

**Western Technical College**

**10006121 Animal Nutrition 1**

**Course Outcome Summary**

**Course Information**

<b>Description</b>	This course is designed to give students a basic understanding of animal feeds and the terminology used in describing the quality and nutritional value of these feeds. It also includes laboratory exercises to give students hands-on experience in basic rations balancing.
<b>Career Cluster</b>	Agriculture, Food and Natural Resources
<b>Instructional Level</b>	Associate Degree Courses
<b>Total Credits</b>	3.00
<b>Total Hours</b>	72.00

**Types of Instruction**

<b>Instruction Type</b>	<b>Credits/Hours</b>
Lecture	2 CR / 36 HR
Lab	1 CR / 36 HR

**Course History**

<b>Last Approval Date</b>	9/24/2015
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**Purpose/Goals**

Develop diets for livestock based on basic nutrient requirements using common feeds available.

**Target Population**

Students admitted to the Agribusiness Science Technology Program that will be completing an Associate Degree.

**Pre/Corequisites**

Prerequisite 10006113 Animal Science

**Textbooks**

*Nutrition and Feeding Technical Dairy Guide*. Western. Publisher: Western. Required.

*Animal Feeding and Nutrition*. 10th Edition. Copyright 2007. Jurgens, Marshall H. Publisher: Kendall/Hunt Publishing Company. **ISBN-13**: 978-0-7575-3176-7. Optional.

### Learner Supplies

Calculator - \$10. **Vendor**: Campus Shop. Required.

### Core Abilities

1. **Apply mathematical concepts.**  
*Status Active*
2. **Make decisions that incorporate the importance of sustainability.**  
*Status Active*
3. **Transfer social and natural science theories into practical applications.**  
*Status Active*
4. **Use effective communication skills.**  
*Status Active*
5. **Use technology effectively.**  
*Status Active*

### Program Outcomes

1. **Apply relevant technologies**  
*Type TSA Status Active*

#### Criteria

- 1.1. learner investigates technologies in agribusiness
- 1.2. learner applies technology effectively
- 1.3. learner uses technology safely

2. **Create a livestock management plan**  
*Type TSA Status Active*

#### Criteria

- 2.1. learner formulates a ration
- 2.2. learner evaluates a ration
- 2.3. learner utilizes proper reproductive technology
- 2.4. learner analyzes livestock facility systems
- 2.5. learner identifies the compliance components of regulating agencies
- 2.6. learner creates a herd health protocol
- 2.7. learner applies animal welfare practices
- 2.8. learner develops standard operating procedures for livestock

3. **Investigate opportunities in Agribusiness**  
*Type TSA Status Active*

#### Criteria

- 3.1. learner correlates personal strengths, weaknesses and personality traits to industry opportunities
- 3.2. learner interprets the impact of identified trends and topics in agribusiness
- 3.3. learner completes occupational survey with members of industry
- 3.4. learner researches career options in agribusiness

#### 4. Interact as a professional in Agribusiness

*Type*      *TSA*                      *Status*      *Active*

##### Criteria

- 4.1. learner identifies proper attire for career
- 4.2. learner demonstrates effective oral and written communication
- 4.3. learner identifies professional organizations in agribusiness
- 4.4. learner adheres to ethical standards
- 4.5. learner applies interpersonal communication skills
- 4.6. learner develops a professional continuous improvement plan
- 4.7. learner creates an employment portfolio

### Course Competencies

#### 1. Investigate the processes in the digestive systems of ruminants and non-ruminants.

*Domain*      *Cognitive*                      *Level*      *Applying*                      *Status*      *Active*

##### Assessment Strategies

- 1.1. Written Product
- 1.2. Written Objective Test
- 1.3. Drawing/Illustration

##### Criteria

*Criteria - Performance will be satisfactory when:*

- 1.1. learner can identify and draw the parts of the ruminant and non-ruminant digestive systems
- 1.2. learner can identify the position of each of the digestive organs in the ruminant and non-ruminant animal.
- 1.3. learner can explain the function of the ruminant digestive system
- 1.4. learner compares differences and similarities of the digestive systems of ruminants and non-ruminants.
- 1.5. learner can explain the products of bacterial digestion in the rumen
- 1.6. learner can identify the function of the enzymes in the ruminant and non-ruminant digestive system

##### Learning Objectives

- 1.a. Identify the parts of the digestive system.
- 1.b. Identify the functions of the different parts of the digestive system.
- 1.c. Compare and contrast ruminant and non-ruminant digestive systems.
- 1.d. Explain feedstuff digestion.
- 1.e. Explain nutrient absorption.

#### 2. Distinguish the differences and functions of the six basic nutrients

*Domain*      *Cognitive*                      *Level*      *Analyzing*                      *Status*      *Active*

##### Assessment Strategies

- 2.1. Written Product
- 2.2. Written Objective Test

##### Criteria

*Criteria - Performance will be satisfactory when:*

- 2.1. learner defines the chemical composition of the six basic nutrients.
- 2.2. learner defines the nutrient needs of the animal.
- 2.3. learner relates feed sources to the appropriate nutrients.
- 2.4. learner classifies nutrients as to the products of digestion.
- 2.5. learner identifies the differences between TDN%, DE and ME
- 2.6. learner explains the difference in NE-m, NE-g and NE-l as it relates to the production status of the animal
- 2.7. learner identifies the difference between micro minerals and macro minerals and their primary functions in the animals body
- 2.8. learner identifies the different water-soluble and fat-soluble vitamins and their basic functions in the animal
- 2.9. learner can identify the most limiting amino acids in a species

### Learning Objectives

- 2.a. Identify each of the six basic nutrients.
- 2.b. Explain the main functions of each nutrient.
- 2.c. Compare the chemical composition of each nutrient.
- 2.d. Identify essential and non-essential amino acids.
- 2.e. Describe the differences between fibrous and non-fibrous carbohydrates.
- 2.f. Explain the differences and similarities between saturated and non-saturated fats.
- 2.g. Identify the major minerals essential to animals.
- 2.h. Identify the minor minerals essential for animals.
- 2.i. Explain common interactions of minerals.
- 2.j. Describe common mineral deficiencies.
- 2.k. Compare water soluble and fat soluble vitamins.
- 2.l. Describe common mineral and vitamin interactions.
- 2.m. Describe common vitamin deficiencies

### 3. Compute the nutrient content of a given amount of a feedstuff

*Domain Cognitive Level Applying Status Active*

#### Assessment Strategies

- 3.1. Case Study
- 3.2. Written Product

#### Criteria

*Criteria - Performance will be satisfactory when:*

- 3.1. learner can calculate the amount of crude protein in a given amount of feedstuff
- 3.2. learner can calculate the amount of energy (TDN%, ME, NE, DE) in a given amount of feedstuff
- 3.3. learner can calculate the amount of calcium and phosphorus in a given amount of feedstuff
- 3.4. learner can calculate the amount of Dry Matter and AsFed

#### Learning Objectives

- 3.a. Convert feedstuffs from as fed to dry matter basis.
- 3.b. Describe feedstuff nomenclature.
- 3.c. Explain how the table of feed composition is used.
- 3.d. Classify feeds into concentrates, roughages and additives.
- 3.e. Identify various feeds by high and low nutrient content.

### 4. Convert equivalents of measure for weight, volume, distance, energy and metric to English.

*Domain Cognitive Level Application Status Active*

#### Assessment Strategies

- 4.1. Written Product

#### Criteria

*Criteria - Performance will be satisfactory when:*

- 4.1. learner can make english to metric and metric to english conversions using the table of equivalents provided.
- 4.2. learner can determine energy values based on mccl/lb and mccl/kcal measurements

#### Learning Objectives

- 4.a. Interpret tables giving measurement equivalents.
- 4.b. Convert bushels to pounds.
- 4.c. Convert metric measures to English.
- 4.d. Convert percentages to parts per million.

### 5. Determine the factors influencing the nutritional requirements for growing, lactating and gestating animals.

*Domain Cognitive Level Applying Status Active*

#### Assessment Strategies

- 5.1. Written Product

5.2. Written Objective Test

**Criteria**

*Criteria - Performance will be satisfactory when:*

- 5.1. learner determines the dry matter intake and how it affects amounts as-fed
- 5.2. learner determines the energy, protein, calcium and phosphorus requirements.
- 5.3. learner recognizes the factors influencing nutritional needs in growing animals
- 5.4. learner recognizes the factors that influence the nutrient requirements for lactating dairy
- 5.5. learner recognizes the factors influencing the nutrient requirements for gestating animals

**Learning Objectives**

- 5.a. Review the effect of frame size and weight on requirements for protein, energy, calcium and phosphorus.
- 5.b. Compare the nutrient requirements of heifers, bulls and steers.
- 5.c. Determine the nutrient requirements for maintenance of a particular beef animal.
- 5.d. Determine the nutrient requirements necessary for the desired rate of gain.

**6. Distinguish the differences between roughages and concentrates in an animals diet**

*Domain Cognitive Level Analyzing Status Active*

**Assessment Strategies**

- 6.1. Drawing/Illustration
- 6.2. Written Objective Test

**Criteria**

- 6.1. learner identify the nutritional characteristics of roughages (legumes and grasses) and concentrates.
- 6.2. learner can identify common feedstuffs as being a roughage or concentrate
- 6.3. learner can recognize the Dry Matter percentages expected for Hay, Silage, Fresh grass or grains

**Learning Objectives**

- 6.a. Using the Dry Matter and Crude Protein values classify a feedstuff as a concentrate or a roughage
- 6.b. Given a list of common feedstuffs, the learner can classify them as a roughage or concentrate and rate them based on energy and protein value
- 6.c. Identify the feedstuffs most commonly used to increase the protein in a ration