## COURSE LEARNING PLAN



## UNIVERSITY OF BRAWIJAYA FACULTY OF ANIMAL SCIENCE DEPARTMENT OF ANIMAL SCIENCE

UNDERGRADUATE STUDY PROGRAM OF ANIMAL SCIENCE

	ESSC	ESSON PLAN: Management of Forage Resources					
Course		Code	Weight (credits)		Semester		Compilation Date
Pasture Manageme	ent	PEN60009	3 (	2-1)	6		July 27, 2020
Authorization		Course Coordinator		Head of Undergraduate Study Program of Animal Science		Vice Dean 1	
		Prof.Dr.Ir. Ifar Subagiyo, M.Agr.St		Dr. Herly Evanuarini, S.Pt.MP		Dr.M.Halim Natsir,S.Pt.MP, IPM,ASEAN Eng	
Learning	LO						
Outcomes (LO)	<ol> <li>LO 4: Able to develop comprehensive insight and mindset according to the science and field of the animal industry</li> <li>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.</li> <li>LO 7: Able to demonstrate independent, quality, and measurable performance (both quality and quantity) effectively, efficiently, and sustainably</li> <li>LO 13: Able to apply animal technology that is oriented towards improving production, efficiency, quality, and sustainability based on mastery of animal science including breeding, feed, processing of products, marketing management and organizing a sustainable animal production system, and applying entrepreneurial concepts</li> </ol>						
	CLO						
	Students are able:  1. CLO 1: Able to develop insight about forage resources comprehensively (PLO 4)  2. CLO 2: Understand and explain the differences in agrobiodiversity of forage						
	3	sources (PLO 5 and PLO 7) 3. CLO 3: Able to understand the techniques of the utilization of forage resources agrobiodiversity (PLO 7 and PLO 13)					
Brief Course Description	This course discusses:  a. Potential agrobiodiversity of forage sources (pasture, agricultural land for food groups foragtry, plantations)						
	b	crops, forestry, plantations) b. Techniques for utilizing forage resource agrobiodiversity					
Topics	1	. Introduction					

		2. Pasture agrobiodiversity						
		3. Agricultural land for food crops agrobiodiversity						
		4. Plantation agrobiodiversity						
		5. Forestry area agrobiodiversity						
		6. Techniques for utilizing agrobiodiversity						
		7. Utilization of forage resource agrobiodiversity						
Reference	es	Subagiyo, I and Kusmartono, 2018. Kultur Padangan, Malang: UB Press						
1. Subagryo, I and Rusmartono, 2010. Ruitur I adangan, Walang. OB 1108								
Learnin	g Media	Soft	ware	Hardware				
		Vide	0	LCD				
		Laptop/Computer						
Teaching	g Team	1	. Prof. Dr. Ir. Ifar S	Subagiyo, M.Agr.St				
		2	2. Dr. Ir. Siti Nurul	Kamaliyah, MP				
		3	3. Ir. Hermanto, MP					
		4	Ir. Hanief E.S,MI					
		5	5. Artharini Irsyamr	nawati,S.Pt.MP				
			6. Rini Dwi Wahyu					
			•					
Prerequ	isite	Fora	ge Crops Science,	Integrated Farming Sy	rstem			
course								
	Sub-Cou	rse					Weighted	
Week	Learnin	g	Indicators	Learning Materials/ Topics	Learning Methods	Criteria &	scores	
(s)	Outcom	es				Form of	(%)	
	(SCLO	0		1		Assessment		
		•				Assessment		
(1)	(2)	)	(3)	(4)	(5)	(6)	(7)	
(1)	(2) Able to	,	, ,	Introduction:	(5) Lectures		(7)	
(1)	(2) Able to understand	the	Able to explain	Introduction: Semester Lesson	Lectures and	(6)	(7)	
(1)	(2) Able to understand definition a	the nd	Able to explain the definition and	Introduction: Semester Lesson Plan (RPS), Lecture	Lectures	(6)	(7)	
	(2) Able to understand definition at potential of	the nd	Able to explain the definition and potential of	Introduction: Semester Lesson Plan (RPS), Lecture contract, Definition	Lectures and	(6)	(7)	
(1)	Able to understand definition at potential of forage source	the nd	Able to explain the definition and potential of forage source	Introduction: Semester Lesson Plan (RPS), Lecture contract, Definition and potential of	Lectures and	(6)	(7)	
	Able to understand definition at potential of forage source agrobiodive	the nd ce	Able to explain the definition and potential of forage source agrobiodiversity	Introduction: Semester Lesson Plan (RPS), Lecture contract, Definition and potential of forage source	Lectures and	(6)	(7)	
	(2) Able to understand definition ar potential of forage source agrobiodive in tropical a	the nd ce ersity	Able to explain the definition and potential of forage source agrobiodiversity in tropical and	Introduction: Semester Lesson Plan (RPS), Lecture contract, Definition and potential of forage source agrobiodiversity in	Lectures and	(6)	(7)	
	Able to understand definition at potential of forage source agrobiodive in tropical a sub-tropical	the nd ce ersity	Able to explain the definition and potential of forage source agrobiodiversity in tropical and sub-tropical	Introduction: Semester Lesson Plan (RPS), Lecture contract, Definition and potential of forage source agrobiodiversity in tropical and sub-	Lectures and	(6)	(7)	
	(2) Able to understand definition ar potential of forage source agrobiodive in tropical a	the nd ce ersity	Able to explain the definition and potential of forage source agrobiodiversity in tropical and	Introduction: Semester Lesson Plan (RPS), Lecture contract, Definition and potential of forage source agrobiodiversity in tropical and sub- tropical regions	Lectures and discussions	(6) Quizzes	(7)	
	Able to understand definition at potential of forage source agrobiodive in tropical a sub-tropical	the nd ce ersity	Able to explain the definition and potential of forage source agrobiodiversity in tropical and sub-tropical	Introduction: Semester Lesson Plan (RPS), Lecture contract, Definition and potential of forage source agrobiodiversity in tropical and sub- tropical regions Classification of	Lectures and discussions  Lectures	(6) Quizzes	(7)	
	Able to understand definition as potential of forage source agrobiodive in tropical a sub-tropical regions	the nd ce ersity nd	Able to explain the definition and potential of forage source agrobiodiversity in tropical and sub-tropical regions	Introduction: Semester Lesson Plan (RPS), Lecture contract, Definition and potential of forage source agrobiodiversity in tropical and sub- tropical regions Classification of Forage Sources	Lectures and discussions  Lectures and	(6) Quizzes	(7)	
	Able to understand definition as potential of forage source agrobiodive in tropical a sub-tropical regions	the nd ce ersity nd	Able to explain the definition and potential of forage source agrobiodiversity in tropical and sub-tropical regions  Able to explain	Introduction: Semester Lesson Plan (RPS), Lecture contract, Definition and potential of forage source agrobiodiversity in tropical and sub- tropical regions Classification of Forage Sources a. Land-based	Lectures and discussions  Lectures	(6) Quizzes	(7)	
	Able to understand definition as potential of forage source agrobiodive in tropical a sub-tropical regions  Able to expand different	the nd ce crisity nd lain titate	Able to explain the definition and potential of forage source agrobiodiversity in tropical and sub-tropical regions  Able to explain and differentiate	Introduction: Semester Lesson Plan (RPS), Lecture contract, Definition and potential of forage source agrobiodiversity in tropical and sub- tropical regions Classification of Forage Sources a. Land-based forage sources	Lectures and discussions  Lectures and	(6) Quizzes	(7)	
	Able to understand definition are potential of forage source agrobiodive in tropical a sub-tropical regions  Able to exp and different land-based a	the nd ce crsity nd lain attiate and	Able to explain the definition and potential of forage source agrobiodiversity in tropical and sub-tropical regions  Able to explain and differentiate land-based and	Introduction: Semester Lesson Plan (RPS), Lecture contract, Definition and potential of forage source agrobiodiversity in tropical and sub- tropical regions Classification of Forage Sources a. Land-based	Lectures and discussions  Lectures and	(6) Quizzes	(7)	
1	Able to understand definition as potential of forage source agrobiodive in tropical a sub-tropical regions  Able to exp and different land-based a narrow land	the nd ce crisity nd lain tiate and l-	Able to explain the definition and potential of forage source agrobiodiversity in tropical and sub-tropical regions  Able to explain and differentiate land-based and narrow land-	Introduction: Semester Lesson Plan (RPS), Lecture contract, Definition and potential of forage source agrobiodiversity in tropical and sub- tropical regions Classification of Forage Sources a. Land-based forage sources	Lectures and discussions  Lectures and	(6) Quizzes	(7)	
1	Able to understand definition at potential of forage source agrobiodive in tropical a sub-tropical regions  Able to exp and different land-based an narrow land based forage	the nd ce crisity nd lain tiate and l-	Able to explain the definition and potential of forage source agrobiodiversity in tropical and sub-tropical regions  Able to explain and differentiate land-based and narrow land-based forage	Introduction: Semester Lesson Plan (RPS), Lecture contract, Definition and potential of forage source agrobiodiversity in tropical and sub- tropical regions Classification of Forage Sources a. Land-based forage sources b. narrow land-	Lectures and discussions  Lectures and	(6) Quizzes	(7)	
1	Able to understand definition as potential of forage source agrobiodive in tropical a sub-tropical regions  Able to exp and different land-based a narrow land	the nd ce crisity nd lain tiate and l-	Able to explain the definition and potential of forage source agrobiodiversity in tropical and sub-tropical regions  Able to explain and differentiate land-based and narrow land-	Introduction: Semester Lesson Plan (RPS), Lecture contract, Definition and potential of forage source agrobiodiversity in tropical and sub- tropical regions Classification of Forage Sources a. Land-based forage sources b. narrow land- based forage	Lectures and discussions  Lectures and	(6) Quizzes	(7)	
1	Able to understand definition at potential of forage source agrobiodive in tropical a sub-tropical regions  Able to exp and different land-based an narrow land based forage	the nd ce crisity nd lain tiate and l-	Able to explain the definition and potential of forage source agrobiodiversity in tropical and sub-tropical regions  Able to explain and differentiate land-based and narrow land-based forage	Introduction: Semester Lesson Plan (RPS), Lecture contract, Definition and potential of forage source agrobiodiversity in tropical and sub- tropical regions Classification of Forage Sources a. Land-based forage sources b. narrow land- based forage sources	Lectures and discussions  Lectures and	(6) Quizzes	(7)	
1	Able to understand definition at potential of forage source agrobiodive in tropical a sub-tropical regions  Able to exp and different land-based an narrow land based forage sources	the nd ce existy nd lain tiate and l-e	Able to explain the definition and potential of forage source agrobiodiversity in tropical and sub-tropical regions  Able to explain and differentiate land-based and narrow land-based forage sources	Introduction: Semester Lesson Plan (RPS), Lecture contract, Definition and potential of forage source agrobiodiversity in tropical and sub- tropical regions Classification of Forage Sources a. Land-based forage sources b. narrow land- based forage sources (hydroponics, aquaponics)	Lectures and discussions  Lectures and discussions	(6) Quizzes  Midterm Exam	(7)	
1	Able to understand definition as potential of forage source agrobiodive in tropical a sub-tropical regions  Able to exp and different land-based anarrow land based forage sources  Able to exp	the nd ce crisity and lain atiate and l-ce lain	Able to explain the definition and potential of forage source agrobiodiversity in tropical and sub-tropical regions  Able to explain and differentiate land-based and narrow land-based forage sources  Able to explain	Introduction: Semester Lesson Plan (RPS), Lecture contract, Definition and potential of forage source agrobiodiversity in tropical and sub- tropical regions Classification of Forage Sources a. Land-based forage sources b. narrow land- based forage sources (hydroponics, aquaponics) Pasture	Lectures and discussions  Lectures and discussions	(6) Quizzes  Midterm Exam	(7)	
1	Able to understand definition are potential of forage source agrobiodive in tropical a sub-tropical regions  Able to exp and different land-based anarrow land based forage sources  Able to exp and describe	the nd ce crisity and lain atiate and l-ce lain	Able to explain the definition and potential of forage source agrobiodiversity in tropical and sub-tropical regions  Able to explain and differentiate land-based and narrow land-based forage sources  Able to explain and describe	Introduction: Semester Lesson Plan (RPS), Lecture contract, Definition and potential of forage source agrobiodiversity in tropical and sub- tropical regions Classification of Forage Sources a. Land-based forage sources b. narrow land- based forage sources (hydroponics, aquaponics)	Lectures and discussions  Lectures and discussions  Lectures and discussions	(6) Quizzes  Midterm Exam	(7)	
2	Able to understand definition as potential of forage source agrobiodive in tropical a sub-tropical regions  Able to exp and different land-based anarrow land based forage sources  Able to exp	the nd ce crisity nd lain ctiate and l-e	Able to explain the definition and potential of forage source agrobiodiversity in tropical and sub-tropical regions  Able to explain and differentiate land-based and narrow land-based forage sources  Able to explain	Introduction: Semester Lesson Plan (RPS), Lecture contract, Definition and potential of forage source agrobiodiversity in tropical and sub- tropical regions Classification of Forage Sources a. Land-based forage sources b. narrow land- based forage sources (hydroponics, aquaponics) Pasture	Lectures and discussions  Lectures and discussions	(6) Quizzes  Midterm Exam	(7)	

4	Able to explain and describe agricultural land for food crops agrobiodiversity	Able to explain and describe agricultural land for food crops agrobiodiversity	Agricultural land for food crops agrobiodiversity	Lectures and discussions	Midterm Exam
5	Able to explain and describe plantation agrobiodiversity	Able to explain and describe plantation agrobiodiversity	Plantation agrobiodiversity	Lectures and discussions	Midterm Exam
6	Able to explain and describe forestry areas agrobiodiversity	Able to explain and describe forestry areas agrobiodiversity	Forestry areas agrobiodiversity	Lectures and discussions	Midterm Exam
7	Able to explain and provide arguments about problems in each agrobiodiversity	Able to present and provide arguments about problems in each agrobiodiversity	Discussion and presentation about the problems of agrobiodiversity - pasture improvements - agricultural land for food crops - plantation land - forestry areas	Lectures and discussions	Structured Assignment and Midterm Exam
8	MIDTERM EXAM		Summative test		
9	Able to understand and describe the measurement of forage and waste productivity in intensive agricultural areas	Able to understand and describe the measurement of forage and waste productivity in intensive agricultural areas	The measurement of forage and waste productivity in intensive agricultural areas	Lectures and discussions	Final Exam
10	Able to understand and describe the measurement of extensive pasture productivity	Able to understand and describe the measurement of extensive pasture productivity	The measurement of extensive pasture productivity	Lectures and discussions	Final Exam
11	Able to understand and explain production measurement techniques for forage sources	Able to understand and explain production measurement techniques for forage sources in	Production measurement techniques for forage sources in each agrobiodiversity	Lectures and discussions	Final Exam

	in each agrobiodiversity	each agrobiodiversity				
12	Able to understand and explain techniques for measuring the botanical composition of forage sources in each agrobiodiversity	Able to understand and explain techniques for measuring the botanical composition of forage sources in each agrobiodiversity	Techniques for measuring the botanical composition of forage sources in each agrobiodiversity	Lectures and discussions	Final Exam	
13	Able to calculate the carrying capacity of areas in intensive agricultural land	Able to calculate the carrying capacity of areas in intensive agricultural land	The carrying capacity of areas in intensive agricultural land  - Feed balance calculation techniques and problems	Lectures and discussions	Final Exam	
14	Able to calculate the carrying capacity of areas in extensive pasture	Able to calculate the carrying capacity of areas in extensive pasture	The carrying capacity of areas in extensive pasture  - Feed balance calculation techniques and problems	Lectures and discussions	Structured Assignment and Final Exam	
15	Able to explain the utilization and processing of forage sources and food crop agricultural waste	Able to explain the utilization and processing of forage sources and food crop agricultural waste	Utilization and processing of forage sources and food crop agricultural waste  a. The relationship between land use and forage supply  b. Forage concentrate processing  c. Types and characteristics of waste	Lectures and discussions	Final Exam	
16	FINAL EXAM		Summative test			