C-ID Descriptor
Livestock Feeding and Nutrition

Descriptor Details

- **Descriptor Title**: Livestock Feeding and Nutrition
- **C-ID Number**: 132
- **Suffix**:
  - Lab Course (L)
- **Units**: 3.0
- **Date of Last Revision**: 10/12/2017 11:43:52 PM GMT+0000

General Description

The science of animal nutrition; the fundamentals of digestion and absorption in both ruminants and non-ruminants are discussed. The nutritive value of feedstuffs as they relate to the formulation of livestock rations will be emphasized. Laboratory required.

Prerequisites

No information provided

Corequisites

No information provided

Advisories

No information provided

Content

1. Introduction to Animal Nutrition
2. Nutrients & Their Functions
    a. Protein
    b. Carbohydrates
    c. Fats
    d. Vitamins
    e. Minerals
    f. Water
3. Digestive System Anatomy & Physiology
    a. The Non-Ruminant (Monogastric) Digestive System
    b. The Ruminant Digestive System
    c. The Avian (Poultry) Digestive System
4. Evaluation & Classification of Feedstuffs
    a. Physical Evaluation
    b. Proximate Analysis
    c. Estimation of Feed Energy
    d. Interpreting a Feed tag
    e. NRC Classifications of Feedstuffs
5. Feeding Behavior
    a. Factors Affecting Feed Intake
6. Feed Manufacturing & Processing
7. Diets & Ration Formulation
    a. Pearson Square
    b. Least Cost Ration Formulation
    c. Basic Livestock Feeding Practices and Dietary Guidelines

Lab Activities

This course must include a greater than 80% hands-on laboratory component that supports the learning goals of the course and may include but are not limited to:

1. Given a specific livestock production scenarios, evaluate various feed options for:
    - palatability,
    - nutritional value, and
    - economic feasibility

2. Feed mills may be toured
3. Using technology as a feed management tool
4. Feed component analysis
5. Ration Calculations

Objectives

At the conclusion of this course, the student should be able to:

- Explain the role of nutrition in animal performance and food production.
- Determine nutritional requirements based on animal purpose and changes in physiological development.
- Identify the anatomical features of the ruminant, monogastric, and avian digestive systems.
- Outline basic feeding practices for ruminant, monogastric, and avian species.
- List factors influencing animal feeding behaviors.
- Utilize the Pearson Square method for ration formulation.
- Evaluate economic factors and trends in feeding.
- Identify and classify common feedstuffs.
- Explain common feed processing techniques and their relative advantages.
- Analyze and comprehend various procurement strategies for feed stuffs.
- List and define the six categories of nutrients.
- Discuss the various methods of feed analysis commonly utilized in the animal nutrition industry.
- Interpret National Research Council (NRC) nutrition tables and apply the relevant information to the formulation of livestock rations.
- Interpret the components of the guaranteed analysis found on a feed tag.

Evaluation Methods

Lecture

Comprehensive Quizzes and Exams
Written Critical Thinking Scenarios
Problem Analysis and Solution

Research and Term Papers

Laboratory

Laboratory Skill Validation by Observation
Laboratory Reports
Laboratory Research Projects and Reports
Laboratory Skill Practicum Exams

Textbooks

Church, D.C., *Livestock Feeds and Feeding*, Regents/Prentice Hall

Pond, W.G., *Basic Animal Nutrition and Feeding*, John Wiley & Sons

Juergens, M.H., *Animal Feeding and Nutrition,* Kendall/Hunt Pub. Company

NRC Pamphlets, National Academy Press

Cheeke, P.R., *Applied Animal Nutrition,* Macmillan Publishing

Kansas Swine Nutrition Guide, Cooperative Extension Service, Manhattan, Kansas
File Code: Animal Science Swine 5-4

Feedstuffs Reference Issue, 191 S. Gary Ave., Carol Stream, IL. 60188