



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Minerals in Animal Nutrition							
Course Code		VHB526		Couse Level		Second Cycle (Master's Degree)			
ECTS Credit	4	Workload	104 (<i>Hours</i>)	Theory	2	Practice	0	Laboratory	0
Objectives of the Course		Explain to student the importance of the mineral elements for the animal production and nutrition. To establish self confidence students who can communicate effectively with farmers.							
Course Content		Explanation of the importance of minerals which must to include the diets for the animal production and health, given the basic knowledge (discrimination, specify and classification) about the minerals, general characteristic of the macro and micro minerals and adverse effects of deficiency and over dose of them, mention about the minerals for animal species.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion, Case Study, Individual Study					
Name of Lecturer(s)		Assoc. Prof. Bülent ÖZSOY, Prof. Ahmet Gökhan ÖNOL							

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	28
Final Examination	1	60
Assignment	5	12

Recommended or Required Reading

1	Underwood, E.J., Suttle, N.F. (1999) The Mineral Nutrition of Livestock, CABI Publishing.
2	Hafez and Dyer, I.A. (1969) Animal Growth and Nutrition, Lea and Febiger, Philadelphia.
3	Ammerman, C.B., Baker, D.H., Lewis, A.J. (1995) Bioavailability of Nutrients for Animals, Academic Press, San Diego, ABD.
4	Ensminger, M.E., Oldfield J.E., Hienemann W.W. (1990) Feeds and Nutrition, The Ensminger Publishing, California.
5	Cheeke, P.R. (1999), Applied Animal Nutrition: Feeds and Feeding, Prentice Hall International, USA.

Week	Weekly Detailed Course Contents	
1	Theoretical	Importance of minerals in animal nutrition
2	Theoretical	Classification of minerals which using in nutrition
3	Theoretical	Factors which effecting mineral requirements of animals
4	Theoretical	Macro minerals
5	Theoretical	Importance of calcium for the livestock animals, metabolism, function, sources and requirements
6	Theoretical	Metabolism, sources and requirement of phosphor for animals
7	Theoretical	Metabolism, sources and requirement of magnesium for animals
8	Intermediate Exam	Midterm exam
9	Theoretical	Metabolism, sources and requirement of sodium, chlorine, potassium for animals
10	Theoretical	Metabolism, sources and requirement of sulphur for animals
11	Theoretical	Micro elements
12	Theoretical	Metabolism, sources and requirement of ferrous, copper and iodine for animals
13	Theoretical	Metabolism, sources and requirement of manganese, molybdenum, cobalt and chrome for animals
14	Theoretical	Metabolism, sources and requirement of zinc, selenium and toxic elements for animals
15	Theoretical	Presentation of assignment

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	2	28
Assignment	5	0	2	10
Reading	14	0	3	42
Midterm Examination	1	8	2	10



Final Examination	1	12	2	14
Total Workload (Hours)				104
[Total Workload (Hours) / 25*] = ECTS				4
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	Minerals in animal nutrition.
2	Absorb of the minerals, their functions, deficiency and elimination of them.
3	Importance of macro minerals for livestock animals.
4	Importance of micro minerals for livestock animals.
5	Teaching of the knowledge about the toxic mineral elements.

Programme Outcomes (Animal Nutrition and Nutritional Diseases (Veterinary Medicine) Master)

1	to be able to comprehend information about basic animal nutrition and feeds for protecting animal health, scientific and technological animal production.
2	to be able to formulate economical and full-satisfactory rations with considering product quality and health and inform animal producers about practical/appropriate feeding methods.
3	to be able to apply recent scientific and technological developments in animal nutrition easier and produce proper strategies against to problems on this field.
4	to be able to analyse the properties of feeds used in proper and economical rations formulated due to needs of animal species.
5	to be able to inform animal producers about the common feedstuffs used in animal nutrition
6	to be able to interpret physical, diagnostic and chemical analysis methods used in determinin feed quality.
7	to be able to comprehend processing and the effects of processing on animal yield.
8	to be able to identify the term "feed hygiene" and have information about the usage availability of contaminated feedstuffs.
9	to be able to apply the informations related to feed additives in a proper way.
10	to be able to formulate the results and factors decreasing production.
11	to be able to apprehend the nutrition related diseases and their solution recommendations which may be applied in feeding or formulating feeds for preventing nutritonal diseases.

Contribution of Learning Outcomes to Programme Outcomes 1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High

	L1	L2	L3	L4	L5
P1	5	5	5	5	
P3			5	5	
P4	5				5
P10		5			5
P11		5			5

