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

Documen Code
(to be follow

SEMESTER LEARNING PLAN (RPS)

COURSE (MK)	CODE	Course Group	WEIGHT (credits)	SEMESTER	Date of Prepara
Animal Breeding Science	PTN2104	Exact	3	III	August 16, 20

AUTHORIZATION/ATTESTATION	RPS Developer Lecturer	Approved Head of Study Program	Knowing Chairman of LINKUP USU
	Fuad Hasan, S.Pt., M.Si. Dian Tria Fatmila, S.Pt., M.Si.	Dr. Ir. Ma'ruf Tafsin, M.Si., IPM.	Prof. Dr. Dwi Suryanto M.Sc.

Learning Outcomes	LO-Study Program Charged to Course	
	LO03	Able to identify, formulate, and find solutions to problems related to the field of animal science
	LO06	Supervise and evaluate the completion of assigned work and be able to manage learning independently throughout life
	LO08	Able to manage integrated and sustainable livestock cultivation based on integration with other agroecosystems and the l applications in processing livestock products and waste
	LO11	Able to develop and understand and apply a variety of best techniques and methods that combine theory and practice rele to animal science expertise

Course Learning Outcomes (CLO)	CLO Weight
CLO0306: Able to explain the various concepts of selection and application of genetics in livestock performance improvement.	38.47%
CLO0603: Able to analyze various methods and apply them in livestock breeding	30.77%
CLO0802: Able to use information technology/software in livestock breeding applications	15.38%
CLO1104: Able to apply the latest developments in breeding applications for livestock	15.38%

End Capability of Each Learning Stage (Sub-CLO)	
Sub-CLO1	After attending this lecture, students will be able to explain an overview of livestock breeding.
Sub-CLO2	After attending this lecture, students will be able to explain qualitative and quantitative traits in livestock breeding.
Sub-CLO3	After attending this lecture, students will be able to explain genetic parameters

	Sub-CLO4	After attending this lecture, students will be able to apply the right mating system in livestock.
	Sub-CLO5	After attending this lecture, students will be able to apply the implementation of selection in livestock.
	Sub-CLO6	After attending this lecture, students will be able to apply technology in the field of livestock breeding.

Correlation of CLO with Sub-CLO

	Sub-CLO1	Sub-CLO 2	Sub-CLO 3	Sub-CLO 4	Sub-CLO 5	Sub-CLO 6
CLO0306	√	√	√	√		√
CLO0603			√	√	√	√
CLO0802				√		√
CLO1104					√	√

Brief Course Description

After completing the 3rd semester of the Livestock Breeding Science course, students are expected to become graduates who are able to ex the role of breeding science, qualitative traits, quantitative traits, genetic parameters and mating systems. This course is conducted u Indonesian as the language of instruction, and 14 face-to-face meetings consisting of material presentation in class both online and offline practicum. Student competence is evaluated through case-method, project-based, quizzes, and assignments.

Study Material:

BK03 Animal Production Science

Learning Materials

1. Introduction (scope and overview of livestock breeding science and mini project planning)
2. Qualitative traits (non-additive gene action and the role of qualitative traits)
3. Quantitative properties (quantitative properties, normal distribution, population diversity, regression and correlation)
4. Genetic parameters: Heretability
5. Advanced genetic parameters I: ripitability
6. Advanced genetic parameters II: genetic correlation
7. Mating system: outcrossing and incrossing
8. Advanced mating systems: hybrid vigor and heterosis effects, deep crossing coefficients, and kinship relationships
9. Selection effectiveness
10. Selection criteria and implementation of selection in livestock

	11. Technological developments in the field of livestock breeding
References	**Main:** 1. Kurnianto, E. 2009. Pemuliaan Ternak. Yogyakarta: Graha Ilmu 2. Warwick, E. J. 1990. Pemuliaan Ternak. Yogyakarta: Gadjah Mada University Press 3. Nurgiartiningsih, V. M. A. 2017. Pengantar Parameter Genetik. Malang: UB Press 4. Budiarto, A., L. Hakim, S. Maylinda, G. Ciptadi, V. M. A. Nurgiartiningsih, dan A. Furqon. 2022. Manajemen Pemuliaan Ternak. Ma MNC Publishing
	Additional: 1. Spangler, M. L. 2022. Animal Breeding and Genetics 2nd ed. United States: Kindle 2. Adebambo, O. 2010. Fundamental of Animal Breeding and Genetics. New York: VDM Verlag Dr. Müller 3. Clark, A. J. 1998. Animal Breeding: Technology for the 21st Century. United Kingdom: Harwood Academic 4. Afriani, T., E. Purwanti, J. Hellyward, M. Mundana, dan A. Rastosari, 2021. Ilmu Dasar Pemuliaan Ternak Ruminansia. Padang: An University Press 5. Supriyantono, A. 2020. Pembibitan Ternak: Manajemen Program Pemuliaan pada Sapi Bali. Yogyakarta: Deepublish 6. Daryono, B. S. dan A. B. I. Perdamaian, 2019. Karakterisasi dan Keragaman Genetik Adam Lokal Indonesia. Sleman: UGM Press 7. Gunawan, A. C. Sumantri, dan R. Juniarti, 2022. Gen Dan Keragaman Genetik Ternak. Bogor: IPB Press 8. Brah, G. S. 2016. Animal Breeding: Principles and Applications. New Delhi: Kayani Publishers 9. National and international journals 10. Practicum guidebook
Lecturers	1. Fuad Hasan, S.Pt., M.Si. 2. Dian Tria Fatmila, S.Pt., M.Si. 3. Dr. Widya Pintaka Bayu Putra, S.Pt., M.Sc (Practitioner from BRIN)
Conditional Subjects	Students are expected to have completed the following courses -

	End ability of each learning stage (Sub-CLO)	**Assessment**		**Form of Learning; Learning Methods; Student Assignment; [Estimated Time]**		**Study Material (Learning Material)**	**Assess t Wei (%**
		Indicator	**Criteria and Techniques**				
(1)	**(2)**	**(3)**	**(4)**	**Asynchronous (5)**	**Synchronous (6)**	**(7)**	**(8**
1	Sub-CLO1: After attending this lecture, students will be able to explain an	Accuracy in explaining the overview of livestock breeding science	**Criteria:** Essay and multiple choice assessment rubric **Techniques:**	Independent Activities (KM) + Structured Assignments (PT) (1	Face-to-Face (TM) (1 week x 2 credits x 50 minutes) **Learning Methods:** a. Lecture	**Subject matter:** Introduction: a. Definition of livestock breeding science	Thi sub-C will *asses* during final e

	overview of livestock breeding.		- **Form:** test	week x 3 credits x 120 minutes) **Learning Methods:** *Self-Paced Learning* **Activities:** a. Attendance b. Download and read the Syllabus (RPS), Learning Implementation Plan (SAP), Course Agreement, and Learning Materials **Moda (*Learning Management System*):** class.usu.ac.id	b. Discussion **Activities:** a. Online/offline learning b. Class discussion c. Take notes on learning materials **Media:** a. Slides/ ppt b. Zoom meeting / LCD c. Text book	b. The relationship between livestock breeding and the disciplines of genetics and statistics and other sciences c. The role of livestock breeding science to improve livestock productivity	with weigh 20% (CLO)
2-3	Sub-CLO 2: After attending this lecture, students will be able to explain qualitative and quantitative traits in livestock breeding.	a. Accuracy in explaining qualitative properties b. Accuracy in explaining quantitative properties	**Criteria:** Quiz/ essay assessment rubric **Techniques:** Quiz **Form:** test	Independent Activities (KM) + Structured Assignments (PT) (1 week x 3 credits x 120 minutes) **Learning Methods:** *Self-Paced Learning* **Activities:** **a.** Attendance **b.** Take a quiz ***Quiz 1:***	Face-to-Face (TM) (1 week x 2 credits x 50 minutes) **Learning Methods:** a. Lecture b. Discussion **Activities:** a. Online/offline learning b. Class discussion c. Take notes on learning materials **Media:**	**Subject matter:** a. Qualitative traits (non-additive gene action and the role of qualitative traits) b. Quantitative properties and statistical features of populations (quantitative properties, normal	Quiz 1 (CLO)

				Quiz to measure students' understanding of qualitative and quantitative properties **Moda (*Learning Management System*):** class.usu.ac.id	a. Slides/ ppt b. Zoom meeting / LCD c. Text book	distribution, population diversity, regression, and correlation)	
4-6	Sub-CLO 3: After attending this lecture, students will be able to explain genetic parameters	a. Accuracy in explaining genetic parameters including heritability, ripitability, and genetic correlation.	**Criteria:** Paper / literature review assessment rubric, Essay and multiple choice assessment rubric **Techniques:** Observation **Form:** non-test	Independent Activities (KM) + Structured Assignments (PT) (1 week x 3 credits x 120 minutes) **Learning Methods:** *Self-Paced Learning* **Activities:** a. Attendance b. Completing the task ***Assignment 1:*** Assignments used to enrich students' knowledge of genetic parameters **Moda (*Learning Management System*):** class.usu.ac.id;	Face-to-Face (TM) (1 week x 2 credits x 50 minutes) **Learning Methods:** a. Lecture b. Discussion **Activities:** a. Online/offline learning b. Class discussion c. Take notes on learning materials **Media:** a. Slides/ ppt b. Zoom meeting / LCD c. Text book	**Subject matter:** a. Heretability b. Ripitability c. Genetic correlation	Thi sub-C will *asses* during final e with weigh 20% (CLO an CLO

				https://scholar.google.com; https://pubmed.ncbi.nlm.nih.gov; https://www.sciencedirect.com			
8	MID SEMESTER EXAMINATION (UTS)						15%
9-10	Sub-CLO 4: After attending this lecture, students will be able to apply the right mating system in livestock.	a. Accuracy in explaining the interbreeding system in b. Accuracy in explaining the outcrossing system c. Accuracy in explaining hybrid vigor and heterosis effects d. Accuracy in explaining the cross coefficient in e. Accuracy in explaining kinship relationships	**Criteria:** Essay and multiple choice assessment rubric **Techniques:** - **Form:** test	Independent Activities (KM) + Structured Assignments (PT) (1 week x 3 credits x 120 minutes) **Learning Methods:** *Self-Paced Learning* **Activities:** a. Attendance **Moda (*Learning Management System*):** class.usu.ac.id	Face-to-Face (TM) (1 week x 2 credits x 50 minutes) **Learning Methods:** a. Lecture b. Discussion **Activities:** a. Online/offline learning b. Class discussion c. Take notes on learning materials d. Presentation **Media:** a. Slides/ ppt b. Zoom meeting / LCD c. Text book	**Subject matter:** a. Outcrossing system b. Interbreeding system in c. Hybrid vigor and heterosis effects d. Cross coefficient in e. Kinship relationship	This CLO be *asse* during final e with weigh 20% (CLO CLO and CLO
11-12	Sub-CLO 5: After attending this lecture, students will be	a. Accuracy in explaining selection efficiency	**Criteria:** Essay and multiple choice assessment rubric	Independent Activities (KM) + Structured Assignments (PT) (1	Face-to-Face (TM) (1 week x 2 credits x 50 minutes) **Learning Methods:**	**Subject matter:** a. Selection efficiency b. Selection criteria	This CLO be *asse* during final e

	able to apply the implementation of selection in livestock.	b. Accuracy in explaining selection criteria c. Accuracy in explaining the selection process	**Techniques:** - **Form:** test	week x 3 credits x 120 minutes) **Learning Methods:** *Self-Paced Learning* **Activities:** a. Attendance **Moda (*Learning Management System*):** class.usu.ac.id	a. Lecture b. Discussion **Activities:** a. Online/offline learning b. Class discussion c. Take notes on learning materials d. Presentation **Media:** a. Slides/ ppt b. Zoom meeting/ LCD c. Text book	c. Implementation of selection	with weigh 20% (CLO and CLO1
13-15	Sub-CLO 6: After attending this lecture, students will be able to apply technology in the field of livestock breeding.	a. Accuracy in explaining methods and innovations in data recording in animal science b. Accuracy in applying the latest technology in the field of livestock breeding	**Criteria:** Assessment rubric **Techniques:** Observation / performance **Form:** non-test	Independent Activities (KM) + Structured Assignments (PT) (1 week x 3 credits x 120 minutes) **Learning Methods:** *Self-Paced Learning* **Activities:** b. Attendance c. Complete the mini project report	Face-to-Face (TM) (1 week x 2 credits x 50 minutes) **Learning Methods:** a. Lecture b. Discussion **Activities:** a. Online/offline learning b. Class discussion c. Mini project presentation **Media:** a. Slides/ ppt	**Subject matter:** a. Data logging mini project proposal b. Monitoring mini project data recording c. Evaluation of data recording	PBL: CM: 2 (CLO CLO 0 CLO and CLO1

				Moda (*Learning Management System*): class.usu.ac.id	b. Zoom meeting / LCD c. Text book		
16	FINAL SEMESTER EXAMINATION (UAS)						20%

Notes in accordance with SN Dikti Permendikbud No 3/2020:

1. Learning Outcomes of Graduates of PRODI (CPL-PRODI) are the abilities possessed by each graduate of PRODI which are internalization of attitudes, mastery of knowledge and skills according to the level of the study program obtained through the learning process.
2. ELOs imposed on courses are some of the learning outcomes of study program graduates (ELO-PRODI) used for the formation / development of a course consisting of aspects of attitude, general skills, specific skills and knowledge.
3. Course CP (CLO) is an ability that is specifically described from the ELOs charged to the course, and is specific to the study material or learning material for the course.
4. Course Sub-CP (Sub-CLO) is an ability that is specifically described from CLO which can be measured or observed and is the final ability planned at each stage of learning, and is specific to the learning material of the course.
5. Indicators of ability assessment in the process and student learning outcomes are specific and measurable statements that identify the ability or performance of student learning outcomes accompanied by evidence.
6. Assessment criteria are benchmarks used as a measure or measure of learning achievement in assessment based on predetermined indicators. Assessment criteria are guidelines for assessors so that the assessment is consistent and unbiased. Criteria can be quantitative or qualitative.
7. Assessment techniques: test and non-test.
8. Forms of learning: Lecture, Reception, Tutorial, Seminar or equivalent, Practicum, Studio Practice, Workshop Practice, Field Practice, Research, Community Service and/or other equivalent forms of learning.
9. Learning Methods: *Small Group Discussion*, *Role-Play & Simulation*, *Discovery Learning*, *Self-Directed Learning*, *Cooperative Learning*, *Collaborative Learning*, *Contextual Learning*, *Project Based Learning*, and other equivalent methods.
10. Learning Materials are details or descriptions of study materials that can be presented in the form of several topics and sub-topics.
11. The assessment weight is the percentage of assessment of each sub-CLO achievement which is proportional to the difficulty level of the sub-CLO achievement, and totals 100%.
12. **PB=** Learning **Process**, PT= Structured **Assignment**, **KM=** Independent Activity.

Assessment Design:

CLO Code and Percentage	Sub-CLO Code	Form of Evaluation	Percentage	Total	Evaluation Implementation
CLO0306 (38.47%)	Sub-CLO1	UTS	15%	38,47%	Week 8

	Sub-CLO2	Quiz	5%		Week 3
	Sub-CLO3	UTS	2.5%		Week 8
		Tasks	2.5%		Week 6
	Sub-CLO4	UAS	0,97%		Week 16
	Sub-CLO6	PBL	7,5		Week 13, 14, and 15
		CM	5		
CLO0603 (20.77%)	Sub-CLO3	UTS	5%	30,77	Week 8
		Tasks	5%		Week 6
	Sub-CLO4	UAS	10,77%		Week 16
	Sub-CLO5	UAS	2,5%		Week 16
	Sub-CLO6	PBL	7,5%		Week 13, 14, and 15
		CM	5		
CLO0802 (15.38%)	Sub-CLO4	UAS	3,26%	15,38	Week 16
	Sub-CLO6	PBL	7,12%		Week 13, 14, and 15
		CM	5		
CLO1104 (15.38%)	Sub-CLO5	UAS	2,5%	15,38	Week 16
	Sub-CLO6	PBL	7,88%		Week 13, 14, and 15
		CM	5		
Total			100%	100%	

Assessment Plan:

Form of Evaluation	Sub-CLO	Assessment Instrument [Frequency]		Bill (proof)	Assessment Weight (%)
		Formative	Summative		
Quiz/question and answer	Sub-CLO2 and Sub-CLO5	Assessment rubric [2 times]	-	Quiz answers uploaded to class.usu.ac.id	10%
Tasks	Sub-CLO3	Assessment rubric [1 time]	-	Assignments uploaded to class.usu.ac.id	5%
Project-based learning	Sub-CLO6	-	Assessment rubric [1 time]	Logbook / worksheets / slides uploaded to class.usu.ac.id	30%
Case Method	Sub-CLO6	-	Assessment rubric [1 time]	Logbook / worksheets / slides uploaded to class.usu.ac.id	20%
Written exam 1 (mid-test)	Sub-CLO 1	-	Written test assessment rubric [1 time]	Written exam result sheet	15%
Written exam 2 (final-test)	Sub-CLO 4	-	Written test assessment rubric [1 time]	Written exam result sheet	15%
				Total	100%

Explanation:

a) Quiz 5%
During the semester there will be 1 quizzes held in class. Quizzes will be conducted through e-learning and is scheduled in advance. The material tested is announced by the lecturer and written in the RPS.

b) 5% Assignment
During the semester there will be 1 structured assignments. The assignment given is an effort to add insight by making a resume related to the material written in the RPS.

c) Project-based learning 30%
During the semester there will be case methods, each student will make a paper and report on each case method in groups. Project based learning in this course is conducted 1 times. The papers that have 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 present.

d) Case Method 20%
During the semester there will be case methods, each student will make a paper and report on each case method in groups. Case method in this course is conducted 1 time. The papers that have 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 present.

e) Mid-semester exam (UTS) (mid-test) 20%
The midterm exam covers all the material that has been covered since the beginning of the semester until the 7th meeting both reading and lectures. This exam is conducted in class with multiple choice, short form, and essay questions.

f) Final-semester exam (UAS) (final-test) 20%
The end-of-semester exam covers all the material that has been covered from the 9th to the 15th meeting, both readings and lectures. This exam is conducted in class with multiple choice, short form, and essay questions.

ASSESSMENT RUBRIC

Quiz Scoring Rubric:

Quiz consists of 5 essay questions done on a sheet of paper (done 2 times during 1 semester)

Score per item	Criteria
16-20	Can answer the question correctly, the steps of working on the problem are correct, and completely correct.
11-15	The steps of working on the problem are correct, there are few mistakes
6-10	Most of the steps are correct, there are many errors
0-5	The steps of working on the problem are not correct, unable to solve the problem

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

Teaching Journal/Proposal/Report/Paper Assessment Rubric:

Assessment Criteria	4 Very good	3 Good	2 Simply	1 Less
Understanding of Learning Topics with Resumed Journals	Understand the topic exactly once (25)	Understand the topic (20)	Does not fully and appropriately understand the topic (15)	Not understanding the topic (10)
Contents	Drafts show understanding participants integrate information that has been learned and/or assigned to read during lectures properly and appropriately. (25)	Drafts demonstrate understanding of the material covered and integrate some of the information that has been learned and/or assigned to read during lectures. (20)	Drafts show an understanding of the material covered and only integrate a small portion of the information that has been studied and/or assigned to read during the lecture. (15)	Drafts show a lack of understanding of the material discussed so that it is not clear and does not integrate the material. information that has been learned and/or assigned to read during lectures. (10)

Clarity of Writing	All writing ideas are well and clearly conveyed. (25)	Most of the ideas are well-written and clear. (20)	Some of the ideas are well-written and clear. (15)	The idea of the writing is not conveyed well and clearly. (10)
Language Clarity	Uses foreign/Indonesian language well and correctly few grammatical and word choice errors that do not interfere with understanding. (25)	Uses foreign/Indonesian language well and correctly with few grammatical and word choice errors that interfere with understanding. (20)	Uses foreign/Indonesian language fairly well and correctly with some grammatical and word choice errors. (15)	Does not use foreign/Indonesian language properly and correctly as the writing contains many grammatical and word choice errors. (10)
Total	**81-100 (Excellent)**	**61-80 (Good enough)**	**41-60 (Enough)**	**0-40 (Less)**

Group Presentation Task Assessment Rubric:

CATEGORIES	4 Very good	3 Good	2 Simply	1 Less
Group Preparation	The group is fully prepared and practices optimal presentation. Mutual complementarity between group members with clear tasks for each group member. (25)	The group seemed reasonably prepared but may need more practice presenting. The responsibilities of each group member need to be identified. (20)	The group made an effort to prepare but did not do any presentation preparation exercises. Tasks and responsibilities are assigned and accepted without careful consideration. (15)	The group seemed to have done no preparation at all for the presentation. Tasks and responsibilities are assigned and accepted randomly. (10)
Presentation Organization	The group presented the content clearly, logically, and systematically, through a	The group presented the content logically and systematically, with an	The group presented the content fairly logically and systematically, but it did not	The group presented the content randomly without any introduction, main idea, or conclusion.

	cohesive introduction, main points, and conclusion. The group used visual aids that effectively supported and reinforced the presentation. (25)	introduction, main idea and conclusion. The group used visual aids that showed a link to the content of the presentation. (20)	contain an introduction, main idea, or conclusion. The group occasionally used visual aids that did not support the content of the presentation. (15)	Groups using unsupportive visual aids or no visual aids at all. (10)
Task Achievement	Each group member is able to demonstrate solid knowledge through their own exposure and elaboration, and deliver the part of the presentation that is assigned to them within the time allotted. (25)	Each group member demonstrates good knowledge through their own exposure and elaboration but in less time than the time allocated to them. (20)	Each group member demonstrated sufficient knowledge but failed to elaborate, and presented his or her part in only half the time allotted to him or her. (15)	Each group member has no knowledge of the content and presents his or her section in less than half the time allocated to him or her. (10)
Mastery of Presentation Content	Each group member demonstrates full understanding of the presentation topic. The main points presented are supported by evidence and critically evaluated. (25)	Each group member demonstrated a good understanding of the presentation topic. Most of the main points are illustrated with relevant evidence. (20)	Each group member demonstrated a good understanding of some aspect of the topic. Some illustrations are given, but not critically evaluated. (15)	Each group member did not seem to understand the presentation topic very well. Some evidence was mentioned, but not integrated in the presentation or evaluated. (10)
Answers to Questions	The group was able to correctly answer almost all the questions asked by the audience about their presentation topic. (25)	The group was able to correctly answer most of the questions asked by the audience about the tropes of their presentation. (20)	The group was able to correctly answer some of the questions the audience asked about their presentation topic. (15)	The group was unable to answer the questions posed by the audience on the topic of their presentation appropriately. (10)

Communication Quality	Group interaction with the audience shows interest and respect for the opinions of others. Responses support effective communication. (25)	Group interaction with the audience shows interest and respect for the opinions of others. Responses generally support effective communication. (20)	Some parts of the interaction in the discussion show interest and respect for others' opinions. (15)	Interaction in the discussion shows disrespect for other people's opinions. Responses do not support effective communication. (10)
Total	**81-100 (Excellent)**	**61-80 (Good enough)**	**41-60 (Enough)**	**0-40 (Less)**

Source: Halimi, Sicily. "Assessment Rubric: Learning Plan Book MK Introduction to Teaching Methods", 2021
Maximum score: 25 x 6 components = 150 points: 1.5 = 100

Essay Writing Exam Scoring Rubric:

Assessment Criteria	**4 Very good**	**3 Good**	**2 Simply**	**1 Less**
Understanding of the Question	Understand the question exactly once (25)	Understand the question (20)	Does not understand the question fully and correctly (15)	Did not understand the question (10)
Contents	Answers show understanding participants integrate information that has been learned and/or assigned to read during lectures properly and appropriately. (25)	Answers demonstrate an understanding of the material in question and integrate some of the information learned and/or assigned to read during the lecture. (20)	Answers show a lack of understanding of the material in question and only integrate a small portion of the information that has been learned and/or assigned to read during the lecture. (15)	The answer shows a lack of understanding of the material in question, so it is not clear and does not integrate the material. information that has been learned and/or assigned to read during lectures. (10)
Clarity of Writing	All writing ideas are well and clearly conveyed. (25)	Most of the ideas are well-written and clear. (20)	Some of the ideas are well-written and clear. (15)	The idea of the writing is not conveyed well and clearly. (10)
Language Clarity	Uses foreign/Indonesian language well and correctly few	Uses foreign/Indonesian language well and	Uses foreign/Indonesian language fairly well and	Does not use foreign/Indonesian language

	grammatical and word choice errors that do not interfere with understanding. (25)	correctly with few grammatical and word choice errors that interfere with understanding. (20)	correctly with some grammatical and word choice errors. (15)	properly and correctly as the writing contains many grammatical and word choice errors. (10)
Total	**81-100 (Excellent)**	**61-80 (Good enough)**	**41-60 (Enough)**	**0-40 (Less)**

Multiple Choice Exam Scoring Rubric:

Score per item	Criteria
100/many questions	Can answer the question correctly
0	Answers are less precise / not in accordance with the answer key that has been provided

Course Schedule:

Week 1	Material	Teaching Staff
1	Introduction (scope and overview of livestock breeding science and mini project planning)	Dian Tria Fatmila
2	Qualitative traits (non-additive gene action and the role of qualitative traits)	Dian Tria Fatmila
3	Quantitative properties (quantitative properties, normal distribution, population diversity, regression and correlation)	Dian Tria Fatmila
4	Genetic parameters: Heretability	Practitioner
5	Advanced genetic parameters I: ripitability	Practitioner
6	Advanced genetic parameters II: genetic correlation	Practitioner
7	Monitoring mini project	Dian Tria Fatmila

8	**UTS**	
9	Mating system: outcrossing and incrossing	Dian Tria Fatmila
10	Advanced mating systems: hybrid vigor and heterosis effects, deep crossing coefficients, and kinship relationships	Fuad Hasan
11	Selection effectiveness	Fuad Hasan
12	Selection criteria and implementation of selection in livestock	Fuad Hasan
13	Technological developments in the field of livestock breeding (evaluation)	Fuad Hasan
14	Technological developments in the field of livestock breeding (evaluation)	Fuad Hasan
15	Technological developments in the field of livestock breeding (evaluation)	Fuad Hasan
16	**UAS**	