

Course syllabus**1. Subject code and Title**

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

2. Numbers of credits

3 credit (Lecture 2 hour/week, Laboratory 3 hour/week, Self study 5 hour/week) 3(2-3-5)

3. Responsible organization

Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards.

8. Lecturers

Assis. Prof. Kwankate Kanistanon and colleagues

Course outline

710 701 Statistics for Veterinary Research

3(2-3-5)

Topics (Lectures)	Hours
1. Statistical description of data in veterinary medicine	2
2. Preliminary data examination for further analysis	4
3. Statistical analysis for continuous variables in veterinary medicine	4
4. Linear correlation analysis for veterinary research	4
5. Statistical analysis for discrete variables in veterinary medicine	6
6. Non-parametric test in veterinary medicine	2
7. Non-independence among observations	2
8. Non-independence among observations	3
9. Demonstration of statistical programs used in veterinary medicine	3
Total	30

Topics (Laboratorys)	Hours
1. Use EpiInfo program	5
2. Use MS Excel program	15
3. Use SPSS or SAS program	25
Total	45

Course syllabus**1. Subject code and Title**

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

2. Numbers of credits

2 credit (Lecture 2 hour/week, Laboratory - hour/week, Self study 4 hour/week) 2(2-0-4)

3. Responsible organization

Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assis. Prof. Peerapol Suk-on and colleagues

Course outline

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

Topics (Lectures)	Hours
1. Introduction	2
- Definition of experiments	
- Experimental units	
- Sampling	
2. Completely randomized design in veterinary research	6
3. Factorial design	2
4. Analysis of covariance in veterinary research	2
5. Randomized complete block design	2
6. Latin square design	2
7. Split plot design	2
8. Cross-over design for treatment evaluation	2
9. Matched pair design for controlling confounding factors	4
10. Repeated measurement design in veterinary research	6
Total	30

Course syllabus**1. Subject code and Title**

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

2. Numbers of credits

1 credit (Lecture 1 hour/week, Laboratory - hour/week, Self study 2 hour/week) 1(1-0-2)

3. Responsible organization

Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management.

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Ms. Jaruwan Kampa and colleagues

Course Outline

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

Topics (Lecture)	Hours
1. Writing and presenting scientific papers provide how to compose	1
1.1 Introduction	1
1.2 Methods; results	1
1.3 ; Discussion	1
2. Computer aid's programs	2
3. Preparation of table; graphic and diagram	1
4. Acknowledgement; title	1
5. se of abbreviation	2
6. Furthermore, the course also provide an guidance for thesis writing	1
7. oral and poster presentation, ethic	2
8. Right and permission of publication	1
Total	15

Course syllabus**1. Subject code and Title**

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

2. Numbers of credits

1 credit (Lecture 1 hour/week, Laboratory 0 hour/week, Self study 2 hour/week) 1(1-0-2)

3. Responsible organization

Faculty of Veterinary Medicine

4. Course description

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

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards.

8. Lecturers

Dr. Arun Chunlun and Colleagues

Course outline

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

Topics (Lecture)	Hours
1. Information gathering	1
2. Synthesis of scientific report	3
3. Literature review or research in veterinary medicine	5
4. Academic writing	2
5. Producing and usage of various medias and	1
6. Presentation	3
Total	15

Course syllabus**1. Subject code and Title**

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

2. Numbers of credits

1 credit (Lecture 1 hour/week, Laboratory - hour/week, Self study 2 hour/week) 1(1-0-2)

3. Responsible organization

Faculty of Veterinary Medicine

4. Course description

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

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assis. Prof. Peerapol Suk-on and colleagues

Course outline

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

Topics (Lecture)	Hours
1. Class presentation of knowledge synthesized from scientific report	7
2. literature review or research related to veterinary knowledge leading to the dissertation work.	8
Total	15

Course syllabus**1. Subject code and Title**

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

2. Numbers of credits

1 credit (Lecture 1 hour/week, Laboratory - hour/week, Self study 2 hour/week) 1(1-0-2)

3. Responsible organization

Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assoc. Prof. Somboon Saengmaneedet and colleagues

(Course outline)

710 993 Seminar in Integrated Veterinary Articles III

1(1-0-2)

Topics (Lecture)	Hours
1. Class presentation of knowledge synthesized from scientific report	6
2. Literature review or research related to veterinary knowledge leading to the dissertation work	6
3. Presentation of progress dissertation	3
Total	15

Course syllabus**1. Subject code and Title**

710 997 Dissertation 48 Credits

2. Numbers of credits

48 Credits

3. Responsible organization

Faculty of Veterinary Medicine

4. Course description

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

5. Prerequisite

Must be permitted by chairman of the curriculum administration committee

6. Type of subject

Thesis for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Thesis/Dissertation supervisor

Course Outline

710 997

Dissertation

48 Credits

Topics	Hours
1. Defining research problems	360
2. Designing and developing a research proposal	450
3. Conducting research	900
4. Writing a research report	450
Total	2,160

Course syllabus**1. Subject code and Title**

710 998 Dissertation 36 Credits

2. Numbers of credits

36 Credits

3. Responsible organization

Faculty of Veterinary Medicine

4. Course description

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

5. Prerequisite

Must be permitted by chairman of the curriculum administration committee

6. Type of subject

Thesis for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Thesis/Dissertation supervisor

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Course Outline

710 998

Dissertation

36 Credits

Topics	Hours
1. Defining research problems	250
2. Designing and developing a research proposal	350
3. Conducting research	670
4. Writing a research report	350
Total	1,620

Course syllabus**1. Subject code and Title**

710 999 Dissertation 48 Credits

2. Numbers of credits

48 Credits

3. Responsible organization

Faculty of Veterinary Medicine

4. Course description

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

5. Prerequisite

Must be permitted by chairman of the curriculum administration committee

6. Type of subject

Thesis for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Thesis/Dissertation supervisor

טעם 05

Course Outline

710 999

Dissertation

48 Credits

Topics	Hours
1. Defining research problems	360
2. Designing and developing a research proposal	450
3. Conducting research	900
4. Writing a research report	450
Total	2,160

Course syllabus

1. Subject code and Title

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

2. Numbers of credits

3 credit (Lecture 2 hour/week, Laboratory 3 hour/week, Self study 52 hour/week) 3(2-3-5)

3. Responsible organization

Department of Anatomy, Faculty of Veterinary Medicine

4. Course description

Introduction to veterinary orthopedic anatomy, 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

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assis. Prof. Peerapol Suk-on and colleagues

Course outline

711 711 Veterinary Orthopedic Anatomy

3(2-3-5)

Topics	Hours	
	Lecture	Laboratory
1. Introduction to veterinary orthopedic anatomy	1	3
2. Comparative anatomy of axial, forelimb and hindlimb skeletons and hoofs	5	12
3. Comparative anatomy of trunk, forelimb, and hindlimb muscles	5	9
4. Comparative anatomy of forelimb and hindlimb joints	5	9
5. Radiographic anatomy of musculoskeletal system	3	6
6. Functional anatomy of locomotion	4	3
7. Mechanical consequences of growth, aging, and orthopedic-related diseases	5	3
Total	30	45

Course syllabus**1. Subject code and Title**

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

2. Numbers of credits

3 credit (Lecture 3 hour/week, Laboratory - hour/week, Self study 6 hour/week) 3(3-0-6)

3. Responsible organization

Department of Physiology, Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assis. Prof. Pisit Suwannachot and colleagues

(Course outline)

712 721 Animal Physiology

3(3-0-6)

Topics (Lecture)	Hours
1. Study of animal physiology	9
1.1 Justification	
1.2 Basic concepts of physiology: structural-functional relationship, adaptation, acclimatization, acclimation, homeostasis, feedback-control system, conformity and regulation	
2. Molecule, energy and metabolic energy synthesis	15
2.1 Biochemical molecules	
2.2 Water and properties of solutions	
2.3 Energetic of living cell	
2.4 Enzymes: general properties	
2.5 Regulation of metabolic reactions	
2.6 Metabolic production of ATP	
3. Cell membrane, membrane cavity, and transportation	9
3.1 Membrane structure and organization	
3.2 Crossing the membrane and osmotic properties	
3.3 Transportation	
4. Experimental design for study of animal physiology	12
Total	45

Course syllabus**1. Subject code and Title**

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

2. Numbers of credits

2 credit (Lecture 2 hour/week, Laboratory - hour/week, Self study 4 hour/week) 2(2-0-4)

3. Responsible organization

Department of Pharmacology and Toxicology, Faculty of Veterinary Medicine

4. Course description

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

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assis. Prof. Korawuth Punareewattana and colleagues

Course outline

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

Topics (Lecture)	Hours
1. Pharmacokinetics	10
1.1 Bioavailability	
1.2 Volume of distribution	
1.3 Clearance	
1.4 Half-life	
2 Pharmacodynamics	10
2.1 Dose-response relationship	
2.2 Drug actions	
2.3 Drug receptors	
2.4 Signal transduction	
3. Integration and application of pharmacological data	4
4. Pharmacogenetics	2
5. Comparative pharmacology	4
Total	30

Course syllabus**1. Subject code and Title**

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

2. Numbers of credits

2 credit (Lecture 2 hour/week, Laboratory - hour/week, Self study 42 hour/week) 2(2-0-4)

3. Responsible organization

Department of Pharmacology and Toxicology, Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management.

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assis. Prof. Korawuth Punareewattana and colleagues

Course outline

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

Topics (Lecture)	Hours
1. Molecular mechanisms of toxicity	4
2. Neurological toxicity mechanism	2
3. Respiratory toxicity mechanism	2
4. Cardiovascular toxicity mechanism	2
5. Hematological toxicity mechanism	2
6. Immunological toxicity mechanism	2
7. Endocrine toxicity mechanism	2
8. Hepatic toxicity mechanism	2
9. Renal toxicity mechanism	2
10. Integumentary toxicity mechanism	2
11. Cancer toxicity mechanism	4
12. Teratogenic toxicity mechanism	2
13. Risk assessment in toxicology	2
Total	30

Course syllabus

1. Subject code and Title

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

2. Numbers of credits

3 credit (Lecture 2 hour/week, Laboratory 3 hour/week, Self study 5 hour/week) 3(2-3-5)

3. Responsible organization

Department of Pathobiology, Faculty of Veterinary Medicine

4. Course description

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

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management.

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assoc. Prof. Sutthisak Nopwinyoowong and colleagues

Course outline

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

Topics	Hours	
	Lecture	Laboratory
1. Principles of modern clinical pathological technique diagnosis	4	6
2. laboratory interpretation for diagnosis		
2.1 Hematology	6	9
2.2 Liver and Kidney	6	9
2.3 Cells and bone marrow	4	6
2.4 Integumentary system	4	6
3. Applied concepts in examination and sample collection	6	9
Total	30	45

Course syllabus

1. Subject code and Title

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

2. Numbers of credits

2 credit (Lecture 2 hour/week, Laboratory - hour/week, Self study 42 hour/week) 2(2-0-4)

3. Responsible organization

Department of Pathobiology, Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assis. Prof. Sirikachorn Tangkawattana and colleagues

Course outline

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

Topics (Lectures)	Hours
1. Introduction to veterinary pathology techniques	4
1.1 Cellular and molecular levels	
1.2 Introduction to laboratory instruments and facilities	
2. Histological techniques	4
2.1 Types of fixatives	
2.2 Steps in tissue processing	
2.3 Histological staining	
3. Microscopy and its applications	4
4. Histochemistry techniques and special stainings	2
5. Immunohistochemistry and immunocytochemistry	4
5.1 Slide preparation	
5.2 Antigen retrieval	
5.3 IHC systems	
5.4 Counterstaining	
6. Microdissection	4
6.1 Slide preparation	
6.2 Staining	
6.3 Manual microdissection	
6.4 Laser captured microdissection	
7. Tissue array and its applications	4
7.1 Introduction to Microarray	
7.2 Tissue array	
7.3 Construction of tissue block	
7.4 Slide preparation	
7.5 Tissue array interpretation	
7.6 Software in tissue array analysis	
8. Other techniques	4
Total	30

Course syllabus

1. Subject code and Title

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

2. Numbers of credits

2 credit (Lecture - hour/week, Laboratory 4 hour/week, Self study 2 hour/week) 2(0-4-2)

3. Responsible organization

Department of Pathobiology, Faculty of Veterinary Medicine

4. Course description

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

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management.

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assis. Prof. Sirikachorn Tangkawattana and colleagues

Course outline

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

Topics (Lecture)	Hours
1. The nature and causes of diseases	2
2. Routes of infection and disease transmission	2
3. Host immune response	2
4. Mechanism of cell and tissue damages I	3
5. Mechanism of cell and tissue damages II	3
6. Diseases caused by viruses	2
7. Diseases caused by bacteria	2
8. Diseases caused by fungi	2
9. Diseases caused by protozoa	2
10. Diseases caused by parasitic helminthes and arthropods	2
11. Diseases caused by chemicals, physical, toxic substances and radiation causes	2
12. Inherited diseases and nutritional deficiencies	2
13. Neoplasia	2
Total	30

Course syllabus**1. Subject code and Title**

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

2. Numbers of credits

2 credit (Lecture 1 hour/week, Laboratory 3 hour/week, Self study 3 hour/week) 2(1-3-3)

3. Responsible organization

Department of Pathobiology, Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assoc. Prof. Somboon Saengmaneedet and colleagues

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(Course outline)

714 731 Laboratory Techniques in Veterinary Parasitology

2(1-3-3)

Topics	Hours	
	Lecture	Laboratory
1. Practice in fecal and blood examination	4	9
2. Preservation,	1	3
3. Staining,	1	3
4. Permanent slide for protozoa	1	3
5. Ectoparasite and helminthes	1	3
6. Special techniques in antigen preparation	1	3
7. Protein analysis and DNA analysis	6	21
	15	45

Course syllabus**1. Subject code and Title**

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

2. Numbers of credits

2 credit (Lecture 2 hour/week, Laboratory - hour/week, Self study 4 hour/week) 2(2-0-4)

Responsible organization

Department of Pathobiology, Faculty of Veterinary Medicine

3. Course description

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

4. Prerequisite

None

5. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

6. Effective date

From the first and the second semester of the academic year 2010 onwards

7. Lecturers

Assoc. Prof. Somboon Saengmaneedet and colleagues

Course outline

714 732 Advanced Veterinary Parasitology

2(2-0-4)

Topics (Lecture)	Hours
1. Cellular and molecular changes	6
2. Biochemical changes	6
3. Immunology	6
4. Pathogenesis and mechanism of anti-parasitic drugs	12
Total	30

Course syllabus**1. Subject code and Title**

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

2. Numbers of credits

3 credit (Lecture 1 hour/week, Laboratory 6 hour/week, Self study 4 hour/week) 3(1-6-4)

3. Responsible organization

Department of Pathobiology, Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Ms.Jaruwan Kampa and colleagues

Course outline

714 741 Diagnostic Technique in Veterinary Microbiology

3(1-6-4)

Topics	Hours	
	Lecture	Laboratory
1. Sampling and sample management methods	1	6
1.1 Sample collection from diseased animals and sampling		
1.2 Sample collection from carcass		
2. Antigen identification from submitted samples	1	6
3. Culture and identification	5	30
3.1 Bacteria		
3.2 Fungal		
3.3 Virus		
4. Antigen detection	3	21
4.1 ELISA		
4.2 Immunofluorescence, immunohistochemistry and immunoperoxidase		
4.3 Flow cytometry		
4.4 Agglutination and immunodiffusion		
5. Antibody detection	3	21
5.1 ELISA and Ig ELISA		
5.2 Serum neutralisation test		
5.3 HA-HI test		
5.4 Immunoblotting		
6. Genetics material detection	2	6
Total	15	90

Course syllabus

1. Subject code and Title

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

2. Numbers of credits

3 credit (Lecture 3 hour/week, Laboratory - hour/week, Self study 6 hour/week) 3(3-0-6)

3. Responsible organization

Department of Surgery and Theriogenology, Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assoc. Prof. Suneerat Aiumlamai and colleagues

Course outline

715 700 Advanced Endocrinology of Animal Reproduction

3 (3-0-6)

Topics (Lecture)	Hours
1. Anatomy of endocrine glands in reproductive system	5
1.1 Hypothalamus	
1.2 Pituitary gland	
1.3 Ovary and testes	
1.4 Other glands	
2. Hormones and reproductive stimulating factors	18
2.1 Type and effects	
2.2 Structure	
2.3 Molecular mechanism	
2.3 Regulation of hormone synthesis and secretion	
2.4 Metabolism	
3. Use of hormones for diseases diagnosis in female reproductive system	7
3.1 Ovary disorder	
3.2 Uterus disorder	
3.3 Heat absence	
3.4 Other disorders	
4. Use of hormones for diseases diagnosis in male reproductive system	3
4.1 Testis disorder	
4.2 Low libido	
4.3 Other disorders	
5. Use of hormones for production and reproduction enhancement	12
5.1 Growth control	
5.2 Milk production control	
5.3 Puberty induction	
5.4 Breeding program	
5.5 Heat induction on ovulation	
5.6 Parturient control	
5.7 Gestation diagnosis	
Total	45

Course syllabus

1. Subject code and Title

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

2. Numbers of credits

3 credit (Lecture 3 hour/week, Laboratory - hour/week, Self study 6 hour/week) 3(3-0-6)

3. Responsible organization

Department of Surgery and Theriogenology, Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assoc. Prof. Suneerat Aiumlamai and colleagues

Course outline

715 730 Advanced Reproduction in Cattle and Buffalo

3 (3-0-6)

Topics (Lecture)	Hours
1. Endocrinology in cattle and buffalo	6
2. Maturity of cattle and buffalo	8
- Influencing factors	
- Sperm production	
- Ovulation	
- Estrus and estrus detection	
3. Fertilization and gestation	4
- Loss of embryo and fetus	
4. Parturition and post-parturition condition	5
5. Infertility in female cattle and buffalo	12
- Stress effect	
- Nutrition effect	
- Reproductive disorders	
Ovary disorders	
Reproductive duct disorders	
- Parturition and post-parturition complication	
- Ovulation disorders	
6. Infertility in male cattle and buffalo	10
- Factors affecting sperm production	
- Diseases of reproductive system	
7.	
Total	45

Course syllabus

1. Subject code and Title

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

2. Numbers of credits

3 credit (Lecture 3 hour/week, Laboratory - hour/week, Self study 6 hour/week) 3(3-0-6)

3. Responsible organization

Department of Surgery and Theriogenology, Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management.

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assoc. Prof. Mongkol Prongcharoen and colleagues

Course outline

715 731 Advanced Reproduction in Swine

3 (3-0-6)

Topics (Lectures)	Hours
1. Reproductive cycle in pigs - Puberty Influencing factors Sperm and egg production - Endocrinology in male and female pigs - Fertilization and gestation - Parturition and post-parturition condition	6
2. Estrus behavior and estrus detection in pigs	8
3. Infertility in boars - Sperm quality - Diseases and disorders of male reproduction system	8
4. Infertility in sows - Estrus absence Stress factors Nutrition factors - Diseases and disorders of female reproduction system - Parturition and post-parturition complication - Ovulation disorders	10
5. Loss of embryo and fetus in pigs	8
6. Reproductive performance enhancement in pigs	5
Total	45

Course syllabus

1. Subject code and Title

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

2. Numbers of credits

2 credit (Lecture 2 hour/week, Laboratory - hour/week, Self study 4 hour/week) 2(2-0-4)

3. Responsible organization

Department of Surgery and Theriogenology, Faculty of Veterinary Medicine.

4. Course description

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.

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management.

7. Effective date.

From the first and the second semester of the academic year 2010 onwards.

8. Lecturers

Assoc. Prof. Mongkol Prongcharoen and colleagues

Course outline

715 732 Advanced Reproduction in Goat and Sheep

2 (2-0-4)

Topics (Lecture)	Hours
1. Reproductive cycle in goat and sheep - Puberty Influencing factors Sperm and egg production - Endocrinology in male and female goat and sheep - Fertilization and gestation - Parturition and post-parturition condition	4
2. Estrus behavior and estrus detection in goat and sheep	4
4. Infertility in male rams - Sperm quality - Diseases and disorders of male reproduction system	4
5. Infertility in dams - Estrus absence Stress factors Nutrition factors - Diseases and disorders of female reproduction system - Parturition and post-parturition complication - Ovulation disorders	8
5. Loss of embryo and fetus in goat and sheep	4
6. Reproductive performance enhancement in goat and sheep	6
Total	30

Course syllabus

1. Subject code and Title

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

2. Numbers of credits

3 credit (Lecture 3- hour/week, Laboratory - hour/week, Self study 6 hour/week) 3(3-0-6)

3. Responsible organization

Department of Surgery and Theriogenology, Faculty of Veterinary Medicine.

4. Course description

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

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assoc. Prof. Mongkol Prongcharoen and colleagues

Course outline

715 733 Advanced Reproduction in Horse

3 (3-0-6)

Topics (Lectures)	Hours
1. Reproductive cycle in horse	14
- Puberty	
Influencing factors	
Sperm and egg production	
- Endocrinology in male and female horses	
- Fertilization and gestation	
- Parturition and post-parturition condition	
2. Infertility in stallion	8
- Sperm quality	
- Diseases and disorders of male reproduction system	
3. Infertility in mares	10
- Estrus absence	
Stress factors	
Nutrition factors	
- Diseases and disorders of female reproduction system	
- Parturition and post-parturition complication	
- Ovulation disorders	
5. Loss of embryo and fetus in horse	8
6. Reproductive performance enhancement in horse	5
Total	45

Course syllabus**1. Subject code and Title**

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

2. Numbers of credits

3 credit (Lecture 3 hour/week, Laboratory - hour/week, Self study 6 hour/week) 3(3-0-6)

3. Responsible organization

Department of Surgery and Theriogenology, Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assis. Prof. Sarawut Sringam and colleagues

Course outline

715 734 Advanced Reproduction in Companion Animals

3 (3-0-6)

Topics (Lectures)	Hours
1. Reproductive cycle in companion animals	14
- Puberty	
Influencing factors	
Sperm and egg production	
- Endocrinology in male and female companion animals	
- Fertilization and gestation	
- Parturition and post-parturition condition	
2. Infertility in male companion animals	8
- Sperm quality	
- Diseases and disorders of male reproduction system	
3. Infertility in female companion animals	10
- Estrus absence	
Stress factors	
Nutrition factors	
- Diseases and disorders of female reproduction system	
- Parturition and post-parturition complication	
- Ovulation disorders	
4. Loss of embryo and fetus in companion animals	8
5. Reproductive performance enhancement in companion animals	5
Total	45

Course syllabus

1. Subject code and Title

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

2. Numbers of credits

2 credit (Lecture 1 hour/week, Laboratory 3 hour/week, Self study 3 hour/week) 2(1-3-3)

3. Responsible organization

Department of Surgery and Theriogenology, Faculty of Veterinary Medicine.

4. Course description

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.

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Mr.Saksiri Siristien and colleagues

Course outline

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

Topics	Hours	
	Lecture	Laboratory
1. Diagnostic techniques for male reproductive organs	2	6
1.1 Rectal palpation		
1.2 Ultrasonic diagnosis		
2. Diagnostic techniques for female reproductive organs	3	9
2.1 Rectal palpation		
2.2 Ultrasonic diagnosis		
2.3 Laparoscope diagnosis		
2.4 Endoscope diagnosis		
3. Evaluation and storage of semen	3	9
4. Embryo collection and transfer	1	3
5. Oocyte collection	1	3
6. Hormone detection and measurement	1	3
7. Molecular techniques in theriogenology	4	12
7.1 DNA detection		
7.2 RNA detection		
7.3 Protein detection		
Total	15	45

Course syllabus**1. Subject code and Title**

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

2. Numbers of credits

3 credit (Lecture 3 hour/week, Laboratory - hour/week, Self study 6 hour/week) 3(3-0-6)

3. Responsible organization

Department of Surgery and Theriogenology, Faculty of Veterinary Medicine

4. Course description

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

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Mr.Saksiri Siristien and colleagues

Course outline

715 741 Biotechnology in Animal Reproduction

3 (3-0-6)

Topics (Lecture)	Hours
1. Manipulation of the animal reproductive processes	9
1.1 Estrus induction	
1.2 Estrus synchronization	
1.3 Superovulation	
2. Embryo technology	15
2.1 Principles	
2.1.1 Embryo collection and assessment	
2.1.2 Embryo preservation	
2.1.3 Embryo transfer	
2.1.4 Gender identification	
2.2 Laboratory technology	
2.2.1 Egg incubation	
2.2.2 In vitro fertilization	
2.2.3 Embryo culture	
3. Reproductive cell technology	9
3.1 Sperm preservation	
3.2 Gender identification	
3.3 Egg preservation	
4. Nucleus transfer	6
5. Transgenic animal technology	6
Total	45

Course syllabus**1. Subject code and Title**

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

2. Numbers of credits

3 credit (Lecture 3 hour/week, Laboratory - hour/week, Self study 6 hour/week) 3(3-0-6)

3. Responsible organization

Department of Surgery and Theriogenology, Faculty of Veterinary Medicine.

4. Course description

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.

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management.

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assoc. Prof. Suneerat Aiumlamai and colleagues

Course outline

715 750 Dairy cattle herd health management

3(3-0-6)

Topics (Lecture)	Hours
1. Bull selection	6
1.1 Data consideration	
1.2 Conformation consideration	
2. Bull management	10
2.1 General management	
- housing	
- nutrition	
- Reproduction	
2.2 Reproduction management	
- Bull replacement	
- Bull training	
- Bull preparation	
- Bull and cow ration and frequency of breeding	
- Reproductive performance assessment	
- Breeding record	
3. Heifer and cow selection	12
3.1 Principles	
3.2 Heifer and cow management	
- Housing	
- Nutrition	
- Reproduction	
- Health care	
4. Pregnant cow management	8
4.1 Housing	
4.2 Nutrition	
5. Data collection and analysis for reproductive performance enhancement	9
Total	45

Course syllabus

1. Subject code and Title

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

2. Numbers of credits

3 credit (Lecture 3 hour/week, Laboratory - hour/week, Self study 6 hour/week) 3(3-0-6)

3. Responsible organization

Department of Surgery and Theriogenology, Faculty of Veterinary Medicine.

4. Course description

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.

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management.

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Mr.Saksiri Siristien and colleagues

Course outline

715 751 Swine Herd Health Management

3(3-0-6)

Topics (Lectures)	Hours
1. Boar selection	6
1.3 Data consideration	
1.4 Conformation consideration	
2. Boar management	10
2.3 General management	
- housing	
- nutrition	
- Reproduction	
2.4 Reproduction management	
- Boar replacement	
- Boar training	
- Boar preparation	
- Boar and sow ration and frequency of breeding	
- Reproductive performance assessment	
- Breeding record	
3. Sow selection	12
3.1 Principles	
3.2 Sow management	
- Housing	
- Nutrition	
- Reproduction	
- Health care	
4. Pregnant sow management	8
4.2 Housing	
4.2 Nutrition	
5. Data collection and application of computer to increase reproductive performance and production	9
Total	45

Course syllabus**1. Subject code and Title**

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

2. Numbers of credits

3 credit (Lecture 3 hour/week, Laboratory - hour/week, Self study 6 hour/week) 3(3-0-6)

3. Responsible organization

Department of Surgery and Theriogenology, Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assoc. Prof. Suneerat Aiumlamai and colleagues

Course outline

715 752 Reproductive Diseases in Farm Animals

3(3-0-6)

Topics (Lecture)	Hours
1. Diseases affecting reproductive performance in farm animals	15
1.1 Etiology	
1.2 Clinical symptoms and pathophysiological changes	
1.3 Diagnosis	
1.4 Treatment and prevention	
2. Bacterial diseases	12
2.1 Etiology	
2.2 Clinical symptoms and pathophysiological changes	
2.3 Diagnosis	
2.4 Treatment and prevention	
3. Protozoa diseases	6
3.1 Etiology	
3.2 Clinical symptoms and pathophysiological changes	
3.3 Diagnosis	
3.4 Treatment and prevention	
4. Fungal diseases and toxic agents	6
4.1 Etiology	
4.2 Clinical symptoms and pathophysiological changes	
4.3 Diagnosis	
4.4 Treatment and prevention	
5. Nutrition disorders	6
5.1 Etiology	
5.2 Clinical symptoms and pathophysiological changes	
5.3 Diagnosis	
5.4 Treatment and prevention	
Total	45

Course syllabus

1. Subject code and Title

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

2. Numbers of credits

3 credit (Lecture 3 hour/week, Laboratory - hour/week, Self study 6 hour/week) 3(3-0-6)

3. Responsible organization

Department of Veterinary Public Health, Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assoc. Prof. Komkrich Pimpukdee and colleagues

Course outline

716 711 Tropical Zoonotic Disease

3(3-0-6)

Topics (Lectures)	Hours
1. Introduction and definition	3
2. Tropical zoonoses: Bacterial diseases	10
3. Tropical zoonoses: Rickettsia and protozoa diseases	3
4. Tropical zoonoses: Fungal diseases	3
5. Tropical zoonoses: Viral diseases	7
6. Tropical zoonoses: Parasitic diseases	7
7. Zoonotic disease prevention	6
8. Emergence of zoonotic diseases	6
Total	45

Course syllabus**1. Subject code and Title**

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

2. Numbers of credits

3 credit (Lecture 3 hour/week, Laboratory - hour/week, Self study 6 hour/week) 3(3-0-6)

3. Responsible organization

Department of Veterinary Public Health, Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

710 701

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management.

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assis. Prof. Kwankate Kanistanon and colleagues

Course outline

716 712

Advanced Epidemiology

3(3-0-6)

Topics (Lectures)	Hours
1. Epidemiological framework - Assessment of frequency and risk of diseases - Causal association	6
2. Designing epidemiologic research - Study design - Bias and validity - Sample selection and sample size calculation	15
3. Data management - Summary of descriptive data - Data analysis and interpretation	9
4. Evaluation of study results	3
5. Epidemiological database	3
6. Ethics in human and animal research	3
7. Presentation of research results	3
8. Trend in epidemiologic methods	3
Total	45

Course syllabus**1. Subject code and Title**

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

2. Numbers of credits

3 credit (Lecture 2 hour/week, Laboratory 3 hour/week, Self study 5 hour/week) 3(2-3-5)

3. Responsible organization

Department of Veterinary Public Health, Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

710 701

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management.

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assis. Prof. Prapansak Chaveerach and colleagues

Course outline

716 713 Risk Analysis for Veterinary Public Health

3 (2-3-5)

Topics	Hours	
	Lectures	Laboratory
1. Introduction	3	-
Definition and framework		
Elements of risk assessment		
Student projects		
2. Elements of risk 1	3	-
Risk ratio		
. Risk and exposure		
3.. Elements of risk 2	3	9
Risk analysis		
HACCP		
4. Data distribution	3	-
5. Risk software	8	9
6. Limitation of risk analysis	5	-
7. Design and modeling for risk analysis	5	9
8. Presentation	3	18
Total	30	45

Course syllabus**1. Subject code and Title**

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

2. Numbers of credits

2 credit (Lecture 1 hour/week, Laboratory 3 hour/week, Self study 3 hour/week) 2(1-3-3)

3. Responsible organization

Department of Veterinary Public Health, Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assis. Prof. Prapansak Chaveerach and colleagues

Course outline

716 714 Microbial Control in the Meat Industry

2 (1-3-3)

Topics	Hours	
	Lecture	Laboratory
1. Introduction	1	-
2. production of foods from animals, sample collection	1	6
3. reduction of meat contamination	1	6
4. meat spoilage and its control	2	6
5. meat hygiene in the production line	2	6
6. , bacterial pathogens in raw meat	2	9
7. predictive micro biology	2	6
8. quality and safety assurance system	3	6
Total	15	45

Course syllabus

1. Subject code and Title

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

2. Numbers of credits

2 credit (Lecture 1 hour/week, Laboratory 3 hour/week, Self study 3 hour/week) 2(1-3-3)

3. Responsible organization

Department of Veterinary Public Health, Faculty of Veterinary Medicine

4. Course description

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 GC, analysis of aflatoxin M1 in raw milk, analysis of aflatoxin B1 in raw milk, analysis of aflatoxin B1 in feeds, analysis of biochemical oxygen demand (BOD).

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assis. Prof. Sunpetch Angkititrakul and colleagues

Course outline

716 715 Analysis of Residue in Foods of Animals

2(1-3-3)

Topics	Hours	
	Lecture	Laboratory
1. How to collect food samples	1	3
2. Residue Analysis in foods of animal origin	1	3
3. Milk composition and analysis using Milko scan machine	1	3
4. Microbiology analysis in raw milk	2	6
5. Chemical analysis in raw milk	1	3
6. Metal residue in organic materials	1	3
7. Chemical analysis using HPLC	2	6
8. Chemical analysis using GL	1	3
9. Aflatoxin M ₁ in milk	1	3
10. Aflatoxin B ₁ in milk	1	3
11. Aflatoxin B ₁ in animal feeds	1	3
12. Biochemical oxygen demand analysis	2	6
Total	15	45

Course syllabus**1. Subject code and Title**

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

2. Numbers of credits

2 credit (Lecture 2 hour/week, Laboratory - hour/week, Self study 4 hour/week) 2(2-0-4)

3. Responsible organization

Department of Veterinary Public Health, Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assoc. Prof. Komkrich Pimpukdee and colleagues

Course outline

716 716 Toxicology of Food and Feed

2 (2-0-4)

Topics (Lecture)	Hours
1. General toxicological application to food and feed toxicants	6
2. Toxicological role in gastrointestinal tract	2
3. Naturally occurring anti-nutritive substances	2
4. Mold and mycotoxin contamination in foods	6
5. Bacterial contaminant in foods and animal feeds	4
6. Toxic plants in foods	4
7. Miscellaneous toxic substances found in foods	6
Total	30

Course syllabus**1. Subject code and Title**

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

2. Numbers of credits

2 credit (Lecture 2 hour/week, Laboratory - hour/week, Self study 4 hour/week) 2(2-0-4)

3. Responsible organization

Department of Veterinary Public Health, Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management.

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assoc. Prof. Komkrich Pimpukdee and colleagues

Course outline

716 742 Regulation in Veterinary Public Health Jurisprudence

2 (2-0-4)

Topics (Lecture)	Hours
1. Regulations and Laws manipulate in Veterinary Public Health	2
2. Regulations and Laws involving diseases caused by animals	6
3. Regulations and Laws involving animal feeds and diseases caused by meat consumption	6
4. Regulations and Laws involving foods International regulations and international food standards	8
5. Regulations and Laws involving medication	4
6. Regulations and Laws involving environment and public hazard	4
Total	30

Course syllabus**1. Subject code and Title**

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

2. Numbers of credits

2 credit (Lecture 2 hour/week, Laboratory - hour/week, Self study 4 hour/week) 2(2-0-4)

3. Responsible organization

Department of Veterinary Public Health, Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assis. Prof. Prapansak Chaveerach and colleagues

Course outline

716 761 Environmental and Livestock Waste Management

2(2-0-4)

Topics (Lecture)	Hours
1. Introduction, importance of environment	2
2. Basic environmental science	2
3. Association between livestock and environment	6
4. Environmental problems from slaughterhouse and animal product processing plants	4
5. Use of laboratory animals in testing and research	4
6. Prevention and control of pollution	8
7. Economic optimization for environmental management	4
Total	30

Course syllabus**1. Subject code and Title**

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

2. Numbers of credits

2 credit (Lecture 2 hour/week, Laboratory - hour/week, Self study 4 hour/week) 2(2-0-4)

3. Responsible organization

Department of Veterinary Public Health, Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assis. Prof. Prapansak Chaveerach and colleagues

Course outline

716 762 Animal Health and Economics

2 (2-0-4)

Topics (Lecture)	Hours
1. Economic framework of livestock disease	8
2. Mathematical modelling in animal health economics	8
3. Quantifying financial losses at the farm level	6
4. Optimizing animal health and production control decisions	4
5. Determining the costs and benefits of preventive programs	4
Total	30

Course syllabus**1. Subject code and Title**

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

2. Numbers of credits

3 credit (Lecture 3 hour/week, Laboratory - hour/week, Self study 6 hour/week) 3(3-0-6)

3. Responsible organization

Department of Veterinary Public Health, Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assis. Prof. Narison Na-gnam and colleagues

Course outline

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

Topics (Lecture)	Hours
1. General introduction	3
2. Quality and standard of laboratory animals	3
3. Management of laboratory animal housing	9
4. Biology, management and techniques specific for each type of animals	12
5. Patterns of animal use in testing and research	6
6. Practice process in each type of animals	12
Total	45

Course syllabus

1. Subject code and Title

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

2. Numbers of credits

3 credit (Lecture 3 hour/week, Laboratory - hour/week, Self study 6 hour/week) 3(3-0-6)

3. Responsible organization

Department of Veterinary Medicine, Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

None

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assis. Prof. Fanan Suksawat and colleagues

Course outline

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

Topics (Lecture)	Hours
1. Problem-oriented approach (POA) for diagnosis	5
2. Special examinations, modern diagnostic techniques for common infectious diseases	5
2.1 Doppler ultrasonography	
2.2 Advanced imaging techniques (CT, MRI)	
2.3 Electrodiagnostic test	
3. Advanced technique for laboratory diagnosis	5
4. Pathological interpretation	5
5. Nutrition and therapy	5
6. Medical therapy and side effects	5
7. Surgical treatment and acupuncture	5
8. Chemotherapy, immunotherapy and physical therapy	5
9. Decision making for treatment	5
Total	45

Course syllabus

1. Subject code and Title

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

2. Numbers of credits

3 credit (Lecture 3 hour/week, Laboratory - hour/week, Self study 6 hour/week) 3(3-0-6)

3. Responsible organization

Department of Veterinary Medicine, Faculty of Veterinary Medicine

4. Course description

Pathophysiology of symptoms or veterinary medical problems, pathophysiology of clinically 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.

5. Prerequisite

D.V.M. or Must be permitted by Chairman of the Curriculum Administration Committee

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assis. Prof. Prawit Butudom and colleagues

Course outline

717 721 Advanced Veterinary Medicine

3(3-0-6)

Topics (Lecture)	Hours
1. Pathophysiology of symptoms or veterinary medical problems	15
2. pathophysiology of clinicly important infectious diseases	10
3. Laboratory interpretation, clinical pathology of symptoms or important problems in veterinary medicine,	10
4. Diagnosis and decision making for symptoms or important problems in veterinary medicine.	10
Total	45

Course syllabus

1. Subject code and Title

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

2. Numbers of credits

3 credit (Lecture 2 hour/week, Laboratory 3 hour/week, Self study 5 hour/week) 3(2-3-5)

3. Responsible organization

Department of Veterinary Medicine, Faculty of Veterinary Medicine

4. Course description

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

5. Prerequisite

D.V.M. or Must be permitted by Chairman of the Curriculum Administration Committee

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management.

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assis. Prof. Kochakorn Direksin and colleagues

(Course outline

717 723 Swine Diseases and Farm Management

3(2-3-5)

Topics	Hours	
	Lecture	Laboratory
1. Diagnosis, treatment and disease prevention in swine diseases	2	3
1.1 Bacterial diseases	2	3
1.2 Fungal diseases	2	3
1.3 Viral diseases	2	3
1.4 Water borne diseases	2	3
1.5 Food borne diseases	2	3
1.6 Diseases from management		
2. Biosecurity farm management	3	6
3. Pig Flow	3	6
4. Health maintenance in swine	3	6
5. Disease prevention program	5	6
6. Farm staff training	4	3
Total	30	45

Course syllabus**1. Subject code and Title**

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

2. Numbers of credits

3 credit (Lecture 2 hour/week, Laboratory 3 hour/week, Self study 5 hour/week) 3(2-3-5)

3. Responsible organization

Department of Veterinary Medicine, Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

D.V.M. or Must be permitted by Chairman of the Curriculum Administration Committee

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management.

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assis. Prof. Fanan Suksawat and colleagues

Course outline

717 724 Advanced Small Animal Medicine

3(2-3-5)

Topics	Hours	
	Lecture	Laboratory
1. Study and discussion in new issues in pathophysiology of disease or clinical problems in dogs and cats	10	-
1.1 Neurosystem		
1.2 Urinary system		
1.3 Respiratory tracts		
1.4 Endocrine systems		
1.5 Digestive tract		
1.6 Infectious diseases		
2. Clinical pathophysiology interpretation	3	10
3. Advanced techniques for companion animal examinations	3	10
4. Decision for treatment	4	10
5. Case study of animals from the teaching hospital.	10	15
Total	30	45

Course syllabus

1. Subject code and Title

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

2. Numbers of credits

3 credit (Lecture 2 hour/week, Laboratory 3 hour/week, Self study 5 hour/week) 3(2-3-5)

3. Responsible organization

Department of Veterinary Medicine, Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

D.V.M. or Must be permitted by Chairman of the Curriculum Administration Committee

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management.

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assis. Prof. Prawit Butudom and colleagues

Course outline

717 725 Advanced Equine Medicine

3(2-3-5)

Topics	Hours	
	Lecture	Laboratory
1. Study and discussion in new issues in pathophysiology of disease or clinical problems in horses	10	-
1.1 Neurosystem		
1.2 Urinary system		
1.3 Respiratory tracts		
1.4 Endocrine systems		
1.5 Digestive tract		
1.6 Nutrition disorders		
1.7 Diseases of muscle and structure		
1.8 Infectious diseases		
2. Clinical pathophysiology interpretation	3	10
3. Advanced techniques for horses examination	3	10
4. Decision for treatment	4	10
5. Case study of animals from the teaching hospital	10	15
Total	30	45

Course syllabus

1. Subject code and Title

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

2. Numbers of credits

3 credit (Lecture 2 hour/week, Laboratory 3 hour/week, Self study 5 hour/week) 3(2-3-5)

3. Responsible organization

Department of Veterinary Medicine, Faculty of Veterinary Medicine

4. Course description

Disease 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.

5. Prerequisite

D.V.M. or Must be permitted by Chairman of the Curriculum Administration Committee

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assis. Prof. Anantachai Chaiyotwittayakun and colleagues

Course outline

717 726 Advanced Ruminant Medicine

3 (2-3-5)

Topics	Hours	
	Lecture	Laboratory
1. Disease mechanism, diagnosis, principles of disease treatment in ruminants	6	8
2. Emergency management for respiratory tract, digestive tract, reproductive system, and toxin	6	8
3. Aquatic therapy	5	8
4. Clinical nutrition	4	8
5. Congenital disorders and diseases genetically transmitted	5	5
6. Preventive medicine	4	8
Total	30	45

Course syllabus

1. Subject code and Title

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

2. Numbers of credits

3 credit (Lecture 2 hour/week, Laboratory 3 hour/week, Self study 5 hour/week) 3(2-3-5)

3. Responsible organization

Department of Veterinary Medicine, Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

D.V.M. or Must be permitted by Chairman of the Curriculum Administration Committee

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management.

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assis. Prof. Kanit Chukanhom and colleagues

Course outline

717 727 Aquatic Medicine and Farm Management

3(2-3-5)

Topics	Hours	
	Lecture	Laboratory
1. Advanced aquatic farm management	6	10
1. Pathophysiology of aquatic diseases, principles of examination, and diagnosis of aquatic animal diseases	7	10
3. Aquatic animal diseases	10	10
3.1 Shrimps and prawns		
3.2 Fresh water fishery		
3.3 Salt water fishery		
3.4 Other diseases		
4. Principles of diseases prevention and control in aquatic medicine	2	10
5. Data collection and application of computer to increase efficacy of farm management and production.	5	5
Total	30	45

Course syllabus

1. Subject code and Title

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

2. Numbers of credits

3 credit (Lecture 2 hour/week, Laboratory 3 hour/week, Self study 5 hour/week) 3(2-3-5)

3. Responsible organization

Department of Veterinary Medicine, Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

D.V.M. or Must be permitted by the Chairman of the curriculum administration committee

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assis. Prof. Prawit Butudom and colleagues

Course outline

717 728 Equine Stud Farm Health Management

3(2-3-5)

Topics	Hours	
	Lecture	Laboratory
1. Basic stud farm management		
1.1 Barns and infrastructure	1	3
1.2 Equine nutrition	5	3
1.3 Basic equine health care	2	3
2. Stallion health management	2	3
3. Mare health management	2	5
4. Reproductive management for the mares and the stallions,	2	5
5. Gestation management	2	5
6. Parturition management	2	5
7. Neonatal foal management	2	5
8. Diseases and problems in stallions, mares and neonatal foals	3	-
9. Preventive medicine for stud farms	2	3
10. Data collection and application of computer to increase efficacy of farm management and production	5	5
Total	30	45

Course syllabus

1. Subject code and Title

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

2. Numbers of credits

3 credit (Lecture 2 hour/week, Laboratory 3 hour/week, Self study 5 hour/week) 3(2-3-5)

3. Responsible organization

Department of Veterinary Medicine, Faculty of Veterinary Medicine

4. Course description

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.

5. Prerequisite

D.V.M. or Must be permitted by Chairman of the Curriculum Administration Committee

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assis. Prof. Prawit Butudom and colleagues

Course outline

717 729 Equine Sports Medicine and Exercise Physiology

3(2-3-5)

Topics	Hours	
	Lecture	Laboratory
1. Introduction to exercise physiology	1	-
2. Nutrition and muscle physiology	5	5
3. Body response to exercise		10
3.1 Respiratory system		
3.2 Cardiac system	2	
3.3 Muscle and structure	2	
3.4 Circulovasculatory system	2	
3.5 Body temperature regulation	2	
3.6 Immunological system	2	
3.7 Endocrine system	1	
	1	
4. Management and training the equine athletes	2	5
5. Fitness evaluation	5	10
6. Pathophysiology of exercise-related diseases or problems	5	5
7. Research in equine exercise physiology	2	10
Total	30	45

Course syllabus**1. Subject code and Title**

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

2. Numbers of credits

1 credit (Lecture 1 hour/week, Laboratory - hour/week, Self study 2 hour/week) 1(1-0-2)

3. Responsible organization

Department of Veterinary Medicine, Faculty of Veterinary Medicine

4. Course description

Introduction to academic articles, literature analysis of research articles.

5. Prerequisite

D.V.M. or Must be permitted by Chairman of the Curriculum Administration Committee

6. Type of subject

A core course for the Graduate Veterinary Diploma Program in Livestock Diseases and Health Management.

7. Effective date

From the first and the second semester of the academic year 2010 onwards

8. Lecturers

Assis. Prof. Kochakorn Direksin and colleagues

Course outline

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

Topics	Hours
1. Literature analysis of articles	3
2. Research paper, report from current veterinary journal	12
Total	15