room
- Film storage and student room	- 1st floor	20	- Surgical treatment
- Room for surgical treatment	- 1st floor	20	- Animal preparation
- Room for animal preparation	- 1st floor	20	- Room for animal feed
- Room for animal feed	- 1st floor	96	- Large animal inspection
- Room for large animal inspection	- 2nd floor	144	- Large animal surgery - Animal hotel
- Room for large animal surgery	- 2nd floor	192	- Room for instructors and staffs
- Animal hotel	- 2nd floor	16	- Storeroom
- 5 Rooms for instructors and staffs	Wang Saphung District, Loei Province	140	- Room for surgical study
	Building 1 (1st floor)	168	- Research and farm station
- Storeroom	Building 1 (1st floor)	2,000 rai	- Storeroom
- Room for surgical study	Building 1 (1st floor)	40	- Room for student activity
		40	- Computer room

9. Research and farm station	Building 1 (1st floor)	80	- Library
10. Storeroom	Building 1 (1st floor)	456	- Laboratory of the Department of Anatomy
11. Room for student activity	Building 1 (1st floor)	240	- Storeroom
12. Computer room	Building 1 (1st floor)	8	- Veterinary museum
13. Library	Building 1 (2nd floor)	160	- Lecture room 3
14.Laboratory of the Department of Anatomy	Building 1 (2nd floor)	80	- Lecture room 4
15. Storeroom	Building 1 (2nd floor)	90	- Lecture room 5
16. Veterinary museum	Building 1 (2nd floor)	80	- Lecture room 6
17. Lecture room 3	Building 1 (2nd floor)	80	- Lecture room for 200 seats
18. Lecture room 4	Building 1 (2nd floor)	364	- Laboratory of the Department of Pharmacology and Toxicology
19. Lecture room 5	Building 1 (2nd floor)	160	- Room for laboratory preparation of the Department of Pharmacology and Toxicology
20. Lecture room 6	Building 1 (2nd floor)	160	- Central laboratory
21. Lecture room for 200 seats	Building 1 (3rd floor)	160	- Office of Department of Physiology
22. Laboratory of the Department of Pharmacology and Toxicology	Building 1 (3rd floor)	120	- Office of the Department of Pharmacology and Toxicology
		120	- Laboratory of the Department of Anatomy
23.Room for laboratory preparation of the Department of Pharmacology and Toxicology	Building 1 (3rd floor)	120	- Room for laboratory preparation of the Department of Physiology
24. Central laboratory	Building 1 (3rd floor)	120	- Laboratory of the Department of Physiology
25. Office of Department of Physiology	Building 1 (3rd floor)	56	- Room for storing of field equipments
26.Office of the Department	Building 1 (4th floor)	160	- Office of the Department of

of Pharmacology and Toxicology			Anatomy
27. Laboratory of the Department of Anatomy	Building 1 (4th floor)	160	- Office of the Department of Veterinary Public Health
28. Room for laboratory preparation of the Department of Physiology	Building 1 (4th floor)	224	- Instructor room
29. Laboratory of the Department of Physiology	Building 1 (4th floor)	112	- Laboratories of the Department of Veterinary Public Health
30. 2 Rooms for storing of field equipments	Building 1 (4th floor)	120	- Rooms for laboratory preparation of the Department of Veterinary Public Health
31. Office of the Department of Anatomy	Building 1 (4th floor)	120	- Auditorium
32.Office of the Department of Veterinary Public Health	Building 3 (1st floor)	805	- Lecture room
33. Instructor room	Building 3 (1st floor)	60	- Lecture room
34. 2 Laboratories of the Department of Veterinary Public Health	Building 3 (1st floor)	180	- Room for necropsy preparation
35. 3 Rooms for laboratory preparation of the Department of Veterinary Public Health	Building 3 (1st floor)	72	- Lecturer room
36. Auditorium for 500 seats	Building 3 (1st floor)	160	- Room for large animal surgery
37. Lecture room for 60 seats	Building 3 (1st floor)	320	
38. Lecture room for 180 seats	Building 3 (1st floor)	160	- Room for large animal surgery
39. Room for necropsy preparation	Building 3 (1st floor)	30	- Room for surgical study
40. Instructor room	Building 3 (1st floor)	50	- Necropsy room

41. Room for large animal surgery	Building 3 (2nd floor)	20	- Study/Meeting room
42. Room for large animal surgery	Building 3 (2nd floor)	130	- Lecture room for 100 seats
43. Room for surgical study	Building 3 (2nd floor)	20	- Instructor room
44. Necropsy room	Building 3 (2nd floor)	65	- Instructor room
45. Study/Meeting room	Building 3 (2nd floor)	20	- Instructor room
46. 2 Lecture rooms for 100 seats	Building 3 (2nd floor)	80	- Laundry and cleaning room
47. 2 Instructor rooms	Building 3 (2nd floor)	80	- Room for laboratory preparation of obstetrics
48. Instructor room	Building 3 (2nd floor)	160	- Laboratory for obstetrics
49. 3 Instructor rooms	Building 3 (2nd floor)	160	- Laboratory for gynecology
50. Laundry and cleaning room	Building 3 (2nd floor)	80	- Room for laboratory preparation of gynecology
51. Room for laboratory preparation of obstetrics	Building 3 (2nd floor)	80	- Instructor room
52. Laboratory for obstetrics	Building 3 (2nd floor)	80	- Office of the Department of Surgery and Theriogenology
53. Laboratory for gynecology	Building 3 (2nd floor)	20	- Instructor room
54. Room for laboratory preparation of gynecology	Building 3 (3rd floor)	130	- Office of the Department of Pathobiology
55. Instructor room	Building 3 (3rd floor)	16.25	- Instructor room
56. Office of the Department of Surgery and Theriogenology	Building 3 (3rd floor)	130	- Instructor room
57. 4 Instructor rooms	Building 3 (3rd floor)	16.25	- Instructor room
58. Office of the Department of Pathobiology	Building 3 (3rd floor)	16.25	- Lecture room for clinical practice
59. 4 Instructor rooms	Building 3 (3rd floor)	30	- Lecture room for clinical practice
60. Lecture room for 100 seats	Building 3 (3rd floor)	35	- Staff room

61. 2 Instructor rooms	Building 3 (3rd floor)	20	- Instructor room
62. Lecture room for clinical practice	Building 3 (3rd floor)	16.25	- Instructor room
63. Lecture room for clinical practice	Building 3 (3rd floor)	40	- Room for mycology
64. Staff room	Building 3 (3rd floor)	40	- Room for bacteriology
65. 3 Instructor rooms	Building 3 (3rd floor)	40	- Room for instrumental cleaning
66. 2 Instructor rooms	Building 3 (3rd floor)	40	- Room for chemical preparation and storage
67. Room for mycology	Building 3 (3rd floor)	40	- Laboratory for immunology
68. Room for bacteriology	Building 3 (3rd floor)	40	- Laboratory for virology
69. Room for instrumental cleaning	Building 3 (3rd floor)	80	- Laboratory for molecular biology
70. Room for chemical preparation and storage	Building 3 (3rd floor)	200	- Room for laboratory study
	Building 3 (3rd floor)	60	- Room for reparation/ laboratory of parasitology
71. Laboratory for immunology	Building 3 (3rd floor)	60	- Study room for clinical practice
72. Laboratory for virology	Building 3 (3rd floor)	80	- Room for laboratory preparation of pathology
73. Laboratory for molecular biology	Building 3 (3rd floor)	16.25	- Instructor rooms
74. Room for laboratory study	Building 3 (4th floor)	130	- Lecture room for 100 seats
75. Room for preparation/ laboratory of parasitology	Building 3 (4th floor)	16.25	- Instructor rooms
76. Study room for clinical practice	Building 3 (4th floor)	130	- Instructor rooms
77. Room for laboratory preparation of pathology	Building 3 (4th floor)	15	- Instructor rooms
78. 4 Instructor rooms	Building 3 (4th floor)	30	- Lecture room
79. Lecture room for 100 seats	Building 3 (4th floor)	50	- Meeting room for the Departments
80. 4 Instructor rooms	Building 3 (4th floor)	16.67	- Instructor rooms

81. Instructor room	Building 3 (4th floor)	80	- Instructor rooms
82. 3 Instructor rooms	Building 3 (4th floor)	80	- Room for research operation
83. Lecture room 2	Building 3 (4th floor)	160	- Room for laboratory preparation of aquatic animal
84. Meeting room for the Departments	Building 3 (4th floor)	160	- Laboratory for aquatic animals
85. 3 Instructor rooms	Building 3 (4th floor)	160	- Necropsy room
86. Instructor room	Building 3 (4th floor)	80	- Room for laboratory preparation of avian animals
87. Room for research operation	Building 3 (4th floor)	60	- Lecture room
88. Room for laboratory preparation of aquatic animals	Building 3 (4th floor)	130	- Office of the Department of Medicine
89. Laboratory for aquatic animals	Building 3 (4th floor)	20	- Instructor rooms
90. Necropsy room	Building 3 (5th floor)	130	- Room for supporting and development
91. Room for laboratory preparation of avian animals	Building 3 (5th floor)	90	- Storeroom
92. Lecture room	Building 3 (5th floor)	130	- Storeroom
93. Office of the Department of Medicine	Building 3 (5th floor)	25	- Counseling service / small group discussion
94. 4 Instructor rooms	Building 3 (5th floor)	50	- Room for ware-affair unit
95. Room for supporting and development	Building 3 (5th floor)	60	- Room for student-affair service
96. Storeroom	Building 3 (5th floor)	80	- Room for copying service
97. Storeroom	Building 3 (5th floor)	40	- Room for media service
98. Room for counseling service	Building 3 (5th floor)	120	- Computer room
99. Room for ware-affair unit	Building 3 (5th floor)	160	- Meeting room 1
100. Room for student-affair service	Building 3 (5th floor)	160	- Office for administrators
101. Room for copying service	Building 3 (5th floor)	160	- Office of dean -

102. Room for media service	Building 3 (5th floor)	40	Room for administrative service
103. Computer room	Building 3 (5th floor)	65	- Room for finance and ware-affair services
104. Meeting room 1	Building 3 (6th floor)	130	- Multi-purpose room
105. Office for administrators	Building 3 (6th floor)	25	- Seminar room
106. Office of dean	Building 3 (6th floor)	15	- Seminar room
107. Room for administrative service	Building 3 (6th floor)	25	- Seminar room
108. Room for finance and ware-affair services	Building 3 (6th floor)	130	- Multi-purpose room
109. Multi-purpose room	Building 3 (6th floor)	25	- Seminar room
110. Seminar room	Building 3 (6th floor)	50	- Seminar room
111. Seminar room	Building 3 (6th floor)	60	- Multi-purpose room
112. Seminar room	Building 3 (6th floor)	40	- Instructor room
113. Multi-purpose room	Building 3 (6th floor)	50	- Seminar room
114. Seminar room			
115. Seminar room			
116. Multi-purpose room			

14.2 Teachinf Equipments

14.2.1 Available equipment

1. Full set of microcomputer	60
2. Slide projector	6
3. Overhead projector	6
4. Audio projector	6
5. LCD projector	9
6. Digital camera	5

14.2.2 Laboratory and research equipments for

1. Microscope (doudle eye pieces)	150
2 Microscope with camera	4
3. Tissue preparation	1
4. Animal organ model set	2
5. Small animal respirator	1
6. Surgery	20
7. Field X-ray	1

8. Artificial insemination	10
9. Cardiometer	2
10. Electrophoresis	3
11. Gas Liquid Chromatography	1
12. High Performance Liquid Chromatography	1
13. Liquid Scintillation Counter	1
14. Large animal surgery	2
15. Trocar canula	5
16. Refrigerated centrifuge	1
17. Ultrasonic cell breaker	1
18. Milk pasteurization	1
19. Somatic cell	1
20. Milkoscan	1
21. Scaler	1
22. Molecular analysis	1
23. Arthoscopic surgery	2
24. Equine hoof examination	1

14.2.3 Requested Equipment

None

15. Library

15.1 Khon Kaen University's Library have information resources especially involving Veterinary which are:

15.1.1 Library and Resource Center

1. Books

Thai Language	862 issues
Foreign Language	1,042 issues

2. Journals

Thai Language	17 issues
Foreign Language	11 issues

3. Audio-Visual Materials 2 issues
4. Electronic Learning -
5. Database

Electronic Databases

- Academic Search Premier

- CHE PDF Dissertation Full Text
- ISI Web of Science [Uni Net]
- Dissertation Abstracts Online
- CSA: Biological Science Database Online
- SciFinder
- Wilson Omni File: Full Text Select
- PubMed

Electronic Books

- Knovel online
- Net library E-books
- Springer Link E-books

Electronic Journals

- Dissertation Abstracts [and ProQuest Digital Dissertations]
- Digital Dissertation and Theses
- CINAHL with Full Text
- ProQuest Agriculture Journals
- Blackwell Journals Online
- Wilson OmniFile: Full Text Select
- Annual Reviews
- Nature Online
- Clinical infectious diseases Years 2004
- LINK (Springer)
- Cambridge Journals Online
- H.W.Wilson [Uni-Net]
- Science Direct [UniNet]
- Wilson OmniFile: Full Text Select
- Journals@Ovid
- SciFinder

Electronic Thesis

- Dissertation Database/Independent Study/Research/only journals belong to Khon Kaen University

- Dissertation Database /Independent Study /Thailand University
- Thai Distertation Database (Online TIAC)
- Dissertation Abstract Database/ Independent Research of Khon Kaen University

CD Rom Database 5 issues

- Agricola
- CAB Abstracts
- Life Science
- Dissertation Abstracts On disc
- Medline

15.1.2 Veterinary Medicine's Library

1. Books

Thai Language	7,821 issues
Foreign Language	3,442 issues

2. Journals

Thai Language	8 issues
Foreign Language	6 issues
Donation	161 issues

3. Database

Electronic Databases 5 issues

- ACM Digital Library
- H.W.Wilson
- ISI Web of Science
- PUBMED
- SciFinder

Electronic Books 3 issues

- Kluwer Online
- Netlibrary
- Grolier Online

Electronic Journals 8 issues

- ACS Publications

- Blackwell Journals Online
- H.W.Wilson
- Journals@Ovid
- LINK (Springer)
- ProQuest Medical Library
- Science Direct
- Wilson OmniFile

Electronic Thesis 4 issues

- Dissertation Fulltext
- Digital Dissertation
- Thai Dissertation Online
- Full Text Dissertation

CD Rom Database 6 issues

- Agricola & CAB Abstract
- Science Citation Index
- Life Science
- Dissertation Abstracts On disc[DAO]
- Medline

Thai Dissertation Database

4. Etc

VDO 26 titles 37 issues

CD 86 titles 181 issues

15.2 Faculty of Veterinary Medicine's Library have information resources especially involving Animal Science which are:

1 Books

Thai Language 381 issues

Foreign Language 669 issues

2 Journals

Thai Language 18 issues

Foreign Language 10 issues

3 Electronic Learning 1 issues

4 Database

Electronic Database

- Academic Search Premier
- CHE PDF Dissertation Full Text
- ISI Web of Science [Uni Net]
- Dissertation Abstracts Online
- CSA: Biological Science Database Online
- SciFinder
- Wilson Omni File: Full Text Select
- PubMed

Electronic books

- Kluwer Online
- Netlibrary
- Grolier Online

Electronic Journals

- Dissertation Abstracts [and ProQuest Digital Dissertations]
- Digital Dissertation and Theses
- CINAHL with Full Text
- ProQuest Agriculture Journals
- Blackwell Journals Online
- Wilson OmniFile: Full Text Select
- Annual Reviews
- Nature Online
- Clinical infectious diseases ปี 2004
- LINK (Springer)
- Cambridge Journals Online
- H.W.Wilson [Uni-Net]
- Science Direct [UniNet]
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CD Rom Database 5 issues

- Agricola & CAB Abstract
- Science Citation Index
- Life Science
- Dissertation Abstracts On disc[DAO]
- Medline

Thai Dissertation Database

Searching of information resources of Khon Kaen University Library could be performed through OPAC-Online Public Access Catalog

16. Budget

Estimated budget for the first 5 years program (2010-2014) are as follows:

1. Estimation income

List	Fiscal Year				
	2010	**2011**	**2012**	**2013**	**2014**
1. Annual government budget					
- Arrange cost	-	-	-	-	-
- etc.	-	-	-	-	-
2. Annual budget income					
- Tuition fee	1,950,000	3,900,000	5,850,000	6,500,000	6,500,000
- etc.	-	-	-	-	-
Total (Bht/yr)	1,950,000	3,900,000	5,850,000	6,500,000	6,500,000

2. Estimation expenses

List	Fiscal Year				
	2010	**2011**	**2012**	**2013**	**2014**
Wages and Operation Cost					
- Wages for invited instructors (Bht/yr)	400,000	800,000	1,200,000	1,200,000	1,200,000
- Utilities (Bht/yr)	200,000	400,000	600,000	600,000	600,000
- Materials (Bht/yr)	500,000	1,000,000	1,500,000	1,500,000	1,500,000
Total (Bht/yr)	1,100,000	2,200,000	3,300,000	3,300,000	3,300,000

1. Estimated cost per student throughout the program is approximately 220,000 Bht/person/program.
2. Estimated cost per student is 73,333 Bht/person/year

17. Curriculum

The Doctor of Philosophy Program in Interdisciplinary Veterinary Science provides in 3 programs as follows.

Program 1.2

This program is focused on research performing. No coursework is required for the enrolled student. The program requires at least 48 credits (or equal) for dissertation. He/she is needed to register 710 891 Seminar in Veterinary Science 1, 710 892 Seminar in Veterinary Science 2 and 710 893 Seminar in Veterinary Science 3. Other subjects may be enrolled on requests of the Dissertation Advisory Committee but the credits will not count.

Program 2.2

This program requires both research performing and coursework. The student is needed to pass at least 12 credits of coursework and at least 36 credits of dissertation.

Program 2.1

This program requires both research performing and coursework. The student is needed to pass at least 24 credits of coursework and at least 48 credits of dissertation.

17.1. Total Credit Hours depends on type of programs:

Program 1.2	at least	48 credits
Program 2.2	at least	48 credits
Program 2.1	at least	72 credits

17.2. Structure of The Programs

The programs were arranged based on the announcement of the Ministry of Education in 2005.

Subject Courses	Credits		
	Program 1.2	**Program 2.2**	**Program 2.1**
Compulsory courses	3 (Audit)	4	9
Elective courses	-	8	15
Dissertation	48	36	48
Total (at least)	**48**	**48**	**72**

17.3 List of Course

17.3.1 Type 1.2 Program

17.3.1.1 Compulsory Courses

Students in the doctoral program of Interdisciplinary Veterinary Medicine, type 1.2 program, must enroll in the following courses or enroll with no credits according to a recommendation from advisory committee.

710 991 Seminar in Interdisciplinary Veterinary Articles I 1(1-0-2)

710 992 Seminar in Interdisciplinary Veterinary Articles II 1(1-0-2)

710 993 Seminar in Interdisciplinary Veterinary Articles III 1(1-0-2)

17.3.1.2 Dissertation 48 credit

710 997 Dissertation 48 credit

17.3.2 Type 2.2 Program

17.3.2.1 Compulsory Course 12 credit

17.3.2.1.1 Compulsory subjects 4 credit

710 896 Writing and presenting scientific papers 1(1-0-2)

710 991 Seminar in Interdisciplinary Veterinary Articles I 1(1-0-2)

710 992 Seminar in Interdisciplinary Veterinary Articles II 1(1-0-2)

710 993 Seminar in Interdisciplinary Veterinary Articles III 1(1-0-2)

17.3.2.1.2 Elective subjects (not less than) 8 credit

Department of Anatomy

711 711 Veterinary Orthopedic Anatomy 3(2-3-5)

Department of Physiology

712 721 Animal Physiology 3(3-0-6)

Department of Pharmacology and Toxicology

713 721 Advanced Veterinary Pharmacology 2(2-0-4)

713 722 Advanced Veterinary Toxicology 2(2-0-4)

Department of Pathobiology

714 711 Advanced Veterinary Clinical Pathology 3(2-3-5)

714 721 Cellular Pathology Techniques in Veterinary Science 2(2-0-4)

714 722 Principles of Pathogenesis in Veterinary Science 2(2-0-4)

714 731 Laboratory Techniques in Veterinary Parasitology 2(1-3-3)

714 732 Advanced Veterinary Parasitology 2(2-0-4)

714 741 Diagnostic Technique in Veterinary Microbiology 3(1-6-4)

Department of Surgery and Theriogenology

715 700 Advanced Endocrinology of Animal Reproduction 3(3-0-3)

715 730 Advanced Reproduction in Cattle and Buffalo 3(3-0-6)

715 731 Advanced Reproduction in Swine 3(3-0-6)

715 732 Advanced Reproduction in Goat and Sheep 2(2-0-4)

715 733 Advanced Reproduction in Horse 3(3-0-6)

715 734 Advanced Reproduction in Companion Animals 3(3-0-6)

715 740 Advanced Techniques in Theriogenology 2(1-3- 3)

715 741 Biotechnology in Animal Reproduction 3(3-0-6)

715 750 Dairy Cattle Herd Health Management 3(3-0-3)

715 751 Swine Herd Health Management 3(3-0-6)

715 752 Reproductive Diseases in Farm Animals 3(3-0-6)

Department of Public Health

716 711 Tropical Zoonotic Disease 3(3-0-6)

716 712 Advanced Veterinary Epidemiology 3(3-0-6)

716 713 Risk Analysis for Veterinary Public Health 3(2-3-5)

716 714 Microbial Control in the Meat Industry 2(1-3-3)

716 715 Analysis of Residue in Foods of Animal Origin 2(1-3-3)

716 716 Toxicology of Food and Feed 2(2-0-4)

716 742 Regulation in Veterinary Public Health Jurisprudence 2(2-0-4)

716 761 Environmental and Livestock Waste Management 2(2-0-4)

716 762 Animal Health and Economics 2(2-0-4)

716 763 Laboratory Animals Used in Bio-medical Research 3(3-0-6)

Department of Medicine

717 720 Advanced Veterinary Clinical Medicine 3(3-0-6)

717 721 Advanced Veterinary Medicine 3(3-0-6)

717 723 Swine Diseases and Farm Management 3(2-3-5)

717 724 Advanced Small Animal Medicine 3(2-3-5)

717 725 Advanced Equine Medicine 3(2-3-5)

717 726 Advanced Ruminant Medicine 3(2-3-5)

717 727 Aquatic Medicine and Farm Management 3(2-3-5)

717 728 Equine Stud Farm Health Management 3(2-3-5)

717 729 Equine Sports Medicine and Exercise Physiology 3(2-3-5)

717 890 Literature Analysis in Veterinary Science 1(1-0-2)

17.3.2.2 Dissertation 36 credit

710 998 Dissertation 36 credit

17.3.3 Type 2.1 program

17.3.3.1 Compulsory course 24 credit

17.3.3.1.1 Compulsory subjects 9 credit

710 701 Statistics for Veterinary Research 3(2-3-5)

710 721 Experimental Design in Veterinary Medicine 2(2-0-4)

710 991 Seminar in Interdisciplinary Veterinary Articles I 1(1-0-2)

710 992 Seminar in Interdisciplinary Veterinary Articles II 1(1-0-2)

710 993 Seminar in Interdisciplinary Veterinary Articles III 1(1-0-2)

710 896 Writing and Presenting Scientific Papers 1(1-0-2)

17.3.3.1.2 Elective courses (not less than) 15 credits

Department of Anatomy

711 711 Veterinary Orthopedic Anatomy 3(2-3-5)

Department of Physiology

712 721 Animal Physiology 3(3-0-6)

Department of Pharmacology and Toxicology

713 721 Advanced Veterinary Pharmacology 2(2-0-4)

713 722 Advanced Veterinary Toxicology 2(2-0-4)

Department of Pathobiology

714 711	Advanced Veterinary Clinical Pathology	3(2-3-5)
714 721	Cellular Pathology Techniques in Veterinary Science	2(2-0-0)
714 722	Principles of Pathogenesis in Veterinary Science	2(2-0-4)
714 731	Laboratory Techniques in Veterinary Parasitology	2(1-3-3)
714 732	Advanced Veterinary Parasitology	2(2-0-4)
714 741	Diagnostic Technique in Veterinary Microbiology	3(1-6-4)

Department of Surgery and Theriogenology

715 700	Advanced Endocrinology of Animal Reproduction	3(3-0-6)
715 700	Advanced Endocrinology of Animal Reproduction	3(3-0-6)
715 730	Advanced Reproduction in Cattle and Buffalo	3(3-0-6)
715 731	Advanced Reproduction in Swine	3(3-0-6)
715 732	Advanced Reproduction in Goat and Sheep	2(2-0-4)
715 733	Advanced Reproduction in Horse	3(3-0-6)
715 734	Advanced Reproduction in Companion Animals	3(3-0-6)
715 734	Advanced Reproduction in Companion Animals	3(3-0-6)
715 740	Advanced Techniques in Theriogenology	2(1-3- 3)
715 741	Biotechnology in Animal Reproduction	3(3-0-6)
715 750	Dairy Cattle Herd Health Management	3(3-0-6)
715 751	Swine Herd Health Management	3(3-0-6)
715 752	Reproductive Diseases in Farm Animals	3(3-0-6)

Department of Public Health

716 711	Tropical Zoonotic Disease	3(3-0-6)
716 712	Advanced Veterinary Epidemiology	3(3-0-6)
716 713	Risk Analysis for Veterinary Public Health	3(2-3-5)
716 714	Microbial Control in the Meat Industry	2(1-3-3)
716 715	Analysis of Residue in Foods of Animal Origin	2(1-3-3)
716 716	Toxicology of Food and Feed	2(2-0-4)
716 742	Regulation in Veterinary Public Health Jurisprudence	2(2-0-4)
716 761	Environmental and Livestock Waste Management	2(2-0-4)
716 762	Animal Health and Economics	2(2-0-4)
716 763	Laboratory Animals Used in Bio-medical Research	3(3-0-6)

Department of Medicine

717 720	Advanced Veterinary Clinical Medicine	3(3-0-6)
717 721	Advanced Veterinary Medicine	3(3-0-6)
717 723	Swine Diseases and Farm Management	3(2-3-5)
717 724	Advanced Small Animal Medicine	3(2-3-5)
717 725	Advanced Equine Medicine	3(2-3-5)
717 726	Advanced Ruminant Medicine	3(2-3-5)
717 727	Aquatic Medicine and Farm Management	3(2-3-5)
717 728	Equine Stud Farm Health Management	3(2-3-5)
717 729	Equine Sports Medicine and Exercise Physiology	3(2-3-5)
717 890	Literature Analysis in Veterinary Science	1(1-0-2)

17.3.3.2 Dissertation 48 credit

710 999	Dissertation	48	credit

17.4 Descriptions of Course Codes

710 xxx	Central
711 xxx	Department of Anatomy
712 xxx	Department of Physiology
713 xxx	Department of Pharmacology and Toxicology
714 xxx	Department of Pathobiology
715 xxx	Department of Surgery and Therioginology
716 xxx	Department of Public Health
717 xxx	Department of Medicine
The fourth digit	7 to 9 are for the graduate level
The fifth digit	The field of study
The sixth digit	The order of the course in each field of study

17.5 Class Schedules

Year 1 Semester 1

Code	Subject	Type 1.2 credit	Type 2.2 credit	Type 2.1 credit
710 701	Statistics for Veterinary Research	-	-	3
710 991	Seminar in Interdisciplinary Veterinary Articles I	1 (audit)	1	1
xxx xxx	Elective	-	8	6
710 997	Dissertation	9	-	-
Number of credits this semester		**9**	**9**	**10**
Cumulative number of credits		**9**	**5**	**10**

Year 1 Semester 2

Code	Subject	Type 1.2 credit	Type 2.2 credit	Type 2.1 credit
710 721	Experimental design in Veterinary Medicine	-	-	2
710 992	Seminar in Interdisciplinary Veterinary Articles II	1 (audit)	1	1
710 896	Writing and Presenting Scientific Papers	-	1	1
71x xxx	Elective	-	4	9
710 997	Dissertation	9	-	-
710 998	Dissertation	-	7	-
Number of credits this semester		**9**	**9**	**13**
Cumulative number of credits		**18**	**18**	**25**

Year 2 Semester 1

Code	Subject	Type 1.2 credit	Type 2.2 credit	Type 2.1 credit
710 993	Seminar in Interdisciplinary Veterinary Articles III	1 (audit)	1	1
710 997	Dissertation	8	-	-
710 998	Dissertation	-	8	-
710 999	Dissertation	-	-	8
Number of credits this semester		**9**	**9**	**9**
Cumulative number of credits		**27**	**27**	**32**

Year 2 Semester 2

Code	Subject	Type 1.2 credit	Type 2.2 credit	Type 2.1 credit
710 997	Dissertation	9	-	-
710 998	Dissertation	-	9	-
710 999	Dissertation	-	-	9
Number of credits this semester		**9**	**9**	**9**
Cumulative number of credits		**36**	**36**	**41**

Year 3 Semester 1

Code	Subject	Type 1.2 credit	Type 2.2 credit	Type 2.1 credit
710 997	Dissertation	9	-	-
710 998	Dissertation	-	9	-
710 999	Dissertation	-	-	9
Number of credits this semester		**9**	**9**	**9**
Cumulative number of credits		**45**	**45**	**50**

Year 3 Semester 2

Code	Subject	Type 1.1 credit	Type 2.1 credit	Type 2.2 credit
710 997	Dissertation	3	-	-
710 998	Dissertation	-	3	-
710 999	Dissertation			9
Number of credits this semester		**3**	**3**	**9**
Cumulative number of credits		**48**	**48**	**59**

Year 4 Semester 1

Code	Subject	Type 1.1 credit	Type 2.1 credit	Type 2.2 credit
710 997	Dissertation	-	-	-
710 998	Dissertation	-	-	-
710 999	Dissertation	-	-	10
Number of credits this semester		**-**	**-**	**10**
Cumulative number of credits		**-**	**-**	**69**

Year 4 Semester 2

Code	Subject	Type 1.1 credit	Type 2.1 credit	Type 2.2 credit
710 997	Dissertation	-	-	-
710 998	Dissertation	-	-	-
710 999	Dissertation	-	-	3
Number of credits this semester		**-**	**-**	**3**
Cumulative number of credits		**-**	**-**	**72**

17.6 Course Description

710 701 Statistics for Veterinary Research 3(2-3-5)

Prerequisite : none

Statistical description of data in preliminary data, examination for further analysis, statistical analysis for continuous variables in veterinary medicine, linear correlation analysis, statistical analysis for discrete variables, non-parametric test, non-independence among observations, probability of survival analysis, demonstration of statistical programs used in veterinary medicine.

710 721 Experimental Design in Veterinary Medicine 2(2-0-4)

Prerequisite : none

Definition of experiments, experimental units, sampling, completely randomized design in veterinary research, factorial design, analysis of covariance in veterinary research, randomized complete block design, Latin square design, split plot design, cross-over design for treatment evaluation, matched pair design for controlling confounding factors, and repeated measurement design in veterinary research.

710 896 Writing and presenting scientific papers 1(1-0-2)

Prerequisite : none

Writing and presenting scientific papers provide how to compose an introduction; methods; results; discussion; citation and computer aid's programs; preparation of table, graphic and diagram; acknowledgement; title and use of abbreviation). Furthermore, the course also provide an guidance for thesis writing, oral and poster presentation, ethic, right and permission of publication.

710 991 Seminar in Interdisciplinary Veterinary Articles I 1(1-0-2)

Prerequisite : none

Information gathering and synthesis of scientific report, literature review or research in veterinary medicine, academic writing, producing and usage of various medias and presentation.

710 992 **Seminar** in **Interdisciplinary Veterinary Articles II** **1(1-0-2)**

Prerequisite : none

Class presentation of knowledge synthesized from scientific report, literature review or research related to veterinary knowledge leading to the dissertation work

710 993 **Seminar in Interdisciplinary Veterinary Articles III** **1(1-0-2)**

Prerequisite : none

Class presentation of knowledge synthesized from scientific report, literature review or research related to veterinary knowledge leading to the dissertation work, presentation of progress dissertation.

710 997 **Dissertation** **48 Credits**

Prerequisite : Must be permitted by Head of Program's Coordinators

Defining research problems, designing and developing a research proposal, conducting research, and writing a research report.

710 998 **Dissertation** **36 Credits**

Prerequisite : Must be permitted by Head of Program's Coordinators

Defining research problems, designing and developing a research proposal, conducting research, and writing a research report.

710 999 **Dissertation** **48 Credits**

Prerequisite : Must be permitted by Head of Program's Coordinators

Defining research problems, designing and developing a research proposal, conducting research, and writing a research report.

711 711 **Veterinary Orthopedic Anatomy** **3(2-3-5)**

Prerequisite : none

Basic and applied principles of the anatomy of the musculoskeletal system in the dog and large animals. comparative anatomy of axial, forelimb and hindlimb skeletons, and hoofs. comparative anatomy of trunk, forelimb, and hindlimb muscles. comparative anatomy of forelimb and hindlimb joints. radiographic anatomy of musculoskeletal system. functional anatomy of locomotion. mechanical consequences of growth, aging, and orthopedic-related diseases.

712 721 Animal Physiology 3(3-0-6)

Prerequisite : none

Basic concept in animal physiology (e.g. structural-function relationship, homeostasis, feedback control), molecule, energy, biosynthesis, membrane, channels and transport, and experimental methods for exploring physiology.

713 721 Advanced Veterinary Pharmacology 2(2-0-4)

Prerequisite : none

Pharmacokinetics and pharmacodynamics, integration and application of pharmacological data, pharmacogenetics, comparative pharmacology

713 722 Advanced Veterinary Toxicology 2(2-0-4)

Prerequisite : none

Molecular mechanisms of toxicity, neurological toxicity mechanism, respiratory toxicity mechanism, cardiovascular toxicity mechanism, hematological toxicity mechanism, immunological toxicity mechanism, endocrine toxicity mechanism, hepatic toxicity mechanism, renal toxicity mechanism, integumentary toxicity mechanism, cancer toxicity mechanism, teratogenic toxicity mechanism, risk assessment in toxicology

714 711 Advanced Veterinary Clinical Pathology 3(2-3-5)

Prerequisite : none

Modern clinical pathological technique diagnosis, laboratory interpretation for diagnosis, prognosis and treatment; Applied concepts in examination and sample collection

714 721 Cellular Pathology Techniques in Veterinary Science 2(2-0-4)

Prerequisite : none

Introduction to veterinary pathology techniques, histological techniques, microscopy and its applications, histochemistry techniques and special stainings, immunohistochemistry and immunocytochemistry, microdissection, tissue array and its applications, other techniques.

714 722 Principles of Pathogenesis in Veterinary Science 2(2-0-4)

Prerequisite : none

The nature and causes of diseases, routes of infection and disease transmission, host immune response, mechanism of cell and tissue damages I, mechanism of cell and tissue damages II, diseasas caused by viruses, diseasas caused

by bacteria, diseasas caused by fungi, diseasas caused by protozoa, diseasas caused by parasitic helminthes and arthropods, diseasas caused by chemicals, physical, toxic substances and radiation causes, inherited diseases and nutritional deficiencies, neoplasia.

714 731 Laboratory Techniques in Veterinary Parasitology 2(1-3-3)

Prerequisite : none

Practice in fecal and blood examination, preservation, staining, permanent slide for protozoa, ectoparasite and helminthes; special techniques in antigen preparation, protein analysis and DNA analysis.

714 732 Advanced Veterinary Parasitology 2(2-0-4)

Prerequisite : none

Cellular and molecular changes, biochemical changes, immunology, pathogenesis and mechanism of anti-parasitic drugs.

714 741 Diagnostic Technique in Veterinary Microbiology 3(1-6-4)

Prerequisite : none

Sampling and sample management methods, direct identification of pathogen in sample,isolation and identification of microbes, antigen identification, antibody identification and identification nucleic acid of the pathogen

715 700 Advanced Endocrinology of Animal Reproduction 3 (3-0-6)

Prerequisite : none

Anatomy of endocrine glands in reproductive system, hormones and growth factors involved in reproductive system, applications of hormones for diagnostic and therapeutic of female reproductive disorders, applications of hormones for diagnostic and therapeutic of male reproductive disorders, applications of hormones to improve production and reproductive efficiency

715 730 Advanced Reproduction in Cattle and Buffalo 3(3-0-6)

Prerequisite : none

Reproductive endocrinology of cattle and buffalo, puberty cattle and buffalo, fertilization and pregnancy of cattle and buffalo, parturition and postpartum of cattle and buffalo, neonatal loss, infertility in male and female of cattle and buffalo.

715 731 Advanced Reproduction in Swine 3(3-0-6)

Prerequisite : none

Reproductive cycle of swine, estrus behavior in sows, estrus detection, infertility problems in boars, infertility problems in sows, fetus loss during gestation and laboring, swine reproductive efficiency improvement

715 732 Advanced Reproduction in Goat and Sheep 2(2-0-4)

Prerequisite : none

Reproductive cycle of goat and sheep, estrus behavior in ewes and mares, estrus detection, infertility problems in rams, infertility problems in ewes and mares, fetus loss during gestation and laboring, caprine reproductive efficiency improvement

715 733 Advanced Reproduction in Horse 3(3-0-6)

Prerequisite : none

Reproductive cycle of horse, infertility problems in stallion, infertility problems in mares, fetus loss during gestation and laboring, equine reproductive efficiency improvement

715 734 Advanced Reproduction in Companion Animals 3(3-0-6)

Prerequisite : none

Reproductive cycle of companion animals, infertility problems in male companion animals, infertility problems in female companion animals, fetus loss during gestation and laboring, companion animal reproductive efficiency improvement

715 740 Advanced Techniques in Theriogenology 2(1-3- 3)

Prerequisite : none

Examination and diagnosis for male reproductive organs, examination and diagnosis for female reproductive organs, evaluation and storage of semen, embryo collection and transfer, oocyte collection, hormone detection, molecular techniques in theriogenology

715 741 Biotechnology in Animal Reproduction 3(3-0-6)

Prerequisite : none

Manipulation of animal reproductive processes, embryo technology, oocyte and semen technology, nuclear transfer and transgenic animal technology

715 750 Dairy Cattle Herd Health Management 3(3-0-6)

Prerequisite : none

Selection of male stock breeders, management of male stock breeders, selection and management of heifers and cows, management of pregnant animals, data

collection and analysis by computers to increase reproductive performance and production.

715 751 Swine Herd Health Management 3(3-0-6)

Prerequisite : none

Selection of male stock breeders, management of male stock breeders, selection and management of nonparous pigs and cows, management of pregnant animals, data collection and analysis by computers to increase reproductive performance and production

715 752 Reproductive Diseases in Farm Animals 3(3-0-6)

Prerequisite : none

Reproductive diseases caused by virus, reproductive diseases caused by bacteria, reproductive diseases caused by protozoa, reproductive diseases caused by fungi and toxin, reproductive diseases caused by nutrient substances

716 711 Tropical Zoonotic Disease 3(3-0-6)

Prerequisite : none

Introduction, definition and factors affecting disease occurrence, bacterial tropical zoonoses, rickettsial and protozoa tropical zoonoses, mycotic tropical zoonoses, viral tropical zoonoses, parasitic tropical zoonoses, principles of prevention and control of diseases, new emerging zoonoses.

716 712 Advanced Veterinary Epidemiology 3(3-0-6)

Prerequisite : 710 701

Epidemiological framework, assessment of frequency and risk of diseases, causal association, designing epidemiologic research study design, bias and validity, sample selection, sample size calculation, Data management, Summary of descriptive data. data analysis and interpretation, evaluation of study results, epidemiological database, ethics in human and animal research, presentation of research results, Trend in epidemiologic methods

716 713 Risk Analysis for Veterinary Public Health 3(2-3-5)

Prerequisite : none

Introduction, definition and frame of risk, elements of risk analysis, introduction of student project, proportion of hazard, risk and exposure, elements of risk, quantitative risk analysis, HACCP, data distributions, risk software, patterns of

risk analysis, limitation, design, determination of risk analysis model for students project, presentation

716 714 Microbial Control in the Meat Industry 2(1-3-3)

Prerequisite : none

Introduction, production of foods from animals, sample collection, reduction of meat contamination, meat spoilage and its control, meat hygiene in the production line, bacterial pathogens in raw meat, predictive micro biology, quality and safety assurance system

716 715 Analysis of Residue in Foods of Animal Origin 2(1-3-3)

Prerequisite : none

Sample preparation, analysis of residue in organic samples, milk composition analysis using Milko scan machine, biological analysis for raw milk, chemical composition analysis for raw milk, metal detection in organic samples, determination of chemicals by using HPLC, determination of chemicals by using GL, analysis of afkatoxin M1 in raw milk, analysis of afkatoxin B1 in raw milk, analysis of afkatoxin B1 in feeds, analysis of biochemical oxygen demand (BOD)

716 716 Toxicology of Food and Feed 2(2-0-4)

Prerequisite : none

General toxicological application to food and feed toxicants, the role of gastrointestinal tract to toxin, naturally occurring toxic substances affecting nutrients in foods and feeds, mycotoxin contamination in food and feed, bacterial contaminant, toxic plants, and miscellaneous toxic substances found in foods

716 742 Regulation in Veterinary Public Health Jurisprudence 2(2-0-4)

Prerequisite : none

Roles of laws in Veterinary Public Health, laws relating control and prevention of animal disease and animal toxin, laws relating control and prevention of diseases from meats, animal slaughtering and meat marketing regulations, animal feeds regulations, international food standard regulations, association of drug use in animals and human health, environment regulations involving animals and human hazards.

716 761 Environmental and Livestock Waste Management 2(2-0-4)

Prerequisite : none

Introduction, importance of environment, basic environmental science, association between livestock and environment, environmental problems from

slaughterhouse and animal product processing plants, use of laboratory animals in testing and research, prevention and control of pollution, economic optimization for environmental management

716 762 Animal Health and Economics 2(2-0-4)

Prerequisite : none

Economic framework of livestock disease, mathematical modelling in animal health economics, quantifying financial losses at the farm level, optimizing animal health and production control decisions, and determining the costs and benefits of preventive programs

716 763 Laboratory Animals Used in Bio-medical Research 3 (3-0-6)

Prerequisite : none

General introduction, quality and standard of laboratory animals, management of laboratory animal housing, tools and equipments, biology, management and techniques specific for each type of animals, patterns of animal use in testing and research, practice process in each type of animals

717 720 Advanced Veterinary Clinical Medicine 3(3-0-6)

Prerequisite : none

Diagnosis and therapeutic in clinics using problem-oriented approach (POA) for important problems in animals, clinical practice for clinical problems, special tools for diagnosis, modern diagnostic techniques for common infectious diseases, clinical pathology interpretation, clinical nutrition therapy, patterns of clinical treatment, decision making in diagnosis and treatment, clinical research topic discussion

717 721 Advanced Veterinary Medicine 3(3-0-6)

Prerequisite : D.V.M. or Must be pernited by Administrative Commitree

Pathophysiology of symptoms or veterinary medical problems, pathophysiology of clinicly important infectious diseases, laboratory interpretation, clinical pathology of symptoms or important problems in veterinary medicine, diagnosis and decision making for symptoms or important problems in veterinary medicine

717 723 Swine Diseases and Farm Management 3(2-3-5)

Prerequisite : D.V.M. or Permission by Administrative Committee

Diagnosis, treatment and prevention of swine diseases, biosecurity farm management, pig flow, health maintenance in swine, disease prevention program, farm staff training**.**

717 724 Advanced Small Animal Medicine 3(2-3-5)

Prerequisite : D.V.M. or Permission by Administrative Committee

Study and discussion in new issues in pathophysiology of disease or clinical problems in dogs and cats, clinical pathophysiology interpretation, advanced techniques for companion animal examination, decision for treatment, case study of animals from the teaching hospital.

717 725 Advanced Equine Medicine 3(2-3-5)

Prerequisite : D.V.M. or Permission by Administrative Committee

Study and discussion in new issues in pathophysiology of disease or clinical problems in horses, clinical pathophysiology interpretation, advanced techniques for horses examination, decision for treatment, case study of animals from the teaching hospital

717 726 Advanced Ruminant Medicine 3(2-3-5)

Prerequisite : D.V.M. or Permission by Administrative Committee

Disesase mechanism, diagnosis, principles of disease treatment in ruminants, emergency management for respiratory tract, digestive tract, reproductive system, and toxin, aquatic therapy, clinical nutrition, congenital disorders and diseases genetically transmitted, preventive medicine**.**

717 727 Aquatic Medicine and Farm Management 3(2-3-5)

Prerequisite : D.V.M. or Permission by Administrative Committee

Advanced aquatic farm management, pathophysiology of aquatic diseases, principles of examination and diagnosis of aquatic animal diseases, principles of diseases prevention and control in aquatic medicine, data collection and application of computer to increase efficacy of farm management and production.

717 728 Equine Stud Farm Health Management 3(2-3-5)

Prerequisite : D.V.M. or Permission by Administrative Committee

Basic stud farm management, reproductive management for the mares and the stallions, breeding management, management of pregnant mares, management of laboring of horses, neonatal foals management, important diseases in stallions mares

and foals, preventive medicine in stud farms. data collection and application of computer to increase efficacy of stud farm management and production.

717 729 Equine Sports Medicine and Exercise Physiology 3(2-3-5)

Prerequisite : D.V.M. or Permission by Administrative Committee

Introduction to exercise physiology, nutrition and muscle metabolism, response of body function to exercise, racing horse training and sporting horses, evaluation of sporting horses, exercise-related diseases, research in equine exercise physiology

717 890 Literature Analysis in Veterinary Science 1(1-0-2)

Prerequisite : D.V.M. or Permission by Administrative Committee

Introduction to academic articles, literature analysis of research articles

17. 7 Area of research interests

Academic staffs in veterinary medicine field are interested and skillful in research topics including diseases and health management in companion and livestock animals. The topics are particularly focused in animal diseases found in tropical region and northeast of Thailand, animal diseases transmitted between Thailand and neighboring countries at the northeast boundary. The research of interests include following topics.

- Infectious diseases in cattle, buffalo, small ruminants, swine, poultry and aquatic animals
- Diseases of companion and livestock animals caused by external parasites, intestinal parasites, and blood parasites
- Safety of foods from animal origins
- Herbal medicine used for prevention of diseases and growth promoters in animals
- Epidemiology of animal diseases
- Reproductive efficiency enhancement and artificial insemination
- Infectious diseases in dogs, cats and exotic pets
- Non-infectious diseases in companion animals such as calculi, cardiac disorder, wound management
- Cancer in companion animals

18. Assurance of the Program

The program will be determined and controlled by 4 parts of administrated bodies.

18.1 Administration of program

18.1.1 There is the Program's Coordinators.

18.1.2 There is the Program Faculty Staff

18.1.3 There is the Program's Administration

18.2 Learning, Teching and Research Materials.

18.2.1 There are classroom and Equipments.

18.2.2 There are research laboratory room and Equipments.

18.3. Student's Support and Advise.

18.3.1 There are thesis advisory

18.3.1 There are research grant

18.4 Market and/or Social Works and/or employee 's Satisfaction on the Graduate.

18.4.1 Survey questionnaire on the satisfaction of the user

18.4.2 Survey the job matching will be used to determine

19. The program Development System

The program is evaluated annually for teaching and learning activity and every five years for the structure and performance against the goal.

Appendices