

Principles of Animal Nutrition Syllabus

INSTRUCTOR INFORMATION: Sam Paul

COURSE INFORMATION:

Course Number: AGS-315

Section Number: MLL01

Credit Hours: 3

SPECIFIC CLASS INFORMATION:

Text for the class:

Animal Feeding and Nutrition

Marshall H. Jurgens 11th Edition

Description: This course will provide the student with a basic understanding of animal nutrition, including feedstuff characteristics and principles of formulating nutritionally balanced animal diets

Major Topics Covered:

1. Review of nutrients and digestion
2. Evaluating feedstuffs for farm animals
3. Feedstuffs used in livestock diets
4. Procedures in feed formulation
5. E. Commercial feeds: Laws and Regulations
6. F. Feed additives
7. Swine, Beef, Dairy Feeding
8. Additional species feeding (sheep, equine, poultry, dogs, cats)
9. Developing Rations

COURSE COMPETENCIES/OUTCOMES:

- Define nutrient needs of animals
- Explain the differences in the six basic nutrients
- Identify symptoms of nutritional deficiency or toxicity
- Identify parts and functions of the digestive system
- Compare differences and similarities of different species digestive systems
- Explain feedstuff digestion and nutrient absorption
- Discuss analytical methods used to determine the nutrient composition of feedstuffs
- Explain how feed samples should be collected for analysis and how nutrient composition is reported (dry matter, as fed, air dry)
- Describe procedures in determining the apparent digestibility of feedstuffs
- Describe the various energy measurements and explain their usage in diet formulation or evaluation
- Describe how feeds can be physically and economically evaluated.
- Describe feedstuff nomenclature and explain how a table of feed composition is used
- Classify feeds into various categories for discussion (concentrates, roughage, additives)
- Identify various feeds by nutrient content (high or low)
- Discuss how plant phase of maturity influences nutritional value to the animal

- Identify desirable and undesirable characteristics of feed
- Identify important factors regulating feed intake by animals
- Examine feeding standard tables for various livestock
- Describe and discuss mathematical solutions to animal diet formulation (algebra, Person's square, substitution)
- Define the purpose of a premix and how these can be formulated to incorporate into animal diets
- Describe the overall scope of the commercial feed industry
- Highlight feed manufacturing laws, rules, and regulations
- Explain label format as to what has to be included on a label and how this format is interpreted
- Describe the different types of feed additives used in livestock production-antibiotics, chemotherapeutics, anthelmintics, prebiotics, probiotics, antibiotic alternatives (natural)
- Identify which feed additives are used for particular purposes and with which animal
- Outline and discuss the life-cycle swine feeding program
- Identify specific needs or additives used within the life cycle
- Explain feeding systems for the breeding herd and the growing finishing herd
- Formulate a swine diet
- Outline and discuss a life cycle beef feeding program
- Identify specific nutrient needs or additives used within the life cycle
- Explain feeding systems for the beef breeding herd and for finishing market cattle
- Introduce the merits of a system of protein evaluation for cattle, metabolizable protein
- Formulate beef diets
- Outline and discuss a life cycle dairy cattle feeding program
- Identify specific nutrient needs of additives used within a life cycle
- Identify nutrient-related diseases or disorders within the dairy cattle life cycle
- Optional species-outline and discuss a life cycle feeding program
- Optional species-identify nutrient-related diseases or disorders within the life cycle
- Optional species-formulate a diet
- Understand and use basic ration software

METHODS OF INSTRUCTION MAY INCLUDE:

Lecture/Discussion

Worksheets

Assignments

Demonstration

Lab Exercises

Field Trips

Guest Speakers

EVALUATION METHODS MAY INCLUDE:

Assessments= 40%

Practice= 30%

Final= 20%

Employability Skills= 10%

Grade model:

A = 90-100%

B = 80-89%

C = 70-79%

D = 60-69%

F = 59% and below

COURSE OUTLINE IS TENTATIVE AND SUBJECT TO CHANGE