Department:

Agriculture

Course Description:

This course covers the role of carbohydrates, proteins, lipids, minerals. vitamins, and water in animal nutrition. The course will emphasize digestion, absorption, metabolism, and excretion of nutrients and their metabolites.

Course Competencies:

Upon completion of the course, the student should be able to:

1. Identify the classifications of nutrients used by livestock.
2. Explain the function of nutrients in farm mammalian and avian species.
3. Explain the biochemical reactions and functions dealing with livestock digestion and metabolism.
4. Describe the technology and nomenclature related to the concepts of animal nutrition.
5. Assess the value of feedstuffs for use in rations and explain how efficiencies of these nutrients affect animal health and production.
6. Interpret the use of routine analysis of feedstuffs and their value in animal nutrition.
7. Explain and formulate ration balancing techniques.

Course Content:

A. Introduction to nutrition
B. Basics of nutrients
C. Proteins
    1. Classifications
    2. Function
    3. Structure
    4. Digestion and absorption
    5. Amino Acids
        a. Essential
        b. Nonessential
    6. Non-protein Nitrogen
    7. Protein metabolism by microorganisms
    8. Biological value of proteins
D. Carbohydrates
    1. Classifications
    2. Digestion and absorption
    3. Carbohydrate utilization

Syllabus

4. Digestion of crude fiber (cellulose and hemicellulose)
5. Conventional energy scheme
6. Respiratory quotient

E. Fats, Oils, Lipids
1. Classification
2. Structure
3. Formulas of fatty acids
4. Digestion and metabolism of fats
5. Definitions of fat measurements and essential fatty acids
6. Function and uses of fats in animal nutrition

F. Vitamins
1. Fat Soluble
   a. Vitamin A
   b. Vitamin D
   c. Vitamin E
   d. Vitamin K
2. Water Soluble
   a. Thiamine
   b. Niacin
   c. Pyridoxine
   d. Pantothenic Acid
   e. Biotin
   f. Folic Acid
   g. Choline
   h. Vitamin C
   i. Other

G. Minerals
1. Function in the animal body
2. Macro minerals
   a. Sodium
   b. Chlorine
   c. Calcium
   d. Phosphorus
   e. Magnesium
   f. Sulfur
3. Micro minerals
   a. Cobalt
   b. Iodine
   c. Iron
   d. Manganese
   e. Zinc
   f. Copper

Learning Assessments:

Course competencies will be assessed by use of a pre-test, unit tests, assignments, final exam, and a post-test.

Instructional Materials:

Textbook: Basic Animal Nutrition and Feeding, Church, Pond, 4th Ed.

Guidelines for Requesting Accommodations Based on Documented Disability or Medical Condition

It is the intention of Highland Community College to work toward full compliance with the Americans with Disabilities Act, to make instructional programs accessible to all people, and to provide reasonable accommodations according to the law.

Students should understand that it is their responsibility to self-identify their need(s) for accommodation and that they must provide current, comprehensive diagnosis of a specific disability or medical condition from a qualified professional in order to receive services. Documentation must include specific recommendations for accommodation(s). Documentation should be provided in a timely manner prior to or early in the semester so that the requested accommodation can be considered and, if warranted, arranged.

On-Campus Students: At enrollment, any on campus student may complete a form that will allow them to self-identify any disability.

Off-Campus Regional Students: Self-identify your disability and accommodation needs with the Regional Coordinator and/or instructor, preferably prior to the first class meeting.

Online Students: Self-identify your disability and accommodation needs by contacting the Disabilities Coordinator. Students must provide their own programs to allow accessibility on their home computer.

Any student may also identify their disability by completing an online form located on the HCC homepage under Students Services/Resources/Disabilities. Questions should be directed to the Disabilities Coordinator.