COURSE LEARNING PLAN

	UNIVERSITY OF BRAWIJAYA **FACULTY OF ANIMAL SCIENCE** **DEPARTMENT OF ANIMAL SCIENCE** **UNDERGRADUATE STUDY PROGRAM OF ANIMAL SCIENCE** **LEARNING PLAN**

Course	**Code**	**Weight (credits)**	**Semester**	**Compilation Date**
Advanced Non-Ruminant Nutrition	PEN60008	3	5	January 14, 2020

Authorization	**Course Coordinator**	**Ka PS S1**	**Vice Dean 1**
	Dr. Ir. Osfar Sjofjan, M.Sc. IPU, ASEAN Eng	Dr. Herly Evanuarini, S. Pt. MP	Dr. Ir. M. Halim Natsir, S.Pt. MP. IPM. ASEAN Eng

Learning Outcomes (LO)	
	PLO
	1. LO 5: Able to examine the implications of the development or implementation of science and technology that consider and apply humanities values in accordance with their expertise based on scientific principles, procedures, and ethics to produce excellent solutions and ideas. 2. LO 11: Able to show performance, both independently and in teamwork (inter- and multi-disciplinary), identify and analyze to solve problems in quality and measurable way 3. LO 12: Able to design and conduct experiments, analyze and interpret data to make correct decisions in solving problems in the field of animal science, meet ethics, and have environmental insight.
	CLO
	1. Able to manipulate nutrition to improve production, quality, and products of non-ruminant animals.

	2. Able to plan feed needs management related to the replacement program for poultry. 3. Able to manipulate animal nutrition according to environmental conditions	
Brief Course Description	It is an advanced course of the non-ruminant animal nutrition science which has been studied previously. The substance of the course is the manipulation of nutrition for broilers, laying fowl, waterfowl, quail, rabbits, pigs, and horses, the poultry replacement program, manipulation of nutrition for poultry, pigs, rabbits according to environmental conditions (temperature, humidity, etc.).	
Topics	1. Nutritional manipulation of broilers, laying fowl, waterfowl, quail, rabbits, pigs, and horses 2. The poultry replacement program 3. Manipulation of nutrition of poultry, pigs, and rabbits according to environmental conditions (temperature, humidity, etc.)	
References	1. Ensminger, M. E and C. G. Olientine Jr. 1978. Feed and Nutrition. 1st ed 2. Church, D.C 1989. Digestive Physiology and Nutrition of Non-Ruminant Part 2. O and Books Corvallis Origin. USA 3. NRC. 1994. Nutrition Requirement of Poultry. 9th rev ed. 4. NRC. 2004. Nutrition Requirement of swine. 7h rev ed. 5. NRC. 1994. Nutrition Requirement of horses. 6th rev ed. 6. NRC. 1977. Nutrition Requirement of rabbit. 2nd rev ed. 7. Scott, M.L, Malden C, and Nesheim, N.D. Nutrition of the Chicken. ML Scott and Assol by National Research Councilates, New York. 8. Sjofjan, O., M. H. Natsir and I.H. Djunaidi. 2019. Ilmu Nutrisi Ternak Ruminansia. UB Press. 9. Wiseman J. 1984. Feeding of Non-Ruminant Livestock. Butterworths Toronto. Wilington. 10. Rick kleyn. 2018. Chicken Nutrition. Guide for nutritionist and poultry professionals. 11. Lesson and summers. 2005. Commercial Poultry Nutrition	
Learning Media	Software	Hardware
	Win Feed Program Video UB Feed Software	Textbooks

Teaching Team	1. Dr. Ir. Eko Widodo, M.Agr.Sc. M.Sc 2. Dr. Ir. Osfar Sjofjan, M.Sc. IPU. ASEAN Eng 3. Dr. Ir. Irfan H. Djunaidi, M.Sc. IPM. ASEAN Eng 4. Dr.Ir. M. Halim Natsir. S.Pt. MP. IPM. ASEAN Eng 5. Yuli Frita Nuningtyas ,S.Pt MP. M.Sc.
Prerequisite Course	Non-Ruminant Animal Nutrition Science

Week	**Sub-CLO**	**Indicator**	**Learning Materials/Topics**	**Learning Methods**	**Criteria & Form of Assessment**
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
1	Understand Lesson Plan (RPS) and the trend of the non-ruminant animal population in Indonesia and the world	Proper understanding of the development of non-ruminant animal populations both in Indonesia and the world	Introduction, Lesson Plan (RPS), the trend of non-ruminant animal population	1. Lectures 2. Discussions	5
2	Understand the nutritional manipulation of broilers	Able to manipulate the nutrition of broiler	Nutritional manipulation of broiler	1. Lectures 2. Discussions	5
3	Understand the nutritional manipulation of laying hens	Able to manipulate the nutrition of laying hens	Nutritional manipulation of laying hens	1. Lectures 2. Discussions	5

4	Understand the nutritional manipulation of waterfowl	Able to manipulate the nutrition of waterfowl	Nutritional manipulation of waterfowl	1. Lectures 2. Discussions	5
5	Understand the nutritional manipulation of quail	Able to manipulate the nutrition of quail	Nutritional manipulation of quail	1. Lectures 2. Discussions 3. Structured Assignments	5
6	Understand the nutritional manipulation of rabbits	Able to manipulate the nutrition of rabbits	Nutritional manipulation of rabbits	1. Lectures 2. Discussions 3. Quizzes	5
7	Understand the nutritional manipulation of rabbits	Able to manipulate the nutrition of rabbits	Nutritional manipulation of rabbits		
8	**MISTERM EXAM (UTS)**				
9	Understand the nutritional manipulation of pigs	Able to manipulate the nutrition of pigs	Nutritional manipulation of pigs	1. Lectures 2. Discussions	5

10	Understand the nutritional manipulation of pigs	Able to manipulate the nutrition of pigs	Nutritional manipulation of pigs	1. Lectures 2. Discussions	5
11	Understand the nutritional manipulation of horses	Able to manipulate the nutrition of horses	Nutritional manipulation of horses	1. Lectures 2. Discussions	10
12	Understand and plan for replacement of poultry	Able to understand and design a poultry replacement program	A poultry replacement program	1. Lectures 2. Discussions 3. Structured Assignments	10
13	Understand and manipulate poultry nutrition according to environmental conditions (temperature, humidity, etc.)	Able to design and manipulate poultry nutrition according to environmental conditions (temperature, humidity, etc.)	Nutritional manipulation of poultry according to environmental conditions (temperature, humidity, etc.)	1. Lectures 2. Discussions 3. Quizzes	
14	Understand and manipulate pig and rabbit nutrition according to environmental	Able to design and manipulate pig and rabbit nutrition according to	Nutritional manipulation of pigs and rabbits according to environmental	1. Lectures 2. Discussions	5

	conditions (temperature, humidity, etc.)	environmental conditions (temperature, humidity, etc.)	conditions (temperature, humidity, etc.)		
15	-	-	Presentation		
16	**FINAL EXAM (UAS)**				

Week	Sub-CLO	Indicator	Learning Materials/Topics	Learning Methods	Criteria & Form of Assessment
(1)	(2)	(3)	(4)	(5)	(6)
1	Understand Lesson Plan (RPS) and the trend of the non-ruminant animal population in Indonesia and the world	Proper understanding of the development of non-ruminant animal populations both in Indonesia and the world	Introduction, Lesson Plan (RPS), the trend of non-ruminant animal population	1. Lectures 2. Discussions	5
2	Understand the nutritional manipulation of broilers	Able to manipulate the nutrition of broiler	Nutritional manipulation of broiler	1. Lectures 2. Discussions	5
3	Understand the nutritional manipulation of laying hens	Able to manipulate the nutrition of laying hens	Nutritional manipulation of laying hens	1. Lectures 2. Discussions	5
4	Understand the nutritional manipulation of waterfowl	Able to manipulate the nutrition of waterfowl	Nutritional manipulation of waterfowl	1. Lectures 2. Discussions	5
5	Understand the nutritional manipulation of rabbits	Able to manipulate the nutrition of rabbits	Nutritional manipulation of rabbits	1. Lectures 2. Discussions	5

6	Understand the nutritional manipulation of pigs	Able to manipulate the nutrition of pigs	Nutritional manipulation of pigs	1. Lectures 2. Discussions	5
7	Understand the nutritional manipulation of horses	Able to manipulate the nutrition of horses	Nutritional manipulation of horses	1. Lectures 2. Discussions	5
8	**MIDTERM EXAM (UTS)**				
9	Able to make feed formulations for poultry	Proper understanding of formulating special feed for poultry	Special feed formulations for poultry	1. Group Presentations 2. Discussions	10
10	Able to make feed formulations for waterfowl	Proper understanding of formulating special feed for waterfowl	Special feed formulations for waterfowl	1. Group Presentations 2. Discussions	10
11	Able to make feed formulations for poultry	Proper understanding of formulating special feed for pigs	Special feed formulations for pigs	1. Group Presentations 2. Discussions	10
12	Able to make feed formulations for rabbits	Proper understanding of formulating special feed for rabbits	Special feed formulations for rabbits	1. Group Presentations 2. Discussions	10

13	Able to make feed formulations for horses	Proper understanding of formulating special feed for horses	Special feed formulations for horses	1. Group Presentations 2. Discussions	10
14	Able to plan the replacement of poultry	Proper understanding of the Poultry Replacement Program	Poultry Replacement Program	1. Group Presentations 2. Discussions	10
15	Able to plan the replacement of pigs	Correct understanding of the Pig Replacement Program	Pig Replacement Program	1. Group Presentations 2. Discussions	5
16	**FINAL EXAM (UAS)**				

ASSESSMENT RUBRIC

	UNIVERSITY OF BRAWIJAYA FACULTY OF ANIMAL SCIENCE DEPARTMENT OF ANIMAL SCIENCE UNDERGRADUATE STUDY PROGRAM OF ANIMAL SCIENCE		
Course	Advanced Non-Ruminant Nutrition		
Score Level	CLO and PLO	Conversion	PLO Score
PLO 5: Able to examine the implications of the development or implementation of science and technology that consider and apply humanities values in accordance with their expertise based on scientific principles, procedures, and ethics to produce excellent solutions and ideas. PLO 11: Able to show performance, both independently and in teamwork (inter- and multi-disciplinary), identify and analyze to solve problems in quality and measurable way CLO 1: Able to manipulate nutrition to improve production and quality and non-ruminant livestock products			
Very Good (4)	Have **comprehensive** abilities in manipulating nutrition to improve production, quality, and products of non-ruminant animals.	80-100	
Good (3)	Have **good** abilities in manipulating nutrition to improve production, quality, and products of non-ruminant animals.	70-79.9	
Moderate (2)	Have **moderate** abilities in manipulating nutrition to improve production, quality, and products of non-ruminant animals.	60-69.9	
Poor (1)	Have **poor** abilities in manipulating nutrition to improve production, quality, and products of non-ruminant animals.	<60	
Score Level	CLO and PLO	Conversion	PLO Score

LO 11: Able to show performance, both independently and in teamwork (inter- and multi-disciplinary), identify and analyze to solve problems in quality and measurable way LO 12: Able to design and conduct experiments, analyze and interpret data to make correct decisions in solving problems in the field of animal science, meet ethics, and have environmental insight CLO 2: Able to plan management of feed needs related to the replacement program for poultry			
Very Good (4)	Have **comprehensive** abilities in planning the management of feed needs related to the replacement program for poultry	80-100	
Good (3)	Have **good** abilities in planning the management of feed needs related to the replacement program for poultry	70-79.9	
Moderate (2)	Have **moderate** abilities in planning the management of feed needs related to the replacement program for poultry	60-69.9	
Poor (1)	Have **poor** abilities in planning the management of feed needs related to the replacement program for poultry	<60	
Score Level	CLO and PLO	Conversion	PLO Score
LO 11: Able to show performance, both independently and in teamwork (inter- and multi-disciplinary), identify and analyze to solve problems in quality and measurable way LO 12: Able to design and conduct experiments, analyze and interpret data to make correct decisions in solving problems in the field of animal science, meet ethics, and have environmental insight CLO 3: Able to manipulate animal nutrition according to environmental conditions			
Very Good (4)	Have **comprehensive** abilities in the manipulation of animal nutrition according to environmental conditions	80-100	
Good (3)	Have **good** abilities in the manipulation of animal nutrition according to environmental conditions	70-79.9	
Moderate (2)	Have **moderate** abilities in the manipulation of animal nutrition according to environmental conditions	60-69.9	

Poor (1)	Have **poor** abilities in the manipulation of animal nutrition according to environmental conditions	<60	

Formula to Calculate PLO Score: $\frac{Level\ Skor}{\sum level\ skor} \times \frac{\sum CLO}{\sum PLO} \frac{Level\ Skor}{\sum level\ skor} \times \frac{\sum CLO}{\sum PLO}$

CLO Score Calculation

Assessed components	Component Weights	CLO Weight on the Score		
		CLO 1	CLO 2	CLO 3
Practicum	0.2	0.4	0.4	0.2
Midterm Exam	0.3	1		
Final Exam	0.3	0.2	0.4	0.4
Structured Assignment	0.05	0.3	0.3	0.4
Quiz	0.05	0.3	0.3	0.4
Presentation	0.1			1.0

CLO Weight				

PLO Score Calculation

CLO	CLO Score	CLO Weight	PLO		
			PLO 5	PLO 11	PLO 12
CLO 1			0.5	0.5	
CLO 2				0.5	0.5
CLO 3				0.5	0.5

Basic Format for the Lecture Portfolio

	UNIVERSITY OF BRAWIJAYA **FACULTY OF ANIMAL SCIENCE** **STUDY PROGRAM OF ANIMAL SCIENCE**		
Course: Advanced Non-Ruminant Nutrition	Code: PEN60008	RMK:	Semester: 5
Lecturers	1. Dr. Ir. Eko Widodo, M.Agr.Sc. M.Sc 2. Dr. Ir. Osfar Sjofjan, M.Sc. IPU. ASEAN Eng 3. Dr. Ir. Irfan H. Djunaidi, M.Sc. IPM. ASEAN Eng 4. Dr.Ir. M. Halim Natsir. S.Pt. MP. IPM. ASEAN Eng 5. Yuli Frita Nuningtyas.,S.Pt MP. M.Sc.		

Introduction (Describe the necessary explanation about this course, the experiences that have been done)

It is an advanced course of the non-ruminant animal nutrition science which has been studied previously. The substance of the course is the manipulation of nutrition for broilers, laying fowl, waterfowl, quail, rabbits, pigs, and horses, the poultry replacement program, manipulation of nutrition for poultry, pigs, rabbits according to environmental conditions (temperature, humidity, etc.).

1	**Objectives** (Describe general and specific course objectives)
	After completing this course, students are able to: 1. Able to manipulate nutrition to improve production, quality, and products of non-ruminant animals. 2. Able to plan feed needs management related to the replacement program for poultry. 3. Able to manipulate animal nutrition according to environmental conditions
2	**Learning Strategies** (describe the strategy used to achieve the course objective - CLO)
	The learning strategies carried out in lectures include student center learning and teacher center learning

3	**Lecture Management** (describe the lecture management: lectures, tutorials, practicum, assignments, major assignments, etc.)
	1) Lecture: 100 minutes/meeting (14 meetings) *2) Practicum of 150 minutes/meeting (14 meetings)* *3) Structured assignments/quizzes/group presentation* *4) Attendance: 80% of total attendance*
4	**Lecture Contents** (explain its suitability with the applicable curriculum)
	The topics of this course consist of: 1. Nutritional manipulation of broilers, laying fowl, waterfowl, quail, rabbits, pigs, and horses 2. Poultry replacement program 3. Nutritional manipulation of nutrition of poultry, pigs, and rabbits according to environmental conditions (temperature, humidity, etc.)
5	**Lecture Participants** (provide an overview of the lecture participants)
	The lecture participants are 5th-semester students who have passed Non-Ruminant Animal Science
6	**Attendance Percentage** (% lecturer attendance; % student attendance)
	% of lecturer attendance: 100% % of student attendance: 80%
7	**Evaluation System** (explain the homework, quizzes, group assignments, practicum, etc.)
	The evaluation system is carried out through quizzes, structured assignments, practicum, Midterm Exam, and Final Exam
8	**Class Observation** (explain important and interesting things that were encountered during the lecture)
9	**Learning Outcomes** (explain the achievement of the objectives that have been set, also include the learning achievements that can be explained)

	The expected learning outcomes are: 1. LO 5: Able to examine the implications of the development or implementation of science and technology that consider and apply humanities values in accordance with their expertise based on scientific principles, procedures, and ethics to produce excellent solutions and ideas. 2. LO 11: Able to show performance, both independently and in teamwork (inter- and multi-disciplinary), identify and analyze to solve problems in quality and measurable way 3. LO 12: Able to design and conduct experiments, analyze and interpret data to make correct decisions in solving problems in the field of animal science, meet ethics, and have environmental insight.
10	**Obstacles (provide an overview of the main obstacles in the learning process)**
11	**Score Distribution** (provide the score distribution following the learning achievements of this course)
	Midterm Exam*: 30%* Final Exam*:30 %* *Pass the Practicum Test:30 %* *Structured assignment/quizzes:10%*
12	**Conclusion**
13	**Improvement Recommendations**
	Appendices:
	1.

	2. etc