UNIVERSITY of NICOSIA

Year 2

Course Title	**Animal nutrition and health**				
Course Code	**VET-211**				
Course Type	Required				
Level	Undergraduate				
Year / Semester	Year 2/ Semester 2 (Spring)				
Teacher's Name	**Course Lead: Dr Marios Christoforou** **Course Contributors: Assistant Professor Manos Vlasiou,** **Dr Stavros Giannikouris, Dr Constantinos Antoniou**				
ECTS	6	Lectures / week	3	Practicals and tutorials / week	2
Course Purpose and Objectives	The main objectives of the course are: ● To provide the student with understanding of nutritional need of various animals, calculation of the calorie intake necessary and composition. ● To provide the student the understanding of composition of feeds and fodders for animal feeding ● To give the student the knowledge of how to supply all the required nutrients to all classes of animals in optimum proportions so that animal productivity can be optimized, and general well being maintained.				
Learning Outcomes	The following list provides the learning objectives that will be covered in the lectures, lab practical sessions and tutorials of each week: Week 1 **LOBs covered during lectures:** 1. Discuss the composition of animal body 2. Discuss the importance of nutrients in animal production and health 3. Discuss the functions of water 4. Explain the water requirement and factors modifying water requirement 5. Describe the effect of water restriction 6. Discuss the regulation of water intake 7. Discuss water quality Week 2 **LOBs covered during lectures:** 8. Name the classification of minerals 9. Describe the functions of the various minerals 10. Describe the dietary sources of minerals 11. Describe the mineral absorption imbalance and prevention 12. Name the functions of Calcium in the animal body				

13. Discuss the calcium requirement and supplementation
14. Describe the regulation of calcium metabolism
15. Describe the symptoms of calcium deficiency: osteomalacia, milk fever.
16. Describe the symptoms of calcium deficiency in poultry
17. Name the functions of Phosphorus in the animal body
18. Discuss the phosphorus requirement and supplementation
19. Describe the deficiency symptoms
20. Describe the symptoms of phosphorus deficiency in poultry
21. Explain the optimum calcium phosphorus ration

Week 3

LOBs covered during lectures:

22. Name the functions of Magnesium
23. Discuss the magnesium requirements and supplementation
24. Describe deficiency symptoms- hypomagnesaemic tatany
25. Describe the deficiency symptoms in poultry
26. Name the functions of Sodium, Potassium and Chloride
27. Discuss the requirements and supplementation
28. Describe the deficiency symptoms of potassium
29. Describe the deficiency symptoms of sodium
30. Describe the deficiency symptoms of chloride
31. Discuss salt toxicity (excess of sodium chloride)
32. Describe the functions of Sulphur
33. Discuss the requirements and supplementation

Week 4

LOBs covered during lectures:

34. Name the functions of Iron
35. Discuss the requirements and supplementation
36. Explain the efficiency of iron absorption
37. Discuss Iron deficiency- anemia
38. Name the functions of Copper
39. Discuss the requirements and supplementation
40. Describe the symptoms of copper deficiency
41. Describe copper poisoning

Week 5

LOBs covered during lectures:

42. Name the functions of Zinc, requirements, and supplementation
43. Discuss zinc deficiency
44. Name the functions of Manganese requirements and supplementation
45. Discuss manganese deficiency
46. Name the functions of Cobalt and Selenium
47. Discuss the requirements and supplementation
48. Discuss selenium deficiency
49. Discuss selenium toxicity
50. Describe the functions of Iodine, Fluorine, Arsenic, Molybdenum and Chromium
51. Discuss the requirements and supplementation
52. Discuss their deficiency and toxicity

Week 6

LOBs covered during lectures:

53. Explain the classification of vitamins
54. Name the differences between fat soluble and water-soluble vitamins
55. Describe the function of vitamin A requirements and supplementation,
56. Describe the results of vitamin A deficiency and toxicity
57. Describe the function of vitamin D, requirements and supplementation
58. Describe Vit D deficiency and toxicity
59. Describe the function of vitamin E, requirements and supplementation
60. Describe Vit E deficiency
61. Describe the function of vitamin K, requirements and supplementation
62. Describe vit K deficiency
63. Describe the function of Vit C, requirements, and supplementation
64. Describe vit C deficiency (guinea pigs and primates)
65. Describe the function of Thiamine (Vit B1) requirements and supplementation
66. Describe Thiamine deficiency
67. Describe the function of Riboflavin (Vit B2) requirements and supplementation
68. Describe Riboflavin deficiency
69. Discuss the functions of Niacin, pyridixone (Vit B6) pantothenic acid, requirements, supplementation and deficiency
70. Discuss the function of Folic acid, Biotin, Choline, Cyanocobalamin (vit B12) requirements, supplementation and deficiency

Week 7

LOBs covered during lectures:

71. Discuss the digestive system of the dog and the cat
72. Name the components of food, their sources and what they are required for
73. Explain what energy is and how it is measured
74. Explain the calculation of energy requirements
75. Describe the ways to determine energy content of a food
76. Explain the importance of palatability and acceptability
77. Discuss the advantages and disadvantages of feeding homemade cooked and raw diets for dogs and cats
78. Discuss the dry food production process
79. Explain and the labeling of commercial food
80. Discuss feeding recommendations for dogs and cats
81. Explain body condition scoring
82. Discuss the different needs of animal during various life stages and conditions

Week 8

LOBs covered during lectures:

83. Discuss the nutritional management of orthopedic disease
84. Discuss the nutritional management of skin disease
85. Discuss the nutritional management of gastrointestinal disease
86. Discuss the nutritional management of exocrine pancreatic disease
87. Discuss the nutritional management of hepatobiliary disease
88. Discuss the nutritional management of kidney disease

89. Discuss the nutritional management of lower urinary tract disease
90. Discuss the nutritional management of cardiovascular disease
91. Discuss enteral and parenteral nutrition and tube feeding

Week 9

LOBs covered during lectures:

92. Discuss the digestive system of ruminants
93. Describe the digestion process in ruminants
94. Discuss the composition of plants
95. Discuss the common feeds and fodders that are fed to livestock and their classification
96. Discuss the advantages and disadvantages of grass or pasture feeding
97. Describe the different systems of measuring energy value of feed and fodder
98. Describe the chemical and biological methods of evaluating protein quality and quantity
99. Discuss the need for conserving fodder and options available to do so
100. Explain the harmful constituents of feed and fodder and their effect on animals
101. Discuss feed additives and their classification according to purpose
102. Discuss the role of the veterinarian in managing nutritional problems in ruminants
103. Discuss the energy requirements of ruminants during different life stages (including lactation)
104. Discuss the feeding of calves and lambs

Week 10

LOBs covered during lectures:

105. Describe the digestion system of a horse
106. Describe the digestion process in a horse
107. Discuss the ingredients of horse feeds
108. Explain the process of estimating nutrient requirements
109. Describe the feeding of the breeding mare, foal and stallion
110. Discuss how to adjust nutritional provision to a horse with conditions such as pituitary pars intermedia dysfunction, obesity, dental disease, liver failure
111. Discuss feeding for performance and the metabolism of nutrients during exercise
112. Discuss grassland and pasture feeding and management
113. Explain how to assess equine body condition and assign a body condition score to individual animals

Week 11

LOBs covered during lectures:

114. Discuss the digestive system of poultry
115. Explain the digestion process in poultry
116. Name the nutrients requirements for poultry
117. Compare the various feeding options for poultry
118. Explain the energy requirements of poultry in different life cycles
119. Explain the influence of poultry nutrition on production
120. Discuss the digestive system of pigs

	121. Name the nutrients requirements for pigs 122. Describe the major constituents used to formulate pig diets, the raw materials used and the nutritional components they supply 123. Explain how nutritional adequacy of diets for sows can be assessed and the clinical importance of nutritional monitoring in the breeding herd 124. Discuss the requirements for specific nutrients in different classes of pig and their clinical significance Week 12 **LOBs covered during lectures:** 125. Describe the digestion system of rabbits and exotic animals 126. discuss the natural ('wild') diet for each species considered. 127. Explain how a captive diet can be formulated to equate nutritionally with that available in the wild 128. explain the principles of why an inappropriate diet may lead to disease including a consideration of common nutritional diseases in each species or group of species considered; 129. discuss the circumstances in which nutritional supplements should be provided for the various species considered.		
Prerequisites	None	Required	None
Course Content	**Lecture Topics:** ● Importance of nutrients in animal production and health. ● Composition of animal body and plants. ● Water requirement ● Water resources ● Regulation of water intake and quality ● Nutritional terms and their definitions. ● Importance of minerals and vitamins in health and production, their requirements and supplementation in feed. ● Common feeds and fodders ● Measures of food energy and their applications – gross energy, digestible energy, metabolizable energy, net energy, total digestible nutrients, starch equivalent, food units, physiological fuel value. ● Dogs and cat's nutrition ● Ruminant nutrition ● Equine nutrition ● Poultry nutrition ● Pig nutrition ● Preparation, storage and conservation of livestock feed through silage and hay and their uses in livestock feeding. ● Harmful natural constituents and common adulterants of feeds and fodders. ● Feed additives in the rations of livestock and poultry; Antibiotics and hormonal compounds and other growth stimulants, and their uses. ● Dry food production process.		
Teaching Methodology			

Year 2

Bibliography	1. Applied Veterinary Clinical Nutrition FASCETTI 2. Principles of Animal Nutrition WU 3. Animal Feeding and Nutrition 4. Animal nutrition Hand book 5. Equine nutrition and feeding
Assessment	Participation 10%, course assignment 30% and final exam 60%
Language	English