VM2103: ANIMAL NUTRITION AND WELFARE

Effective Term
Semester B 2024/25

Part I Course Overview

Course Title
Animal Nutrition and Welfare

Subject Code
VM - Jockey Club College of Veterinary Medicine and Life Sciences
Course Number
2103

Academic Unit
Infectious Diseases and Public Health (PH)

College/School
Jockey Club College of Veterinary Medicine and Life Sciences (VM)

Course Duration
One Semester

Credit Units
3

Level
B1, B2, B3, B4 - Bachelor's Degree

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
Completion of Year 1 courses with C grade or above

Precursors
Nil

Equivalent Courses
Nil

Exclusive Courses
Nil

Part II Course Details

Abstract
The course follows on from the two courses GE Animal Ethics, Welfare and Law (Semester 1) and Animal Welfare (Semester 2). In its considerations of animal protection and welfare, it widens the scope of the considerations of animal welfare to

include the relationship between nutrition and the welfare of individual animals. This course describes the roles of energy, carbohydrates, lipids, protein, macronutrients, and micronutrients in biochemical pathways. Thus it provides the scientific basis for animal nutrition enabling students to understand the metabolic origins of nutritional diseases and to apply that knowledge to the formulation of diets tailored to maximize the welfare, profitability, health, longevity, and/or athletic performance of animals. Companion animals such as dogs, cats, pocket pets, and horses; livestock such as beef cattle, dairy cattle, sheep, pigs, and poultry are all considered. The impacts of dietary deficiencies of essential nutrients are given particular attention. Each student will undertake a diet formation exercise as part of their class assignment.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Demonstrate a practical understanding of the interrelationship between nutrition and animal welfare. (RVC 3 - Evaluation of animals and their care: F - Husbandry and Welfare - Ensure that clients are aware of the principles of animal welfare and good husbandry practice, advise on feeding and nutritional needs of animals) - Students will be able to evaluate the impact of nutritional factors on the overall well-being and health of animals. - Students will be able to advise clients on the principles of good husbandry practices, including the importance of providing appropriate feeding and nutritional needs for animals.	30	x	x	x
2	Justify and apply formulation of appropriate diets for a range of domestic animal species, including dogs, cats, pigs, sheep, dairy cattle, beef cattle, horses, rabbits, and chickens. (RVC 3 - Evaluation of animals and their care: C - Recognise clinical signs associated with a range of conditions and take action if animal(s) appears to be at ongoing risk due to poor nutrition; F - Husbandry and Welfare - Ensure that clients are aware of the principles of animal welfare and good husbandry practice, advise on feeding and nutritional needs of animals, advise on the selection of specialist dietary requirements for nutritional deficiencies) - Students will demonstrate knowledge of the nutritional requirements and dietary needs for various animal species. - Students will be able to recommend suitable feed and supplementation based on the specific nutritional requirements of each animal species.	35		x	x

3	Identify clinical signs associated with nutritional conditions and take appropriate action to address ongoing risks due to poor nutrition. (RVC 3 - Evaluation of animals and their care: C - Recognise clinical signs associated with a range of conditions and take action if animal(s) appears to be at ongoing risk due to poor nutrition) - Students will develop the ability to identify clinical signs indicative of nutritional deficiencies or imbalances. - Students will be able to provide guidance to clients on addressing and managing nutritional issues to ensure the continued well-being and health of the animals.	35		x	x

A1: Attitude
Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability
Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments
Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

Learning and Teaching Activities (LTAs)

	LTAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Lectures and Tutorials	Students will initially learn the basic principles of nutrition followed by the nutritional requirements of different domestic species. Students will investigate case histories of animals exhibiting the symptoms of particular nutritional diseases. Students will learn about the welfare implications of particular nutritional diseases.	1, 2, 3	35hrs (teaching in block basis)
2	Laboratory practical	Working in groups, students will formulate diets for different species. Examine feed ingredients and diet formulations for large animals and companion animals.	2, 3	4 hrs/lab x 1

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Mid-term test	1, 2, 3	40	This exam will focus on farm animal nutrition.
2	Formulation assignment	1, 2, 3	10	The assignment will focus on animal diet formations.

Continuous Assessment (%)

50

Examination (%)

50

Examination Duration (Hours)

2

Additional Information for ATs

The final exam will incorporate the principles of general nutrition as they apply to small animals.

Assessment Rubrics (AR)

Assessment Task

1. Mid-term test

Criterion

Explains the general principles of nutrition as they pertain to farm animals. Contrast and comparison nexus between nutrition and the welfare of farm animals. Can formulate feed for domestic farm animals.

Excellent (A+, A, A-)

Demonstrates a high level of explanation of the nutritional needs of farm animals.
Knowledge and description of the nexus between animal nutrition and animal welfare.

Good (B+, B, B-)

Demonstrates a well-developed level of knowledge of nutrition as it pertains to large animals. Well- developed understanding of the nexus between animal nutrition and animal welfare.

Fair (C+, C, C-)

Demonstrates a basic level of knowledge of farm animal nutrition and the nexus between animal nutrition and animal welfare.

Failure (F)

Demonstrates inadequate knowledge and explanation of the nexus between animal nutrition and animal welfare.

Assessment Task

2. Formulation exercise assignment

Criterion

Formulate a diet for a specific species animal species that ensures all essential nutritional needs are met.

Excellent (A+, A, A-)

Demonstrates a high level of competence in formulating diets animals.

Good (B+, B, B-)

Demonstrates a well-developed level of competence in formulating diets for animals.

Fair (C+, C, C-)
Demonstrates a basic level of competence in formulating diets for animals.

Failure (F)
Demonstrates a lack of competence in formulating diets for animals.

Assessment Task
3. Examination

Criterion
Knowledge and application of the nutritional requirements of small animals.
Knowledge and analyses of the causes, impacts and treatments of nutritional deficiencies in these species.

Excellent (A+, A, A-)
Demonstrates a highly developed knowledge and explanation of small animal nutrition and welfare issues around poor nutrition.

Good (B+, B, B-)
Demonstrates a well-developed knowledge and analysis of small animal nutrition and welfare issues around poor nutrition.

Fair (C+, C, C-)
Demonstrates a basic knowledge and overview of small animal nutrition and welfare issues around poor nutrition.

Failure (F)
Demonstrates a lack of knowledge of small animal nutrition and welfare issues around poor nutrition.

Additional Information for AR

Mark Range
The following is the mark range for each letter grade that must be used for assessment of courses offered by the PH and VCS Department of JCC (including Gateway Education (GE) courses):

Letter Grade	Mark Range	Letter Grade	Mark Range
A+	≥92%	C+	54-60.99%
A	87-91.99%	C	50-53.99%
A-	82-86.99%	F	<50%
B+	75-81.99%		
B	68-74.99%		
B-	61-67.99%		

** A penalty of 5% of the total marks for the assessment task will be deducted per working day for late submissions, and no marks will be awarded for submissions more than 10 working days late.

Part III Other Information

Keyword Syllabus
animal livestock, companion animals, welfare, nutrition, carbohydrates, lipids, proteins, minerals, and vitamins.

Reading List

Compulsory Readings

	Title
1	Phillips, C.J (2016). Nutrition and the welfare of farm animals. Cham, Switzerland: Springer.
2	Selected reading material TBD and distributed online

Additional Readings

	Title
1	Flanders, F.B. and Gillespie, J.R. (2016). Modern livestock and poultry production 9th ed., Boston, MA, USA: Cengage Learning.