



COURSE SYLLABUS

Second Semester Academic Year 2017

1. Faculty of Veterinary Medicine, Department of Physiology

2. Course code: 01536341

Course name: Nutritional Balance and Animal Disease Development

Total credits: 3(2-3-6)

Section Day and Time: Thu 9.00-12.00 and Fri 8.00-10.00

Room: Lecture 3

3. Lecturers: 1. Dr.Attawit Kovitvadhi (A.K.)
2. Dr.M.L.Narudee Kashemsant (N.K.)

Special lecturers: 1. Assist.Prof.Dr.Chanin Tirawattanawanich (C.T.)

Assisting staffs: 1. Sommai Homsawad
2. Supaporn Boonyaprasit
3. Nuch Pungphosop
4. Narin Songhrung

4. Office hours for consultation with students

Day: Available upon appointment

Telephone: 089-202-2677 (AK), 081-428-4281 (NK)

E-mail address: 1. Dr.Attawit Kovitvadhi (A.K.): fvetawk@ku.ac.th
2. Dr.M.L.Narudee Kashemsant (N.K.): fvetnka@ku.ac.th

5. Course objectives

This course aims to deliver principle information and to make student understand the following these key points:

5.1 Types, nutritional values and toxic components or contaminants in feedstuff as well as methods used in feed analysis.

5.2 Nutritional roles in animal health, production and problems caused by nutritional imbalance.

5.3 Feed formulation and adjustment to fit the requirements of animal in particular physiological status

5.4 Agro-industrial processing technology for the better feed utilization to improve production performance in farm animals

5.5 Mechanisms in the development of diseases induced by nutritional imbalance; impact on production performance, diagnostic means and solving solutions to such health problems.

6. Course description

Sources, values and significances of nutrients and feed additives; basic feed formulation and nutritional optimization according to physiological status; Mechanisms in the development of diseases caused by nutritional imbalance; Impacts, analysis, diagnosis and solving solutions to the health problems.

7. Course outline

7.1 Overview of nutrition: Importance and current status

7.2 Nutrient metabolisms and chemical composition in feedstuffs

7.2.1 Chemical composition in feed

7.2.2 Dietary energy and body utilization

7.2.3 Metabolism of dietary nitrogen compound and requirement

7.2.4 Protein-energy relationship

7.2.5 Voluntary feed intake

7.3 Feedstuffs, nutrients and requirement

7.3.1 Basic in animal feeding and feed formulation

7.3.2 Feedstuffs: Classification, structural constituents and chemical components

7.3.3 Nutrient requirement and animal feeding standard

7.3.4 Analysis of feed and bioavailability

7.3.5 Toxicants in feedstuffs and their impact on animal health and performance

7.3.6 Vitamins: Classification, roles and abnormality related to various factors

7.3.7 Minerals: Classification, roles and abnormality related to various factors

7.3.8 Feed additives

7.4 Nutritional management and abnormality caused by defect and/or deficiency

7.4.1 Nutrition management and disease in poultry

7.4.2 Nutrition management and disease in swine

7.4.3 Nutrition management and disease in cattle

7.4.4 Nutrition management and disease in dogs and cats

7.5 Clinical nutrition in patient with major organ dysfunctions and metabolic disease

7.5.1 Clinical nutrition in hepatic failure

7.5.2 Clinical nutrition in chronic renal failure

7.5.3 Clinical nutrition in gastro-intestinal disorders

7.5.4 Clinical nutrition in diabetes

7.5.5 Clinical nutrition in obesity

7.5.6 Clinical nutrition in responsive dermatoses

7.5.7 Clinical nutrition in dental health

7.5.8 Clinical nutrition in cancer patients

8. Student-centered teaching methods

In-class lecture and discussion, grouped laboratory practice and reports

9. Teaching aids/Materials

Powerpoint presentation slides, Handouts, Video-audio materials and fundamental feed analysis laboratory facilities.

10. Measures of Achievement

10.1 Experiment and reports

10.1.1 Laboratory experiment and reports 10 %

10.1.2 Clinical nutrition discussion and reports 20 %

10.2 Examinations 70 %

10.2.1 Mid-term examination

Lecture:	A.K.	27 hours	30 %
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10.2.2 Final examination

Lecture:	N.K.	8 hours	9 %
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	C.T.	18 hours	20 %
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	A.K.	10 hours	11 %
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11. Grading

Grading will be performed based on T-scored.

12. Textbooks and References

- กมลทิพย์ ประสมเพชร 2554. คู่มือปฏิบัติการวิเคราะห์อาหารสัตว์. ภาควิชาสัตวบาล คณะเกษตร มหาวิทยาลัยเกษตรศาสตร์ 105 หน้า.
- ชนินทร์ ดิวัฒน์วานิช 2550. เอกสารประกอบการสอนโภชนสมมูลและการเกิดโรคในสัตว์. ภาควิชาสัตววิทยา คณะสัตวแพทยศาสตร์ มหาวิทยาลัยเกษตรศาสตร์.
- สุนทรานี ทองใหญ่ 2543. เอกสารคำสอนโภชนสมมูลและการเกิดโรคในสัตว์. ภาควิชาสัตววิทยา คณะสัตวแพทยศาสตร์ มหาวิทยาลัยเกษตรศาสตร์.
- พันทิพา พงษ์เพ็ญจันทร์ 2547. หลักการอาหารสัตว์: หลักโภชนาศาสตร์และการประยุกต์ เล่ม 2. โอ.เอส.พริ้นติ้ง เฮ้าส์ กรุงเทพมหานคร 611 หน้า.
- อรรถวิทย์ โกวิทวาทิ 2560. เอกสารประกอบการสอนโภชนสมมูลและการเกิดโรคในสัตว์. ภาควิชาสัตววิทยา คณะสัตวแพทยศาสตร์ มหาวิทยาลัยเกษตรศาสตร์.
- AOAC 2000. Official Method of Analysis, 17th edition. Association of Official Analytical Chemists, Arlington, VA, USA.
- Bedford MR and Partridge GG 2010. Enzymes in farm animal nutrition. 2nd edition. CABI publishing, Oxfordshire, Oxford, UK. 329 pages.
- Case LP, Hayek MG, Daristotle L and Raasch MF 2011. Canine and feline nutrition. 3rd edition. Mosby elsevier, Maryland Heights, Missouri, USA. 542 pages.
- D'Mello JPF 2003. Amino acid in animal nutrition. 2nd edition. CABI publishing, Cambridge, MA, USA. 526 pages.
- FAO, 2017. Composition of feedstuffs. Online access <http://www.feedipedia.org/> at 21/1/2017.
- Hand MS, Thatcher CD, Remillard RL, Roudebush P and Novotny BJ 2010. Small animal clinical nutrition. 5th edition. Mark Morris Institute, Topeka, Kansas, USA. 1314 pages.
- Leeson S and Summers JD 2015. Commercial poultry nutrition. 3rd edition. Nottingham University Press, Nottingham, UK.
- McDonald P 2010. Animal nutrition. 7th edition. Pearson, London, England. 692 pages.
- McDowell LR 2000. Vitamins in animal and human nutrition. 2nd edition. Iowa State University Press, Ames, Iowa, USA. 812 pages.
- NRC (National research council) 1984. Nutrient requirements of poultry. 9th edition. National Academics Press, Washington D.C., USA.
- Suttle NF 2010. Mineral nutrition of livestock. 4th edition. CABI, Oxfordshire, Oxford, UK. 587 pages.

13. Class schedule

Week	Date	Topic	Class activity	Lecturers
1	4 Jan 18	Course orientation, Overview of animal nutrition	Lecture/Discussion	A.K.
	5 Jan 18	Chemical components in feedstuff, Metabolism of nutrients	Lecture/Discussion	A.K.
2	11 Jan 18	Basic animal feeding, Analysis of feed and bioavailability	Lecture/Discussion	A.K.
	12 Jan 18	Raw materials: Grass, Forage, Silage, Ensilage and Silos	Lecture/Discussion	A.K.
3	18 Jan 18	Raw materials: Hay, Straw, Chaff, Roots, Tubers and related products	Lecture/Discussion	A.K.
	19 Jan 18	Raw materials: Cereal, Grain, Protein	Lecture/Discussion	A.K.
4	25 Jan 18	Vitamins: Classification, functional importance and related disorders (1 st)	Lecture/Discussion	A.K.
	26 Jan 18	Kaset fair	Student activity	-
5	1 Feb 18	Kaset fair	Student activity	-
	2 Feb 18	Kaset fair	Student activity	-
6	8 Feb 18	Vitamins: Classification, functional importance and related disorders (2 nd)	Lecture/Discussion	A.K.
	9 Feb 18	Minerals: Classification, functional importance and related disorders (1 st)	Lecture/Discussion	A.K.
7	15 Feb 18	Laboratory: Feedstuff inspection and quality control analysis	Laboratory	All staffs
	16 Feb 18	Minerals: Classification, functional importance and related disorders (2 nd)	Lecture/Discussion	A.K.
8	22 Feb 18	Laboratory: Proximate analysis and bioavailability	Laboratory	All staffs
	23 Feb 18	Feed additives and voluntary intake of food	Lecture/Discussion	A.K.
9-10	26-9 Mar 18	Midterm examination	Examination	-
11	15 Mar 18	Poultry nutrition: Metabolism, requirement and management (1 st)	Lecture/Discussion	C.T.& A.K.
	16 Mar 18	Poultry nutrition: Metabolism, requirement and management (2 nd)	Lecture/Discussion	C.T.& A.K.
12	22 Mar 18	Dog and cat feeding management and related disorders (1 st)	Lecture/Discussion	N.K.
	23 Mar 18	Dog and cat feeding management and related disorders (2 nd)	Lecture/Discussion	N.K.

Week	Date	Topic	Class activity	Lecturers
13	29 Mar 18	Swine nutrition: Metabolism, requirement and management	Lecture/Discussion	C.T.& A.K.
	30 Mar 18	Ruminant nutrition: Metabolism, requirement and management	Lecture/Discussion	C.T.& A.K.
14	5 Apr 18	Reading food label	Lecture/Discussion	N.K.
	6 Apr 18	Chakri memorial day	Holiday	-
15	12 Apr 18	Clinical nutrition in obesity	Lecture/Discussion	A.K.
	13-16 Apr 18	Songkran festival	Holiday	-
16	19 Apr 18	Clinical nutrition in renal disease	Lecture/Discussion	C.T.& A.K.
	20 Apr 18	Clinical nutrition in cancer patients	Lecture/Discussion	A.K.
17	26 Apr 18	Clinical nutrition in responsive dermatoses	Lecture/Discussion	A.K.
	27 Apr 18	Clinical nutrition in dental health diet and diabetes	Lecture/Discussion	A.K.
18	3 May 18	Clinical nutrition in hepatic disease	Lecture/Discussion	C.T.& A.K.
	4 May 18	Clinical nutrition in gastrointestinal disorders	Lecture/Discussion	C.T.& A.K.
19-20	7-18 May 18	Final examination	Examination	-

14. Other

Students are required to attend at least 80% of the classes.

Signature.......... (Course organizer)

(Dr.Attawit Kovitvadi)

Date.....25/12/2017.....

(Head of Dept. of Physiology)

Signature..........

(Assit.Prof.Dr.Santi Kaewmukul)

Date.....28/09/18.....