UNIVERSITAS SUMATRA UTARA(USU)
FACULTY OF AGRICULTURE
ANIMAL SCIENCE STUDY PROGRAM

Document Code

SEMESTER LEARNING PLAN

COURSE (Course)	CODE	MK Group	WEIGHT (credits)		SEMESTER	Date of Compilation
POULTRY NUTRITION SCIENCE	PTN3215	Exact	**Theory** =2	**Practice** =1	VI (Six)	

	Developer Lecturer	Vice Dean I	Chairman of LINK-UP USU
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Learning Outcomes

LO-Charged to Course Learning	
LO03	Able to identify, formulate, and find solutions to problems related to the livestock sector
LO06	Conduct supervision and evaluation of the completion of assigned work and be able to manage lifelong learning independently
LO09	Able to manage and implement aspects of efficient feed provision and technology
LO11	Able to develop, understand and apply a variety of the best techniques and methods that combine theory and practice relevant to livestock expertise.

Course Learning Outcomes (CLO)	CLO Weight
CLO0323:Able to explain the basic benchmarks for nutritional requirements of various poultry livestock.	42.85
CLO0620:Able to make analysis of variability of nutritional needs and deficiencies in poultry livestock	38.09

	CLO0910:Able to prepare rations that suit the needs/status of poultry livestock	9.52
	CLO1124: Able to apply the latest scientific developments in poultry nutrition science	9.52
	Final Ability of Each Learning Stage (Sub-CLO)	
	Sub-CLO1	After taking this lecture, students will be able to map the concept of poultry nutrition science.
	Sub-CLO2	After taking this lecture, students will be able to formulate carbohydrates as a nutrient needed by poultry.
	Sub-CLO3	After taking this lecture, students will be able to formulate fat as a food substance needed by poultry.
	Sub-CLO4	After taking this lecture, students will be able to formulate protein as a food substance needed by poultry.
	Sub-CLO5	After taking this lecture, students will be able to formulate the energy requirements of poultry for growth and production.
	Sub-CLO6	After taking this lecture, students will be able to formulate vitamins as nutrients needed by poultry.
	Sub-CLO7	After taking this lecture, students will be able to formulate minerals as nutrients needed by poultry.
	Sub-CLO8	After taking this lecture, students will be able to formulate food ingredients (feed) for poultry.
	Sub-CLO9	After taking this lecture, students will be able to formulate the digestive organs in poultry.

Correlation of CLO with Sub-CLO

	Sub-CLO 1	Sub-CLO 2	Sub-CLO 3	Sub-CLO 4	Sub-CLO 5	Sub-CLO 6	Sub-CLO 7	Sub-CLO 8	Sub-CLO 9
CLO 0323	√	√	√	√	√	√	√	√	√
CLO 0620		√	√	√	√	√	√	√	√
CLO 0910								√	√
CLO 11244								√	√

Brief Description of Course	After completing the Poultry Nutrition Science course, sixth semester students of the Animal Husbandry Study Program, Faculty of Agriculture, University of North Sumatra are expected to be able to formulate and skillfully apply the correct science of poultry nutrition, so that after taking this course, students are expected to have skills in the science of poultry nutrition.
Study Material:	**BK04**Animal Nutrition and Feed Science 1. The scope of poultry nutrition science 2. Carbohydrate

Learning materials	3. Fat 4. Protein 5. Energy 6. Vitamin 7. Mineral 8. Poultry feed ingredients 9. Digestive organs in poultry
Library	**Main:** 1. Rizal Y. 2006. Poultry Nutrition Science. Padang: Andalas University Press
	Supporters: 1. Muhammad Halim Natsir, Mashudi, Osfar Sjofjan, Artharini Irsyammawati, Hartutik. 2019. Animal Feed Processing Technology. Publisher: UB Press, Malang 2. Muhammad Halim Natsir, Eko Widodo, Osfar Sjofjan. 2017. Animal Feed Industry. Publisher: UB Press, Malang 3. Eko Widodo, Muhammad Halim Natsir, Osfar Sjofjan. 2018. Poultry Feed Additives as Antibiotic Substitutes: A Response to the Indonesian Government's Antibiotic Ban. Publisher UB Press, Malang 4. Journal Collection
Supporting lecturer	Dr. Ade Trisna S.Pt., MM Ir. Tati Vidiana Sari S.Pt., MP, IPM Ir. Armyn Hakim Daulay MBA
Required Courses	-

Week 2-	**Final ability of each learning stage (Sub-CLO)**	**Evaluation**		**Form of Learning; Learning methods; Student Assignments; [Estimated Time]**		**Study Materials (Learning materials)**	**Assessment Weight (%)**
		Indicator	**Criteria and Techniques**				
(1)	**(2)**	**(3)**	**(4)**	**Asynchronous (5)**	**Synchronous (6)**	**(7)**	**(8)**
1	**Sub-CLO1:** After taking this lecture, students will be able to formulate the scope of poultry nutrition science.	Accuracy in explaining the importance of poultry nutrition science in supporting	**Criteria:** - **Technique:** Non-Test	KM+PT (1 week x 2 credits x 120 minutes) **Activity:** 1. Attendance absence	TM (1 week x 2 credits x 50 minutes) **Activity:** *1. Offline Learning* *2. Class Discussion*	**Subject:** 1. Study Contract *2.* The scope of poultry nutrition science	5%

		knowledge in the field of animal husbandry		2. Download and read the Syllabus (RPS), Learning Implementation Plan (SAP), Course Agreement, and Learning Materials. **Learning methods:** *Self-Paced Learning* **Mode (Learning Management System):** elearning@usu.ac.id	*3. Note Taking* **Media:** *1. Power Point Presentation* *2. Text Book* **Learning methods**: *1. Lecturer* *2. Discussion* 3. *Self-Paced*		
2	**Sub-CLO 2:** After taking this lecture, students will be able to formulate carbohydrates as a nutrient needed by poultry.	1.Accuracy in explaining the types of carbohydrates that can be utilized 2.Accuracy in explaining pdigestion and absorption of carbohydrates by poultry 3.Accuracy in explainingcarbohydrate breakdown process 4.Accuracy in explainingsugar storage in chicken body	**Criteria:** Assessment rubric. **Technique:** *Non-Test*	KM+PT (1 week x 2 credits x 120 minutes) **Activity:** 1. Attendance absence 2. Download and read the Syllabus (RPS), Learning Implementation Plan (SAP), Course Agreement, and Learning Materials. 3. Responding to the opening question **Mode (Learning Management System):** elearning@usu.ac.id	TM (1 week x 2 credits x 50 minutes) **Activity:** *1. Offline Learning* *2. Class Discussion* *3. Note Taking* **Media:** *1. Power Point Presentation* *2. Text Book* **Learning methods**: *1. Lecturer* *2. Discussion* 3. *Self-Paced*	**Subject:** 1. Types of carbohydrates that can be utilized by poultry 2. Digestion and absorption of carbohydrates by poultry 3. Carbohydrate breakdown process 4. Sugar storage in the chicken body	5%

3-4	**Sub-CLO 3:** After taking this lecture, students will be able to formulate fat as a food substance needed by poultry.	1. Accuracy in explainingfunction of fat in poultry body 2. Accuracy in explainingfat classification 3. Accuracy in explainingtypes of fatty acids 4. Accuracy in explainingdigestion and absorption of fat by poultry 5. Accuracy in explainingpoultry fat and body transport 6. Accuracy in explainingbody fat usage 7. Accuracy in explainingfatty acids commonly found in poultry rations	**Criteria:** Assessment rubric. **Technique:** *Test:* *1. Case method*	KM+PT (1 week x 2 credits x 120 minutes) **Activity:** 1. Attendance absence 2. Download and read the Syllabus (RPS), Learning Implementation Plan (SAP), Course Agreement, and Learning Materials. 3. Responding to the opening question ***Case Method 1:*** 1. Divide the groups evenly (the lecturer divides) 2. Making a paper on fat as a food substance needed by poultry, maximum 15 pages from the table of contents to the bibliography, TMR font size 12, 1.5 spacing, sent in PDF format. 3. Group presentation **Mode (Learning Management System):** elearning@usu.ac.id	TM (1 week x 2 credits x 50 minutes) **Activity:** *1. Offline Learning* *2. Class Discussion* *3. Note Taking* **Media:** *1. Power Point Presentation* *2. Text Book* **Learning methods**: *1. Lecturer* *2. Discussion* *3. Self-Paced*	**Subject:** 1. Function of fat in poultry body 2. Classification of fats 3. Types of fatty acids 4. Digestion and absorption of fat by poultry 5. Transport of poultry fat and body 6. Use of body fat 7. Fatty acids commonly found in poultry rations	Case Method 1: 10%

5-6	**Sub-CLO 4:** After taking this lecture, students will be able to formulate protein as a food substance needed by poultry.	1. Accuracy in explainingfunction and classification of proteins 2. Accuracy in explainingamino acids for poultry 3. Accuracy in explainingdigestion and absorption of protein by poultry 4. Accuracy in explainingprotein breakdown in the body 5. Accuracy in explainingprotein requirements for poultry 6. Accuracy in explainingthe relationship between amino acids 7. Accuracy in explainingfactors that influence amino acid requirements 8. Accuracy in explainingsymptoms of deficiency or	**Criteria:** Assessment rubric. **Technique:** *Test:* *1. Quiz*	KM+PT (1 week x 2 credits x 120 minutes) **Activity:** 1. Attendance absence 2. Download and read the Syllabus (RPS), Learning Implementation Plan (SAP), Course Agreement, and Learning Materials. 3. Responding to the opening question ***Quiz 1:*** *Quiz to measure students' understanding of protein as a nutrient needed by poultry* **Mode (Learning Management System):** elearning@usu.ac.id	TM (1 week x 2 credits x 50 minutes) **Activity:** *1. Offline Learning* *2. Class Discussion* *3. Note Taking* **Media:** *1. Power Point Presentation* *2. Text Book* **Learning methods**: *1. Lecturer* *2. Discussion* *3. Self-Paced*	**Subject:** 1. Function and classification of proteins **2.** Amino acids for poultry **3.** Digestion and absorption of protein by poultry **4.** Protein breakdown in the body **5.** Protein requirements for poultry **6.** Relationship between amino acids **7.** Factors that influence amino acid requirements **8.** Symptoms of deficiency or excess of protein / amino acids	Quiz 1: 5%

		excess of protein / amino acids					
7	**Sub-CLO 5:** After taking this lecture, students will be able to formulate the energy requirements of poultry for growth and production.	1. Accuracy in explaininguse and distribution of energy consumed by poultry 2. Accuracy in explainingenergy requirements in poultry 3. Accuracy in explainingfactors that influence energy requirements in poultry 4. Accuracy in explaininghow to measure energy needs	**Criteria:** Assessment rubric. **Technique:** *Test:* *1. Case method*	KM+PT (1 week x 2 credits x 120 minutes) **Activity:** 1. Attendance absence 2. Download and read the Syllabus (RPS), Learning Implementation Plan (SAP), Course Agreement, and Learning Materials. 3. Responding to the opening question ***Case Method 2:*** 1. Divide the groups evenly (the lecturer divides) 2. Making a paper on energy requirements for poultry livestock for growth and production 15 pages from the table of contents to the bibliography TMR font size 12 1.5 spacing sent in PDF format 3. Group presentation **Mode (Learning Management System):**	TM (1 week x 2 credits x 50 minutes) **Activity:** *1. Offline Learning* *2. Class Discussion* *3. Note Taking* **Media:** *1. Power Point Presentation* *2. Text Book* **Learning methods**: *1. Lecturer* *2. Discussion* *3. Self-Paced*	**Subject:** 1. Use and distribution of energy consumed by poultry 2. Energy requirements in poultry 3. Factors that influence energy requirements in poultry 4. How to measure energy needs	Case Method 2: 10%

				elearning@usu.ac.id			
8	MID SEMESTER EXAMINATION						15%
9-10	**Sub-CLO 6:** After taking this lecture, students will be able to formulate vitamins as nutrients needed by poultry.	1. Accuracy in explaining the classification of vitamins that are important for poultry 2. Accuracy in explaining vfat soluble vitamins 3. Accuracy in explainingwater soluble vitamins	**Criteria:** Assessment rubric. **Technique:** *Test:* *1. Case method*	KM+PT (1 week x 2 credits x 120 minutes) **Activity:** 1. Attendance absence 2. Download and read the Syllabus (RPS), Learning Implementation Plan (SAP), Course Agreement, and Learning Materials. 3. Responding to the opening question ***Case Method 3:*** 1. Divide the groups evenly (the lecturer divides) 2. Making a paper on vitamins as a food substance needed by poultry livestock, 15 pages from the table of contents to the bibliography, TMR font size 12, 1.5 spacing, sent in PDF format. **Mode (Learning Management System):** elearning@usu.ac.id	TM (1 week x 2 credits x 50 minutes) **Activity:** *1. Offline Learning* *2. Class Discussion* *3. Note Taking* **Media:** *1. Power Point Presentation* *2. Text Book* **Learning methods**: *1. Lecturer* *2. Discussion* *3. Self-Paced*	**Subject:** *1.* Classification of vitamins important for poultry *2.* Fat soluble vitamins *3.* Water-soluble vitamins	Case Method 3: 10%

11-12	**Sub-CLO 7:** After taking this lecture, students will be able to formulate minerals as nutrients needed by poultry.	1. Accuracy in explainingFunction, absorption and requirements of macro minerals for poultry 2. Accuracy in explainingFunction, absorption and requirements of micro minerals for poultry	**Criteria:** Assessment rubric. **Technique:** *Non-Test:*	KM+PT (1 week x 2 credits x 120 minutes) **Activity:** 1. Attendance absence 2. Download and read the Syllabus (RPS), Learning Implementation Plan (SAP), Course Agreement, and Learning Materials. 3. Responding to the opening question **Mode (Learning Management System):** elearning@usu.ac.id	TM (1 week x 2 credits x 50 minutes) **Activity:** *1. Offline Learning* *2. Class Discussion* *3. Note Taking* **Media:** *1. Power Point Presentation* *2. Text Book* **Learning methods**: *1. Lecturer* *2. Discussion* *3. Self-Paced*	**Subject:** *1.* Function, absorption and requirements of macro minerals for poultry *2.* Function, absorption and requirements of micro minerals for poultry	10%
13-14	**Sub-CLO 8**: After taking this lecture, students will be able to formulate food ingredients (feed) for poultry.	1. Accuracy in explainingtypes and ingredients of food that can be given to poultry 2. Accuracy in explainingplant-based food ingredients 3. Accuracy in explaininganimal food ingredients 4. Accuracy in explainingalternative food ingredients	**Criteria:** Assessment rubric. **Technique:** *Test:* 1. *Case method*	KM+PT (1 week x 2 credits x 120 minutes) **Activity:** 1. Attendance absence 2. Download and read the Syllabus (RPS), Learning Implementation Plan (SAP), Course Agreement, and Learning Materials. 3. Responding to the opening question ***Case Method 4:*** 1. Divide the groups evenly (the lecturer divides)	TM (1 week x 2 credits x 50 minutes) **Activity:** *1. Offline Learning* *2. Class Discussion* *3. Note Taking* **Media:** *1. Power Point Presentation* *2. Text Book* **Learning methods**: *1. Lecturer* *2. Discussion* *3. Self-Paced*	**Subject:** 1. Types and ingredients of food that can be given to poultry 2. Plant-based foods 3. Animal food ingredients 4. Alternative food ingredients 5. Non-nutritional food additives	Case Method 4: 10%

		5. Accuracy in explainingnon-nutritional food additives		2. Making a paper on minerals as a food substance needed by poultry livestock, 15 pages from the table of contents to the bibliography, TMR font size 12, 1.5 spacing, sent in PDF format. **Mode (Learning Management System):** elearning@usu.ac.id			
15	**Sub-CLO 9**: After taking this lecture, students will be able to formulate the digestive organs in poultry.	Accuracy in explainingdigestive organs in poultry	**Criteria:** Assessment rubric. **Technique:** *Test:* *1. Quiz*	KM+PT (1 week x 2 credits x 120 minutes) **Activity:** 1. Attendance absence 2. Download and read the Syllabus (RPS), Learning Implementation Plan (SAP), Course Agreement, and Learning Materials. 3. Responding to the opening question ***Quiz 2:*** *Quiz to measure students' understanding of the topicpoultry digestive system*	TM (1 week x 2 credits x 50 minutes) **Activity:** *1. Offline Learning* *2. Class Discussion* *3. Note Taking* **Media:** *1. Power Point Presentation* *2. Text Book* **Learning methods**: *1. Lecturer* *2. Discussion* *3. Self-Paced*	**Subject:** Digestive organs in poultry	Quiz 2: 5%

				Mode (Learning Management System): elearning@usu.ac.id			
16	FINAL SEMESTER EXAMINATION						15%

Assessment Design:

CLO Code and Percentage	Sub-CLO Code	Evaluation Form	Percentage (%)	Total	Implementation of Evaluation
CLO0323 (42,85%)	Sub-CLO1	Mid Therm Exam	6	42,85%	Week 8
	Sub-CLO2	Final Exam	6		Week 16
	Sub-CLO3	Quis	3		Week 15
	Sub-CLO4	Case Method	6		Week 9
	Sub-CLO5	Case Method	6		Week 10
	Sub-CLO6	Final Exam	3		Week 12
	Sub-CLO7	Case Method	6		Week 13
	Sub-CLO8	Case Method	6		Week 15
	Sub-CLO9	Quis	3		Week 9
CLO0620 (38,09%)	Sub-CLO1	Mid Therm Exam	5.5	38,09%	Week 8

	Sub-CLO2	Mid Therm Exam	5.5		Week 8
	Sub-CLO3	Case Method	5		Week 3
	Sub-CLO4	Quis	5		Week 4
	Sub-CLO5	Case Method	5		Week 6
	Sub-CLO6	Case Method	5		Week 9
	Sub-CLO7	Final Exam	6		Week 10
	Sub-CLO8	Case Method	5		Week 12
CLO0910 (9,52%)	Sub-CLO3	Case method	5	9,52%	Week 3
	Sub-CLO6	Case method	5		Week 9
CLO1102 (9,52%)	Sub-CLO9	Case methode	5	9,52%	Week14
	Sub-CLO10	Quis	5		Week15
Total			100%	100%	

Assessment Plan:

Evaluation Form	Sub-CLO	Assessment Instrument [Frequency]		Invoice (proof)	Assessment Credit (%)
		Formative	**Summative**		
Quiz/Q&A	Sub-CLO3 and Sub-CLO8	Assessment rubric [2 times]	-	Quiz answers uploaded to kelas.usu.ac.id	10
Case Methode	Sub-CLO4 and Sub-CLO9	Feedback results case analysis [5 times]	Assessment rubric [2 times]	Logbook/worksheet/slides uploaded to kelas.usu.ac.id	50
Written exam 1 (UTS)	Sub-CLO1, Sub-CLO2, Sub-CLO3, Sub-CLO4, Sub-CLO5, Sub-CLO6 and Sub-CLO7	-	Assessment rubric [1 time]	Written exam result sheet	20
Written exam 2 (UAS)	Sub-CLO8, Sub-CLO9, Sub-CLO10, Sub-CLO11, Sub-CLO12, Sub-CLO13 and Sub-CLO14	-	Assessment rubric [1 time]	Written exam result sheet	20
Total					**100%**

Explanation:

a) Quiz 10%

During the semester there will be 2 quizzes held in class. The quizzes will be conducted via e-learning and have been scheduled in advance. The material being tested is announced by the lecturer and written in the RPS.

b) *Case Method*50%
During the semester there will be a case method, each student will make a paper and report from each case method in groups. The case method in this course is done 5 times. The paper that has been made will be presented by students. Students will be assessed according to their participation in the presentation and accuracy in the presentation, as well as their participation in the question and answer session when other groups are presenting.

c) Midterm Exam 20%
The midterm exam covers all the materials that have been discussed since the beginning of the semester until the 7th meeting, both reading and lecture. This exam is conducted in class with multiple choice questions, short answers, and essays.

d) Final Exam 20%
The final semester exam covers all the material that has been discussed since the 9th to 15th meeting, both reading and lecture. This exam is conducted in class in the form of multiple choice questions, short answers, and essays.

ASSESSMENT RUBRIC

Post Test Quiz Assessment Rubric (10%)

The Pre/Post test questions consist of 5 essay questions done on one sheet of paper (done 4 times during 1 semester)

Value per question item	Criteria
20	Can answer questions correctly, complete the steps correctly, and completely correct
15	The steps for completing the questions are correct, there are a few errors.
10	Most of the steps in completing the questions are correct, there are many errors.
5	The steps for completing the question are not correct, the question cannot be completed

***Maximum score = 100 (5 questions x 20 points)**

Minimum score = 25 (5 questions x 5 points)

Quiz score 1: (maximum score is 100)$20 \times \sum nilai\ per\ butir\ soal$

Quiz score 2: (maximum score is 100)$20 \times \sum nilai\ per\ butir\ soal$

Total score if you take all post-test quizzes with a perfect score is 200 x 10%[quiz percentage] = 20

Assessment Rubric for Group Presentation Assignment Case Method Knowledge of Livestock Products

Matter	Evaluation criteria				
Contents	Complete, with additional good material (20)	Complete (18)	Same as text book (16)	Not complete, but most of the material is covered (14)	Substantially incomplete (12)
Answering Discussion Questions	Able to answer all questions correctly (20)	Can answer most of the questions correctly but there are some questions that are not answered (18)	Able to answer some questions correctly, some others did not reach the target and there were questions that were not answered (16)	Most of the answers did not reach the target and there were unanswered questions (14)	Can't answer all questions (12)
Presentation	Clear, concise with good flow (20)	Clear, concise with sometimes poor flow (18)	Moderate presentation skills (16)	Presentation stutters (14)	Presentation not working (12)
Group organization	Very good organization, supporting each other's presentations (20)	Good organization (18)	Medium organization, some people are less organized (16)	Lack of organization often results in communication errors (14)	The organization was chaotic so the presentation was very disrupted (12)
Creativity	Very creative without going off target (20)	Creative creates enthusiasm (18)	Occasionally attracts attention (15)	Occasionally attracts attention (13)	Boring, makes you sleepy (11)
TOTAL	**100 (Very Good)**	**90-80 (Very well)**	**79-70 (Good)**	**69-50 (Pretty good)**	**59-40 (Not good)**

Information :

The total maximum score is 100. The numbers in brackets are the scores for each criterion. The number 100 will later be accumulated with the percentage of the Presentation Assignment (PjBL) value of 50%.

100 x 50% = 50 points
There are 4 presentation implementations (case method), so the percentage of the Case Method Group Assignment score for each implementation is: 50% : 4 = 12.5%. Points for each implementation of the Case Method Group Assignment: 100 x 12.5% = 12.5 points.

Essay Exam Assessment Rubric:

Assessment criteria	4 Very good	3 Good	2 Enough	1 Not enough
Understanding the Questions	Understand the question exactly once (25)	Understanding the questions (20)	Not understanding the question fully and correctly (15)	Don't understand the question (10)
Contents	Answers show understanding in-depth understanding of the material being asked and participants integrate the information that has been studied and/or assigned to be read during the lecture well and appropriately (25)	The answers demonstrate understanding of the material being asked and integrate some of the information that has been studied and/or assigned to be read during the lecture. (20)	The answer shows a lack of understanding of the material being asked and only integrates a small portion of information that has been studied and/or assigned to be read during lectures. (15)	The answer shows a lack of understanding of the material being asked so it is unclear and not integrated. information that has been studied and/or assigned to be read during lectures. (10)
Clarity of Writing	All written ideas are conveyed well and clearly. (25)	Most of the ideas in the writing are well and clearly conveyed. (20)	Some of the ideas in the writing are conveyed well and clearly. (15)	The ideas in the writing are not conveyed well and clearly. (10)
Clarity of Language	Uses foreign/Indonesian languages well and correctly with minimal grammatical errors and word choices that do not	Uses foreign/Indonesian languages well and correctly with minimal grammatical errors and word choices that interfere with understanding.	Uses foreign/Indonesian language quite well and correctly with some grammatical errors and word choices	Does not use foreign/Indonesian language properly and correctly because the writing contains many

	interfere with understanding (25)	(20)	(15)	grammatical errors and word choices (10)
Total	**81-100** **(Very well)**	**61-80** **(Pretty good)**	**41-60** **(Enough)**	**0-40** **(Not enough)**

Multiple Choice Exam Scoring Rubric:

Value per question item	**Criteria**
100/ many questions	Can answer questions correctly
0	The answer is not quite right/does not match the answer key provided.