

**ANSCI 61 Course Outline as of Fall 2024****CATALOG INFORMATION**

Dept and Nbr: ANSCI 61 Title: LIVESTOCK FEED/NUTRITION

Full Title: Livestock Feeding and Nutrition

Last Reviewed: 2/24/2025

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	2.50	17.5	Lecture Scheduled	43.75
Minimum	3.00	Lab Scheduled	1.50	6	Lab Scheduled	26.25
		Contact DHR	0		Contact DHR	0
		Contact Total	4.00		Contact Total	70.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 87.50

Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable

Grading: Grade Only

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly: AG 61

**Catalog Description:**

This course covers the science of animal nutrition, the fundamentals of digestion and absorption in both ruminants and non-ruminants, and basic functions of major nutrient classes. The nutritive value of feeds as they relate to the formulation of livestock rations, including by-product feeding, will be emphasized. Feed processing and nutrient requirements will also be discussed.

**Prerequisites/Corequisites:****Recommended Preparation:**

Eligibility for ENGL 100 or ESL 100

**Limits on Enrollment:****Schedule of Classes Information:**

Description: This course covers the science of animal nutrition, the fundamentals of digestion and absorption in both ruminants and non-ruminants, and basic functions of major nutrient classes. The nutritive value of feeds as they relate to the formulation of livestock rations, including by-product feeding, will be emphasized. Feed processing and nutrient requirements will also be discussed. (Grade Only)

Prerequisites/Corequisites:

Recommended: Eligibility for ENGL 100 or ESL 100

Limits on Enrollment:

Transfer Credit: CSU;

Repeatability: Two Repeats if Grade was D, F, NC, or NP

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>	Effective:	Inactive:
<b>CSU GE:</b>	<b>Transfer Area</b>	Effective:	Inactive:
<b>IGETC:</b>	<b>Transfer Area</b>	Effective:	Inactive:
<b>CSU Transfer:</b>	Transferable	Effective: Fall 1981	Inactive:
<b>UC Transfer:</b>		Effective:	Inactive:

**CID:**

**Certificate/Major Applicable:**

Both Certificate and Major Applicable

## **COURSE CONTENT**

**Student Learning Outcomes:**

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

1. Explain the fundamentals of digestion and absorption in both ruminants and non-ruminants.
2. Explain nutritive value of feeds and by-product feeding as they relate to the formulation of livestock rations.

**Objectives:**

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

1. Identify the role of livestock feeding and its part in human nutrition.
2. Identify cultural inputs that have shaped the livestock nutrition industry.
3. Apply changing nutritional requirements based upon animal physiological development.
4. Comprehend differences in digestive anatomy that contrast feeding practices.
5. Demonstrate and comprehend animal behavior as it relates to feeding practices.
6. Explain in a verbal and written format the role of nutrition in animal health and ultimately food safety.
7. Collect and calculate data used in ration formulation.
8. Define and recall biological and inorganic factors that impact the feeding and nutrition industry.
9. Evaluate economic factors and trends in feeding.
10. Formulate rations with economic feasibility.
11. Identify various primary and by-product feeds, forms and processing techniques.
12. Analyze and comprehend various procurement strategies for feed stuff purchases.
13. Formulate balanced rations for livestock.
14. Identify career requirements and potential opportunities leading to successful employment.

**Topics and Scope:**

- I. Concepts of Nutrition
  - A. Historical advancements
  - B. Animal nutrition and its role in society
- II. Feed Analysis and Source
  - A. Protein
  - B. Carbohydrates
  - C. Fats
  - D. Vitamins
  - E. Minerals
  - F. Water
- III. Animal Growth, Composition and Variability
  - A. Water
  - B. Energy
    - 1. Carbohydrates
    - 2. Fats
  - C. Proteins
  - D. Inorganic elements
  - E. Vitamins
- IV. The Gastrointestinal Tract
  - A. Types of gastrointestinal tracts:
    - 1. Ruminant
    - 2. Monogastric
    - 3. Modified mono gastric
  - B. The role of G.I. secretions in the digestive process
  - C. Digestion and absorption
  - D. Transport of nutrients after catabolism
  - E. Fecal and urinary excretions
- V. Nutrient Metabolism
  - A. Water
  - B. Carbohydrates
  - C. Lipids
  - D. Proteins and Amino Acids.
  - E. Inorganic Minerals
    - 1. Macro or primary elements
    - 2. Micro or trace elements
    - 3. Toxic elements and symptoms
- VI. Applied Nutrition
  - A. Feeding standards and productivity
  - B. Feedstuffs
  - C. Preparation and processing
  - D. Ration formulations
  - E. Non-caloric performance enhancers
- VII. Feeding Practices
  - A. Beef cattle
  - B. Dairy cattle
  - C. Sheep
  - D. Swine
  - E. Horses
- VIII. Career Opportunities in Animal Sciences

All topics are covered in both the lecture and lab portions of the course.

## Assignment:

### Lecture-Related Assignments:

1. Read periodicals, handouts, and textbooks (20 pages per week)
2. One to two term papers (3 to 4 pages)
3. Quizzes (6 - 9)
4. Two Midterms
5. Final Exam

### Lab-Related Assignments:

1. Worksheets (16--one per week)
2. Ration calculations problems

## Methods of Evaluation/Basis of Grade:

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Reports, lab worksheets, term papers

Writing  
10 - 30%

**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Homework problems

Problem solving  
20 - 30%

**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Ration calculations problems

Skill Demonstrations  
10 - 30%

**Exams:** All forms of formal testing, other than skill performance exams.

Quizzes, midterms, final

Exams  
30 - 60%

**Other:** Includes any assessment tools that do not logically fit into the above categories.

Attendance and participation

Other Category  
0 - 10%

## Representative Textbooks and Materials:

Animal Feeding and Nutrition. 11th ed. Jurgens, Marshall and Hansen, Stephanie and Coverdale, Joie. Kendall/Hunt Publishing Company. 2012 (classic)

Church, D.C., Livestock Feeds and Feeding. 6th ed. Kellems, Richard and Church, David. Pearson. 2009 (classic)

Basic Animal Nutrition and Feeding. 5th ed. Pond, Wilson and Church, David and Pond, Kevin. John Wiley and Sons. 2004 (classic)

National Academy Press, NRC Pamphlets

