Department: ANIMAL RESOURCES

College: AGRICULTURAL ENGINEERING SCIENCES

University: SALAHADDIN-ERBIL

Subject: FEEDS & FEEDING

Course Book – 2nd *YEAR STUDENT*

Lecturer's name: Dr. Susan. M. N. Muhamad BSc., MSc., PhD.

(Asst. prof.)

Dr. Nawzad Muhamad Aziz   BSc, MSc., PhD.

(Asst. prof.)

Practical by: Mr. Adnan Heme Seid Resol BSc., MSc.

Mrs. Mhabad Ebrahim Saed BSc., MSc.

Academic Year: 2022-2023

Course Book

1. Course name	**FEEDS & FEEDING**
2. Lecturer in charge	**Dr. SUSAN M. NUR MUHAMAD**
3. Department/ College	**ANIMAL RESOURCES/AGRICULTURE**
4. Contact	**e-mail: Suzan.muhamad@su.edu.krd** **Tel:07504135247**
5. Time (in hours) per week	**Theory: 2** **Practical: 3**
6. Office hours	**Sunday, Monday and Wednesday (9.0 am to 1.0 pm)**
7. Course code	
8. Teacher's academic profile	**Dr. Suzan M. Nur Muhamad BSc., MSc., PhD. (Asst. prof.)** **Dr. Nawzad Mhamad Aziz BSc. MSc., PhD. (Asst. prof.)** **Mrs. Mhabad Ebrahim Saed BSc, MSc. (Asst. lect.)** **Mr. Adnan Heme Seid.(Asst. lect.)**
9. Keywords	

10. Course overview:

Numerous different products have been used from time over the years for feeding purposes. However, a relatively limited number of their products make up the bulk of the nations feed supply.

Feeds of many origins, qualities, and availabilities are used in animal diets in the world. The nutritive content varies tremendously among them.

** Feed represents a major cost in any intensive system of animal production. Even with sheep, which typically consume more roughage (as a percentage of their diet) than other domestic species. Feed may represent 55% or more of total production cost. A value of 75-80% might be more appropriate for poultry. Thus, it is imperative to supply an adequate diet (in terms of nutrient content) and to prepare and present the ration in a manner that will encourage consumption without excessive feed wastage.**

The proper feeding of livestock is, for the most part, a matter of supplying them with the right amounts of those chemical elements and compounds essential for carrying on the different life processes.

11. Course objective (Theory):

1- Describe how feedstuffs are classified and identify the major categories of feedstuffs and their characteristics.

2- Identify the nutritive characteristics in various feedstuff categories.

12. Student's obligation

Students should attend the lectures (theory and practical) and participate in all quizzes during the course, also monthly examination and home work with reports required.

13. Forms of teaching

The forms of teaching include data show, power point also white board for explaining the subjects which needs more explanation and mathematical solutions.

14. Assessment scheme

Theoretical (65%) + Practical (35%)=100%

Theoretical (65%)

15% (Monthly Examination)

50% (Final Examination)

Practical (35%)

Monthly Examination

15. Student learning outcome:

During this semester the student should learn the objective for studding feeds & feeding subject, and how feedstuffs are classified and identify the major categories of feedstuffs and their characteristics. Also, identify the nutritive characteristics in various feedstuff categories.

16. Course Reading List and References:
1- Perry, T.W.; Cullison, A.E. & Lowrey, R.S. (2004) Feeds & Feeding (6th Ed.). Prentice Hall
2-Chahal ,S.U.& S.Kumar,2008.Handbook of General Animal.
 3- Church, D.C. (1983) Livestock Feeds & Feeding (2nd Ed.). Prentice Hall
 4- Damron, W.S. (2006) Introduction To Animal Science (3rd Ed.). Prentice Hall
5- Ensminger, M. E.; Oldfield, J. E. & Heinemann, W. W. (1990) Feeds & Nutrition Digest (2nd Ed.). Ensminger Publishing Co.
6- Perry, T.W.; Cullison, A.E. & Lowrey, R.S. (2004) Feeds & Feeding (6th Ed.). Prentice Hall
7-Stein, H. H., L. L. Berger, J. K. Drackley, G. C. Fahey Jr, D. C. Hernot and C. M. Parsons. 2008. Nutritional properties and feeding values of soybeans and their coproducts. Soybeans chemistry, production, processing, and utilization. AOCS Press, Urbana, IL. pp. 613-660.

17. The Topics:	Lecturer's name
Introduction **The evaluation of feedstuffs**	Dr. Suzan Muhamad Nur (2 hrs.) 1St WK /9/2022
General Functions of Feed Nutrients	Dr. Suzan Muhamad Nur (2 hrs.) 2nd WK /9/2022
Classification of Feedstuff	Dr. Suzan Muhamad Nur (2 hrs.) 3Rd WK /9/2022
Feedstuff categories	Dr. Suzan Muhamad Nur (2 hrs.) 4Th WK /9/2022
Characteristics of feedstuff	Dr. Suzan Muhamad Nur (2 hrs.) 5Th WK /10/2022
The Measurement of Nutritive Value	Dr. Suzan Muhamad Nur (2 hrs.) 6Th WK /10/2022
Digestibility: **Digestion and Feeding Trials.**	Dr. Suzan Muhamad Nur (2 hrs.) 7Th WK /10/2022
Some Grazing Tips	Dr. Nawzad M.Aziz (2 hrs.) 8Th WK /10/2022
Feed blocks	Dr. Nawzad M.Aziz (2 hrs.) 9Th WK /11/2022
Feedstuff Energy.	Dr. Nawzad M.Aziz (2 hrs.) 10Th Wk/ 11 /2022
Mineral and Vitamin supplements.	Dr. Nawzad M.Aziz (2 hrs.) 11Th WK /11 /2022
Feed preparation and processing.	Dr. Nawzad M.Aziz (2 hrs.) 12Th Wk/ 11/2022
Balancing Rations	Dr. Nawzad M.Aziz 4 hrs.13&14Th WK/12/ 2022
Physical appearance.	Dr. Nawzad M.Aziz 2 hrs. 15Th Wk / 12 / 2022

19. Examinations:

Q1/ Answer the following:-

A-   What are the Learning objectives of feedstuffs classification, and then draw a table showing the NRC classification of feeds?

1- Describe how feedstuffs are classified and identify the major categories of feedstuffs and their characteristics.

2- Identify the nutritive characteristics in various categories.

B-Explain the methods used to cheat feedstuffs and how you can detect it?

1- Adding water on green forages like alfalfa, to increase its weight when delivered to the customer. It is detected by determination moisture percent.

2- Adding cheap minerals sources like soil, salts and calcium carbonate. It is detected by determination of ash and Nacl percent.

3- Adding urea to increase crude protein percentage, which is regarded as cheap sources for non-protein nitrogenous compounds (NPN). As we know that urea contains 46% nitrogen, that mean 1Kg of urea can replace 12Kg of cotton seed meal with 24% crude protein. It is detected by determination energy in the mixture, because urea have no energy value.

4- Adding grinded roughages, it is detected by determination of crude fiber.

5- Adding cheap plant protein sources instead of expensive animal protein sources like blood meal, fish meal and meat meal. It is detected by determination of amino acids.

6-Increasing the ratio of holder in vitamin concentrate, trace mineral concentrate, which is resulted in reducing the percentage of vitamin and trace minerals? It is detected by determination of their percentage in the mixture.

Q2/ Complete the following sentences with missing words or statements:

1-The three basic functions of feed nutrients in the animal body as a _ structural material for building and maintaining the body structure _ , _ As a source of energy for heat production, work, and/or fat deposition _ , & For _ regulating body processes or in the formation of body –produced regulators _ .

2-To change PPM to %, simply _ Divide _ by _ 10000 _ . While to change % to PPM, simply _ multiply _ by _ 10000 _ .

3-Haylage is low moisture silage, made from grasses and/or legumes that are wilted to _ 40-55 _% moisture content before _ Ensiling _ .

4-The process of Ensiling is to produce silage from _ Plant _ material under _ Anaerobic _ conditions.

5-Feed processing objective is, the target animal is able to utilize the greatest possible _ proportion _ of required _ nutrients _ from the feed.

6-Water in the feed is of no more value to an animal than from other _ sources _ .

7-The digestibility of a food is defined as the proportion which is not excreted in the _ faeces _ and which is, therefore, assumed to be _ absorbed _ by the animal.

8-Protein supplements include feeds from three major sources _ Plant origin _ , _ Animal origin _ and _ NPN sources _ .

9- The factors effects on Nutritive value of feedstuffs are _ Maturity _ , _ Weather change _ , _ Soil fertility _ , and _ Plant species _ . Harvesting method

10-During Digestibility trials, the food under investigation is given to the animal in _ Known _ amounts and the output of faeces _ Measured _ .

11-Total mixed ration (TMR) is a type feed that combines _ Roughage _ , _ concentrate _ , _ Minerals _ and other feed ingredients in line with the amounts required for supply to animals.

12-Protein feeds, includes feeds that contain more than _ 20 _% or protein _ Equivalent _ , example such as _ pea & broad bean _ .

20. Extra notes:

Here the lecturer shall write any note or comment that is not covered in this template and he/she wishes to enrich the course book with his/her valuable remarks.

21. Peer review   پێداچوونەوەی هاوەڵ

This course book has to be reviewed and signed by a peer. The peer approves the contents of your course book by writing few sentences in this section.

(A peer is person who has enough knowledge about the subject you are teaching, he/she has to be a professor, assistant professor, a lecturer or an expert in the field of your subject).

ئەم کۆرسبووکە دەبێت لەلایەن هاوەڵێکی ئەکادیمیەوە سەیر بکرێت و ناوەڕۆکی بابەتەکانی کۆرسەکە پەسەند بکات و چەند ووشەیەک بنووسێت لەسەر شیاوی ناوەڕۆکی کۆرسەکە و واژووی لەسەر بکات.

هاوەڵ ئەو کەسەیە کە زانیاری هەبێت لەسەر کۆرسەکە و دەبیت پلەی زانستی لە مامۆستا کەمتر نەبێت.