FEED SCIENCE AND ANIMAL NUTRITION

1	Course Title:	FEED SCIENCE AND ANIMAL NUTRITION
2	Course Code:	VET2020
3	Type of Course:	Compulsory
4	Level of Course:	First Cycle
5	Year of Study:	2
6	Semester:	4
7	ECTS Credits Allocated:	6.00
8	Theoretical (hour/week):	4.00
9	Practice (hour/week):	2.00
10	Laboratory (hour/week):	0
11	Prerequisites:	VET2020 Feed Science and Animal Nutrition
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. ŞULE BAYRAMİÇ
15	Course Lecturers:	Prof.Dr.İ.İ TÜRKMEN,Prof.Dr.Mustafa EREN, Prof.Dr.H.BİRİCİK, Prof.Dr. G.DENİZ, Prof.Dr. Ş.Ş. CENGİZ, Doç.Dr. H. GENÇOĞLU, Doç.Dr. Derya YEŞİLBAĞ, Doç.Dr. Çağdaş KARA
16	Contact information of the Course Coordinator:	scengiz@uludag.edu.tr , +902242941365, Uludağ Üniversitesi Veteriner Fakültesi Hayvan Besleme ve Beslenme Hastalıkları Anabilim Dalı, Görükle Kampüsü, Nilüfer-Bursa/Türkiye
17	Website:	http://veteriner.uludag.edu.tr/bolumler/ZooHayBes/haybes.html
18	Objective of the Course:	To teach; techniques of processing, preparation and using of forage and concentrate feed, basic principles of animal nutrition according to animal species and physiological periods. Give basic knowledges about common nutritional animal diseases.
19	Contribution of the Course to Professional Development:	Basic animal feeding skills are gained by using suitable (roughage and concentrated) feeds according to animal species. In addition, basic information about nutritional diseases is given.
20	Learning Outcomes:	

	1	Feedstuffs and feed evaluation systems, and importance in animal nutrition
	2	Basic principles and importance of cattle, sheep and goat nutrition
	3	Basic principles and importance of poultry nutrition
	4	Basic principles and importance of horse nutrition
	5	Basic principles and importance of cat and dog nutrition
	6	Basic principles and importance of nutrition in pig, rodents and some exotic species
	7	Use their professional capabilities to contribute to the advancement of veterinary knowledge and One Health concept, in order to improve animal health and welfare, the quality of animal care and veterinary public health.
	8	Demonstrate ability to cope with incomplete information, deal with contingencies, and adapt to change.

	9	Assess the physical condition, welfare and nutritional status of an animal or group of animals and advise the client on principles of husbandry and feeding.
	10	Advise on, and implement, preventive and eradication programmes appropriate to the species and in line with accepted animal health, welfare and public health standards. A knowledge of the businesses related to animal breeding, production and keeping.

21	Course Content:	
	Course Content:	
Week	Theoretical	Practice
1	Introduction to feed science, general information on nutrient components of feedstuffs, defining and classification of nutrients, digestibility according to species	Introduction to feedstuffs, forage, grass and concentrate feed
2	Feed evaluating systems, factors affecting digestibility, nutrient value of feeds, to energy calculation, evaluation of proteins	Evaluation of physical and chemical properties of feeds in laboratory
3	General properties of forages, wet forages (green grass, silage and pasture), dry forages (hay, straw), factors affecting pasture quality and management of pasture	Evaluation of physical and chemical properties of feeds in laboratory (cont.)
4	Concentrate feeds, energy feeds and general properties, grains, fats, protein feeds derived from vegetables and animals, general properties of protein feeds	Demonstration of techniques for feed digestibility systems
5	Basic information on calf and heifer nutrition and their nutrient requirements, calf nutrition (0 to 5 months age), heifer nutrition (6-12 months and from 12 months until giving birth)	Demonstration of techniques for feed digestibility systems (cont.)
6	Basic nutritional information on dry and lactation cows, their nutrient requirements, dry and lactation cow nutrition according to periods	Calf and heifer nutrition and feeding practice
7	Basic nutritional information in beef cattle, sheep and goat, their nutrient requirements, nutrition of lambs (breeding and fattening), sheep, goat and kids	Dry and lactating cow nutrition and feeding practice
8	Definition of feeds used in broilers, turkey and quail rations, the energy and nutrient requirements of broilers according to their physiological periods	Beef cattle nutrition and feeding practice
9	Nutrient requirement of laying hens, basic knowledge of laying hen nutrition in different physiological periods	Sheep and goat nutrition and feeding practice
10	Energy and nutrient requirements of turkey and quail, turkey and quail nutrition according to physiological periods	Broiler nutrition and feeding practice
11	Basic nutritional information in horses, nutrient requirements of horses, horse nutrition according to physiological periods	Laying hen and quail nutrition and feeding practice
12	Basic nutritional information in dogs and cats, nutrient requirements, commercial feeds for dogs and cats, dog and cat nutrition according to physiological periods	Horse nutrition and feeding practice
13	Basic nutritional information in pig, nutrient requirements of pigs, pigs nutrition according to physiologic periods	Dog and cat nutrition and feeding practice

14	Rodent and exotic animal nutrition and basic information according to animal species (hamster, mouse, rabbit etc), feeds used in pig rations	Pig nutrition and feeding practice

22	Textbooks, References and/or Other Materials:	1. Yem Değerlendirme ve Analiz Yöntemleri (Feed Evaluation and Analysis Methods), Karabulut, A.; Canbolat, Ö. Uludağ Üni. Basımevi müdürlüğü, Bursa, 2005. 2. Yemler Yem Hijyeni ve Teknolojisi (Feed and Feed Hygiene and Technology). Ergun et. al. Pozitif Matbaacılık.Ankara, 2004. 3. Çiftlik Hayvanlarının Beslenmesinde Temel Prensipler (Basic Principles in Farm Animal Nutrition). Ed. Yavuz H.M., Hilal Yayınevi, İstanbul, 2001. 4. Hayvan Besleme ve Beslenme Hastalıkları(Animal Nutrition and Nutritional Disesase). Ed. Ergun, A., and Tuncer, Ş.T. Pozitif Matbaacılık, Ankara, 2004. 5. Tables of Composition and Nutritional Value of Feed Materials. Ed. Sauvant, D., Perez, J.M., Tran, G. INRA Editions, Wageningen Academic Publishers, 2004. 6. Forage Evaluation in Ruminant Nutrition. Ed. Givens, D.I., Ovens, E., Axford, R.F.E., Omed, H.M. CABI Publishing, Wallingford, UK, 2002. 7. Animal Nutrition (Sixth Edition). McDonald, P., Edwards, R.A., Greenhalgh, J.F.D., Morgan, CA. Pearson Education ltd., Edinburgh, 2002. 8. Livestock Feeds and Feeding (Fifth Edition). Kellerns, R.O., Church, D.C. Prentice Hall, New Jersey, 2002. 9. Amino Acids in Animal Nutrition (Second Edition). D'Mello, J.P. Felix (Editor), CABI Publishing, 2003. 10. Mineral Tolerance of Animals. Second rev. ed. National Academy Press, Washington, DC, 2005 11. National Research Council. Nutrients Requirements of Horses. 6th rev. ed. National Academy Press, Washington, DC, 2007
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Midterm Exam	1	30.00
Quiz	1	10.00
Home work-project	0	0.00
Final Exam	1	60.00
Total	3	100.00
Contribution of Term (Year) Learning Activities to Success Grade		40.00
Contribution of Final Exam to Success Grade		60.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		test

24	**ECTS / WORK LOAD TABLE**

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	4.00	56.00
Practicals/Labs	14	2.00	28.00
Self study and preperation	14	2.00	28.00
Homeworks	0	0.00	0.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	28.00	28.00
Others	0	0.00	0.00
Final Exams	1	40.00	40.00
Total Work Load			180.00
Total work load/ 30 hr			6.00
ECTS Credit of the Course			6.00

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	**PQ2**	**PQ3**	**PQ4**	**PQ5**	**PQ6**	**PQ7**	**PQ8**	**PQ9**	**PQ10**	**PQ11**	**PQ12**	**PQ13**	**PQ14**	**PQ15**	**PQ16**
ÖK1	5	4	3	2	2	5	1	1	2	1	2	2	0	0	0	0
ÖK2	5	4	3	2	2	5	1	1	2	1	2	2	0	0	0	0
ÖK3	5	4	3	2	2	5	1	1	2	1	2	2	0	0	0	0
ÖK4	5	4	3	2	2	5	1	1	2	1	2	2	0	0	0	0
ÖK5	5	4	3	2	2	5	1	1	2	1	2	2	0	0	0	0
ÖK6	5	4	3	2	2	5	1	1	2	1	2	2	0	0	0	0
ÖK7	5	4	3	2	2	5	1	1	2	1	2	2	0	0	0	0
ÖK8	5	4	3	2	2	5	1	1	2	1	2	2	0	0	0	0
ÖK9	5	4	3	2	3	5	1	1	2	1	2	2	0	0	0	0
ÖK10	5	4	3	3	3	5	2	2	2	1	3	3	0	0	0	0

LO: Learning Objectives PQ: Program Qualifications

Contribution Level:	**1 very low**	**2 low**	**3 Medium**	**4 High**	**5 Very High**