

MASTER OF SCIENCE DEGREE IN ANIMAL NUTRITION AND MANAGEMENT (BY THESIS)

Unit Descriptions

KCU 800 Biostatistics

Importance of biostatistics. Descriptive and inferential statistics. Measures of central tendency and Dispersion. Types of Distribution. Computer packages (eg spread sheets, Genstat, SPSS, CANOCO, SAS) Hypotheses testing. ANOVA. Factorial experiments, Experimental designs. Correlation. Regression. Mean Separation Tests. Data classification. Ordination and Multivariate analysis; Discriminant analysis, Logistic Regression, PCA, Detrended correspondence analysis, Detrended Canonical correspondence analysis, Modeling and Simulation.

KCU 801/ PUCU Research Methods

Types; social and scientific, observation, experimental and survey. Main steps of research projects; identification of research problems, formulation of research questions, hypotheses, and objectives, planning, literature review. Sampling strategies & designs. Methods of data collection. Data cleaning and management. Data analysis, interpretation, report writing: Writing technical reports, Styles of writing and referencing. Dissemination: publication, seminars, information packaging. Research ethics. Intellectual Property Rights (IPR).

KRM 854 Animal Nutrition and Metabolism

Digestion, absorption and utilization of nutrients. Physiological and metabolic aspects and roles of proteins and amino acids, lipids and fatty acids, minerals and vitamins in livestock diets. Partitioning of energy, heat production, utilization and retention. Dietary deficiencies and toxicities of various classes of nutrients. Feeding requirements and standards of various classes of nutrients for various classes of domestic animals. Environmental impacts associated with excess dietary mineral contents.

KRM 855 Animal Feed Resources, Evaluation and Processing

Classification of animal feeds: roughages, concentrates, premixes and additives; feed conservation; agricultural by-products; factors affecting quality and utilization of feeds. Feed anti-nutritive factors; Techniques of assessing feed quality - physical, chemical and biological; Techniques of improving feed quality - physical, chemical and biological; Principles of ration/diet-formulations and use of software packages. Processing of commercial diets including equipments, handling, transportation and storage of raw materials and finished products; feed mixing; Biosafety in feed production.

KRM 856 Advanced Animal Physiology

Advanced Physiological concepts as they relate to farm animal systems including Overview of Physiology of farm animals, Homeostasis, Advanced reproductive physiology, developmental physiology (Growth), Endocrine and Nervous system physiology, Lactation and Milk letdown

physiology, Egg laying, environmental, advanced digestive physiology and regulation of farm animals and their adaptations to diets (ruminants and non-ruminants).

KRM 857 Nutritional Biochemistry

Study of metabolic roles of macro-nutrients (proteins, lipids and carbohydrates) and micro-nutrients (minerals and vitamins) in the body using an integrated approach to explore the roles of nutrients in biochemical, physiological, and metabolic functions. Includes effects of metabolic diseases on physiological and biochemical functions of the body.

KRM 858 Biotechnology in Animal Nutrition

Animal biotechnology and its potential in developing countries; Genetically Modified Organisms (GMOs) and related issues; Animal Nutrition Biotechnology in non-ruminants and ruminants; Biotechnology involving Enzymes, Probiotics, Growth promoters, Genetic manipulation of rumen micro-organisms; Ethical, Legal and Environmental issues in relation to Biotechnology; Modern trends in Animal Nutrition Biotechnology.

KRM 859 Livestock Production Systems and Management

Various Livestock production systems and Animal environmental adaptations; Biological rhythms and photoperiodism. Effects of environment on animal reproduction, nutrition, and health. animal behaviour as it relates to management production and welfare. Modelling in animal production systems; Animal welfare and requirements in housing, transportation and slaughter, management practices to achieving desirable welfare standards, impact of welfare on marketing and consumers. Practicals, Field visits.

KRM 860 Ruminant Nutrition and Feeding

Dynamics of microbial digestion in rumen and hindgut. Pre-ruminant nutrition and feeding. Energy and Protein Nutrition in ruminants; Carbohydrate fermentation: role of different microbes, products of fermentation and their absorption and metabolism. Lipid metabolism; hydrolysis, biohydrogenation, biosynthesis. Metabolism of nitrogen containing compounds, degradability, ammonia production and utilization. Partitioning of energy, heat production, utilization and retention. Voluntary feed intake and anti-nutritional factors Manipulation of rumen microbial fermentation to enhance efficiency, product quality and health. Feeding standards/requirements and strategies for ruminants and other related species e.g. rabbits.

KRM 861 Non-Ruminant Nutrition and Feeding

Gut development in relation to feed digestion, nutrient absorption, feed utilisation efficiency and manipulation of microbial activity in the gut. Factors limiting digestion, absorption and utilisation of energy and protein in non-ruminants. Dietary deficiencies. Feeding standards, energy and protein requirement for various classes of non-ruminants. Feeding strategies for growth, reproduction and production in non-ruminants including pigs, chicken, turkeys, ostriches, quills, crocodiles and fish. Dietary manipulation to influence product quality, health status and nutrient losses to the environment.

KBT 832 Agricultural Product Marketing and Analysis

Role of Livestock resources in the economy; Economic principles of resource management exploitation and free access. Supply and demand. Situation analysis; Market definition and analysis; Target market selection; Product Life Cycle; Marketing Mix; Brand equity; Pricing Strategy. Marketing System, marketing agents and marketing functions; market structures, conduct and performance. Marketing environment and strategies. Concept of niche market and market segmentation; Market dominance strategies and effectiveness; The 4 Ps approach. Co-operatives in marketing. Locally and internationally Trade in livestock, Domestic versus export markets.

KRM 830 Thesis

Selection of thesis topic will be done by the student in consultation with supervisors. The research will be conducted in the second year of study and will culminate with thesis submission. The thesis will be examined according to the university regulation that is written and oral presentation (defence).