

AN 212

Introduction to Livestock Nutrition

3 Credits

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AN 212 Version: 9



Introduction to Livestock Nutrition

Calendar Description

Students learn the principles and practices of nutrition as they apply to large animals. Each nutrient class is studied in relation to its function, deficiency and requirement in the body. Nutrient requirements for maintenance, growth, and production are applied through the formulation of diets for beef, dairy, swine, and horses. Students work through practical feeding programs based on economics and available feeds.

Rationale

This is a required course for the Agribusiness and Animal Science Technology students. It is important that employees of the livestock industry learn core principles and practices in the feeding management of large animals. This knowledge aids in understanding the basics for feed planning, facilities, marketing, financing and labor. Students who complete this course will have worked with basic balanced diets, been exposed to various types of feeds used in Canada and outlined feeding programs.

Prerequisites

None

Co-Requisites

None

Course Learning Outcomes

Upon successful completion of this course, students will be able to

1. explain the basics of nutrient digestion and absorption of common feeds.
2. explain the physiological differences between ruminants and monogastrics.
3. discuss each nutrient class as it relates to balanced nutrition and disease.
4. identify and discuss feeds commonly used for feeding various classes of livestock.
5. describe factors that affect ration quality.
6. plan feeding programs to minimize feeding related problems.
7. formulate and balance basic rations for common classes of livestock.

Resource Materials

Required Text:

None

Reference Texts:

Kellems, Richard, & Church, D. C. (2010). *Livestock feeds and feeding* (6th ed.). Upper Saddle River, NJ: Prentice Hall.

Committee on Nutrient Requirements of Beef Cattle, Board on Agriculture and National Research Council, Division on Earth and Life Sciences. (2016). *Nutrient requirements of beef cattle* (8th ed.). Washington, DC: National Academy Press.

Subcommittee on Horse Nutrition, Committee on Animal Nutrition, Board on Agriculture and National Research Council. (1989). *Nutrient requirements of horses* (5th ed.). Washington, DC: National Academy Press.

Subcommittee on Dairy Cattle Nutrition, Committee on Animal Nutrition, Board on Agriculture and Natural Resources, National Research Council. (2001). *Nutrient Requirements of Dairy Cattle* (7th ed.). Washington, DC: National Academy Press.

Conduct of Course

This course involves approximately 42 hours of classroom lecture that is a blend of notes and discussion. The laboratory sessions are approximately 28 hours. The labs involve balancing rations, completing various calculations and assessing quality of feeds and feeding programs. The lecture and laboratory sessions each have in-class and take home assignments.

Evaluation Procedures

Term Test 1	15%
Term Test 2	15%
Quizzes	15%
Lab Assignments	15%
Final Exam	25%
Major Project	<u>15%</u>
Total	100%

Makeup term tests are given only for excused absences and are expected to be made up as soon as possible (prior to the next class period if possible). In case of an emergency, call the instructor the day prior. The instructor reserves the ability to hold pop quizzes throughout the semester with no prior notification.

The student is advised to keep track of their own assignments and review returned materials.

The student must provide a written request for intended absences prior to the exam date to be eligible to have an alternate date. The student must contact the instructor within 24 hours after an unexpected missed date. Failure to do so will forfeit the option of an alternate for assignments or examination date.

Grade Equivalents and Course Pass Requirements

A minimum grade of D (50%) (1.00) is required to pass this course.

Letter	F	D	D+	C-	C	C+	B-	B	B+	A-	A	A+
Percent Range	0-49	50-52	53-56	57-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95-100
Points	0.00	1.00	1.30	1.70	2.00	2.30	2.70	3.00	3.30	3.70	4.00	4.00

Students must maintain a cumulative grade of C (GPA - Grade Point Average of 2.00) in order to qualify to graduate.

Attendance

Classroom and laboratory attendance is considered vital to the learning process and as significant to the students' evaluation as examinations and reports.

- a. Students having a combination of excused and/or unexcused absence of 20 percent or higher for the scheduled course hours will be required to withdraw and will automatically receive a "RW" (required withdrawal) for the course, regardless of any other evaluation results. (RW is a failing grade.)
- b. An excused absence is one that is verified with your Instructor. Verification should be prior to the absence or the next class day following the absence. Verification of the absence may take the form of a note from your doctor/College nurse regarding illness, or a note from another Instructor regarding a field trip or other activity, or authorization by your Instructor. An unexcused absence is anything NOT verified by the instructor prior to the absence or the next class day following the absence.

NOTE: Any exceptions to the above attendance policy (e.g. timetable conflicts, work-related issues) must be approved in writing by the Department Chair prior to the beginning of the course.

Course Units/Topics

1. Feed Identification and Feed Processing
2. Feed Sampling, Testing and Interpretation
3. Feed Intake and Digestion
4. Water
5. Carbohydrates
6. Proteins
7. Lipids
8. Vitamins
9. Minerals
10. Guidelines to Ration Balancing
11. Factors Affecting Nutrient Requirements
12. Factors Affecting Ration Quality
13. Balancing Diets for Large Animals



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