LEARNING PLAN (RPS)
OUTCAME BASED EDUCATION (OBE) WITH PROJECT BASED LEARNING (PjBL)

LIVESTOCK PHYSIOLOGY
PTK 61107 3 (2-1)

ANIMAL HUSBANDRY STUDY PROGRAM
FACULTY OF ANIMAL HUSBANDRY
ANDALAS UNIVERSITY

2023

SEMESTER LEARNING PLAN (RPS) BASED ON OBE
DEPARTMENT OF ANIMAL PRODUCTION TECHNOLOGY
FACULTY OF ANIMAL HUSBANDRY, ANDALAS UNIVERSITY

SUBJECT	CODE	*I-Learn* Course URL	WEIGHT (CREDIT UNITS)	Semester	Date of Compilation
Animal Physiology	PTK 61107	https://ilearn.unand.ac.id/	3 (2-1)	III (Three)	26 September 2022

AUTHORIZATION	RPS Developer/ Team Teaching Coordinator	head of the study program
	Dr. Lendrawati, S.Pt, M.Si	Dr. Kusnadidi Subekti, S.Pt., MP NIP. 197907132006041003
Learning Outcomes (CP) of Graduates/Study Programs	1. ILO 1: Internalize the university's core values, code of ethics, and scientific ethics. 2. ILO 2 : Demonstrating innovative livestock science and technology 3. ILO 4: Using logical thinking, creative thinking, critical thinking, and collaborative thinking. 4. ILO 8: Mastering and utilizing the latest information technology in the field of animal husbandry or other fields that are pursued .	
Course Learning Outcomes (CP-MK)	1. Students understand the scope of livestock physiology, namely cells and cell organelles, blood and blood circulation, the nervous system, metabolism, the excretory system, the endocrinology system, and the thermoregulation system, as well as the influence of the environment on the physiological functions of the livestock body. 2. Students are able to identify red blood cells, white blood cells, plasma, platelets, and blood clotting factors . 3. Students are able to identify the digestive system of non-ruminants and ruminants. 4. Students have the ability to apply critical, logical and creative thinking in the process of identifying physiological systems in livestock while paying attention to scientific codes of ethics and animal welfare.	
Sub CP-M K	1. Students are able to explain about cells and cell organelles, blood and blood circulation, the nervous system, metabolism, the excretory system, the endocrinology system, and the thermoregulatory system through assignments and presentations. (CPMK 1). 2. Students are able to explain the influence of the environment on the physiological functions of livestock through assignments and presentations. (CPMK 1) 3. Students are able to demonstrate the characteristics and shape of red blood cells, white blood cells, and white blood cell differentiation through practical demonstrations. (CPMK 2) 4. Students are able to demonstrate the characteristics and forms of non-ruminant and ruminant digestive organs through practical demonstrations. (CPMK 3) 5. Students are able to demonstrate how to handle physiological system identification in accordance with animal welfare standards. (CPMK 4)	

Brief Description of Course		course discusses and studies the normal functions of the systems found in the bodies of ruminants, non-ruminants, and poultry, especially the cell physiology system, blood and circulatory system, nervous system, respiratory system, digestive system, metabolism, hormonal and environmental physiology . The learning method is carried out using collaborative learning, small group discussions, and self-directed learning.	
Library	Main:	1. Swenson, MJ. 1970. Dukes Physiology of Domestic Animals. 8th Ed. Cornell Univ. Press 2. Franson, RD. 1986. Anatomy and Physiology of Farm Animals. 4th Ed. Lea & Febiger, Philadelphia, USA.	
	Supporters:	(1) Turner, CD and JT Bagnara. 1976. General Endocrinology. 1st Ed. WB Somders, Co (2) Harper, MA and PA Mayes. 1979. Review of pHysiological Chemistry. 17 th Ed. Longe Medical Publ. (3) Other Textbooks on Animal Physiology relevant to the lecture material (4) Journal articles related to research in the field of livestock physiology	
Instructional Media		Software:	Hardware:
		Ms. Office/ Zoom Meeting/ Google Meet/ Ilearn/ youtube	PC/ Infocus/Laptop/ Smart Phone/ hemocytometer / thermometer/microscope /
Course Teaching Team		1. Dr. Lendrawati , S.Pt, M.Si 2. Dr. Drh. Yulia Yellita, MP , 3. Dr. Ir. Yan Heryandi, MP 4. Drh. Yuherman, MS. PhD 5. Dr. Kusnadidi Subekti, MP 6. Ananda, S.Si, M.Si	
Prerequisite courses		Biology	

Week e- (1)	CP-MK / Sub CP-MK (2)	Assessment Indicators (3)	Assessment Forms (4)	Learning Activities				Media (9)	Learning Materials (10)	Assessment Weight (11)
				Synchronous*		Asynchronous**				
				Offline (5)	Online (6)	Independent (7)	Collaborative (8)			
1 - 7	1. Students understand the scope of livestock physiology, namely cells and cell organelles, blood and blood circulation, the nervous system, and the excretory system in livestock.	1. Accuracy in explaining about cells and cell organelles 2. Accuracy in explaining about blood and blood circulation. 3. Accuracy in explaining the nervous system. 4. Accuracy in explaining the excretory system.	Progress/advancement and formative	Studying, introduction to RPS, explanation of assignments, lectures, and discussion and presentation [14×50 minute]. Practical work on the characteristics and shape of red blood cells, white blood cells, and white blood cell differentiation. (2 x 100 minutes)	-	Students seek information from various sources (textbooks and the Internet) and formulate a resume about the scope of livestock physiology, namely cells and cell organelles, blood and blood circulation, the nervous system, and the excretory system in livestock.	Students discuss in groups to create papers and presentations about cells and cell organelles, blood and blood circulation, the nervous system, and the excretory system in livestock.	Ilearn	Discuss : - Understanding livestock physiology - Scope of livestock physiology - Cells, cell organelles and the function of cell membranes in carrying out cell functions. - Blood and circulatory system. - Nervous system - Excretory system.	35 %

8	Mid-term exam	1. Accuracy in explaining about cells and cell organelles 2. Accuracy in explaining about blood and blood circulation. 3. Accuracy in explaining the nervous system. 4. Accuracy in explaining the excretory system.	Summative	Exam/Test	-				-	1 5 %
9 - 15	2. Students understand the digestive organs in non-ruminants and ruminants, carbohydrate, protein and fat metabolism, the endocrinology system, and the thermoregulation system as well as the influence of the environment on the physiological functions of the livestock body.	1. Accuracy in explaining the digestive organs of non-ruminants and ruminants. 2. Accuracy in explaining the metabolism of carbohydrates, proteins and fats. 3. Accuracy in explaining the Endocrinology System. 4. Accuracy in explaining the thermoregulation system and the influence of the environment on	Progress/advancement and Formative	Lectures, Assignment explanations, and discussion and presentation [14×50 minute]. Practical work on the characteristics and forms of non-ruminant and ruminant digestive organs (2 x 100 minutes)	-	3. Students seek information from various sources (textbooks and the Internet) and formulate a resume about the digestive organs in non-ruminants and ruminants, carbohydrate, protein and fat metabolism, the endocrinology system, and the thermoregulation system as well as the influence of the	Students discuss in groups to create papers and presentations on digestive organs in non-ruminants and ruminants, carbohydrate, protein and fat metabolism, endocrinology systems, and thermoregulation systems as well as environmental influences on the physiological	Ilearn	Discuss : - digestive organs in non-ruminants and ruminants - Carbohydrate, Protein and Fat Metabolism - endocrinology system - thermoregulation system and environmental influences on the physiological functions of livestock. -	35 %

		physiological functions.				environment on the physiological functions of the livestock body.	functions of livestock bodies.			
16	Final Exam	1. Accuracy in explaining the digestive organs of non-ruminants and ruminants. 2. Accuracy in explaining the metabolism of carbohydrates, proteins and fats. 3. Accuracy in explaining the Endocrinology System. 4. Accuracy in explaining the thermoregulation system and the influence of the environment on physiological functions.	Summative	Exam/Test						15%

Notes:
*Synchronous is a learning activity that is carried out at the same time in the same location (*offline*) or different (*online*)
* *Asynchronous is a learning activity that is carried out at different times and places: Independently (without other people) or Collaboratively (with other people/in a group)
* ** Put a ✓ mark in the appropriate column

Learning media can be in the form of:
(1) Virtual face-to-face meetings (*real time*), for example using Zoom, GoogleMeet, Microsoft Team, WebEx, etc.

(2) Direct text-based interaction can be done on LMS (i-learning Unand) or social media such as: Whatsapp, Telegram, Messenger, etc.
(3) Direct communication via voice *via* phone *or* WhatsApp.
(4) Teaching materials in the form of text in PDF format such as: *e-Book* , *E-Journal* or HTML (*hypertext*).

(5) Presentation files, such as PPT.
(6) Videos in the format of a lecture material presentation by a lecturer or presenter about a topic description, in the form of a monologue, can also be in the form of a Vlog but relevant to CPMK.
(7) *Motion Graphics* are a presentation of 2-dimensional teaching materials in animation format, a combination of images, writing and *voice over* .

(8) Animation (simulation) is the presentation of simulation or demonstration material in two-dimensional or three-dimensional animation format.

(9) *Audio (Podcast)* is teaching material in audio format, either recorded (*stand alone*) or *streaming.*
(10) *Assignments* are independent tasks in the form of exercises to understand concepts or practice which are given a time span for completing the task.

INDICATORS, CRITERIA AND ASSESSMENT WEIGHTING

1. Assessment Weight for Each Form of Assessment
   a) Practicum : 20 %
   b) Progress report : 20%
   c) Mid-term exam : 1 0%
   d) Final Report : 40 %
   e) Final Exam : 10 %

2. Assessment Weight for Each Course Learning Achievement
   1. CP-MK-1: 5%
   2. CP-MK 2: 10%
   3. CP-MK 3: 10%
   4. CP-MK 4: 10%
   5. CP-MK 5: 10%
   6. CP-MK 6: 10%
   7. CP-MK 7: 10%
   8. CP-MK 8: 10%
   9. CP-MK 9: 10%
   10. CP-MK 10: 10%
   11. CP-MK 1 1 : 5%

Note : The assessment weighting **of the assessment form and learning outcomes must be synchronous.**

1.1 Assessment Plan Table – Case Based Method

CPMK and/or Sub-CPMK \ Assessment Form	Progress Report	Mid-term exam	Final report	Final Exam	Total Percentage
1. Students are able to explain the scope of livestock physiology		5.0%			5.0%
2. Students are able to explain the concept of cells, cell functions and organelles.	2.5%	5.0%	2.5%		10.0%
1. Students are able to explain and identify red blood cells, white blood cells, plasma, platelets, and blood clotting factors.	2.5%	5.0%	2.5%		10.0%
2. Students are able to explain and identify the lungs, pleura, respiratory mechanisms and blood circulation.	2.5%	5.0%	2.5%		10.0%
3. Students are able to explain the physiology of circulation	2.5%	5.0%	2.5%		10.0%
4. Students are able to explain the central, autonomic, peripheral and reflex nerves.	2.5%		2.5%	4.0%	9.0%
5. Students are able to explain and identify the digestive systems of ruminants, poultry and monogastrics.	2.5%		2.5%	5.0%	10.0%
6. Students are able to explain the metabolism of carbohydrates, fats and proteins	2.5%		2.5%	4.0%	9.0%
7. Students explain the physiology of excretion	2.5%		2.5%	4.0%	9.0%
8. Students are able to explain and identify hormones	2.5%		2.5%	4.0%	9.0%
9. Students are able to explain the influence of the environment on livestock physiology.	2.5%		2.5%	4.0%	9.0%
Total Percentage	25%	25%	25%	25%	100%

1.2 Project Assignment Format

	STUDY PROGRAM: ANIMAL HUSBANDRY				
	FACULTY: ANIMAL HUSBANDRY				
	ANDALAS UNIVERSITY				
SUBJECT	**LIVESTOCK PHYSIOLOGY**				
CODE	**PTK 61107**	**Credits**	**3 (2-1)**	**SEMESTER**	I II
LECTURER					
COURSE TEACHING TEAM					
CASE STUDY/PROJECT FORM:	Evaluate/Analyze the physiology of livestock in groups (4-5 people per group)				
ASSIGNMENT THEME: Physiological evaluation of ruminant, monogastric or poultry livestock					
COURSE LEARNING OUTCOMES (CPMK and/or SUB-CPMK) TO BE ACHIEVED FROM THE CASE STUDY/PROJECT **(** write in brackets which CPL is supported by each CP-MK and Sub CP-MK)					

CPMK:

1. Mastering and applying science and technology in the field of livestock physiology effectively and efficiently to create innovative livestock businesses that support sustainable livestock production (ILO. 1 , ILO 3, and ILO, 5)
2. Able to apply logical, critical, systematic, innovative, high-quality and measurable thinking in the development of science in the field of livestock physiology with the principle of continuing to learn independently (ILO. 2 and ILO 6)
3. Implementing scientific and technological knowledge in the field of livestock physiology in producing solutions, ideas, and compiling descriptions of study results in the form of scientific works that can be accounted for and avoid plagiarism (ILO. 4 and ILO 7)
4. Demonstrate a responsible attitude towards work in the field of Beef Livestock Production Science and Technology independently (ILO. 1).
5. Able to demonstrate independent, quality and measurable performance in the field of Beef Livestock Production Science and Technology (ILO. 2).

1. Students are able to explain the scope of livestock physiology
2. Students are able to explain the concept of cells, cell functions and organelles.
3. Students are able to explain and identify red blood cells, white blood cells, plasma, platelets, and blood clotting factors.
4. Students are able to explain and identify the lungs, pleura, respiratory mechanisms, and blood circulation.
5. Students are able to explain the physiology of circulation
6. Students are able to explain the central, autonomic, peripheral and reflex nervous systems.
7. Students are able to explain and identify the digestive systems of ruminants, poultry, and monogastrics .
8. Students are able to explain the metabolism of carbohydrates, fats and proteins.
9. Students are able to explain the excretory system
10. Students are able to explain and identify hormones secreted by the pituitary gland.
11. Students are able to explain the influence of the environment around the livestock's body on the physiological functions of livestock.

ASSIGNMENT DESCRIPTION

Students conduct literature studies on physiological status (heart rate, respiration rate, rectal temperature), blood physiology (number of red blood cells, white blood cells, hemoglobin levels, hematocrit levels and other blood components, digestive physiology and absorption systems. In one of the ruminant, monogastric and poultry livestock) and explain the problems that often arise in these livestock, then the assignment is discussed in class.

STEPS FOR COMPLETING THE STUDY ASSIGNMENT

1. Students are divided into several groups consisting of 4-5 students.
2. Each group will measure and observe the physiological status, blood components, and digestive and absorption physiology according to the type of livestock selected .
3. The results of these observations and measurements are compared with literature studies.

4. Students study and analyze the information obtained.
5. Student Create project reports, present them, and discuss them in class. Students are required to be creative and express their ideas while still adhering to established standards and regulations in an effort to increase livestock productivity and improve the livestock economy.
6. Next, students submit a project report

FORMAT AND FORMAT OF THE EXTERNAL

1. Final Project Report (*Microsoft Word file*)
2. Presentation file (*Powet Point file*)

INDICATORS, CRITERIA AND ASSESSMENT WEIGHTING

1. Assessment Weight for Each Form of Assessment

1. Progress Report : 20 %
2. Mid-term exam : 10 %
3. Practical : 20%
4. Final Report : 4 0%
5. Final Exam : 10%

2. Assessment Weight for Each Course Learning Achievement

1. CP-MK-1: 5%
2. CP-MK 2: 10%
3. CP-MK 3: 10%
4. CP-MK 4: 10%
5. CP-MK 5: 10%
6. CP-MK 6: 10%
7. CP-MK 7: 10%
8. CP-MK 8: 10%
9. CP-MK 9: 10%
10. CP-MK 10: 10%
11. CP-MK 11: 5%

Note: The assessment weighting of the assessment form and learning outcomes must be synchronous.

IMPLEMENTATION SCHEDULE

(synchronized with the week on RPS)

Duration: 16 weeks
Gantt chart (attached)
LIST OF REFERENCES
Related references 1. Swenson, MJ. 1970. Dukes Physiology of Domestic Animals. 8th Ed. Cornell Univ. Press 2. Franson, RD. 1986. Anatomy and Physiology of Farm Animals. 4th Ed. Lea & Febiger, Philadelphia, USA 3. Other Textbooks on Animal Physiology relevant to the lecture material 4. Journal articles related to research in the field of livestock physiology

1.3 Assessment Rubric

Assessment Rubric					
Group Number:					
Member Name/NIM:					
1					
2					
3					
4					
Students are able to explain the scope of livestock physiology Students are able to explain the concept of cells, cell functions and organelles. 3. Students are able to explain and identify red blood cells, white blood cells, plasma, platelets, and blood clotting factors. 4. Students are able to explain and identify the lungs, pleura, respiratory mechanisms, and blood circulation. 5. Students are able to explain the physiology of circulation 6. Students are able to explain the central, autonomic, peripheral and reflex nervous systems. 7. Students are able to explain and identify the digestive systems of ruminants, poultry, and monogastrics. 8. Students are able to explain the metabolism of carbohydrates, fats and proteins. 9. Students are able to explain the excretory system 10. Students are able to explain and identify hormones secreted by the pituitary gland. 11. Students are able to explain the influence of the environment around the livestock's body on the physiological functions of livestock.					
Course: Animal Physiology					
CP-MK	*Criteria*	**(45-49)**	**(50-59)**	**(60-74)**	**(75-100)**
		Inferior	***average***	***Good***	***Excellent***
2- 5	*Report systematics*	The report is unsystematic and incomplete.	The report is systematic but incomplete.	Complete but not systematic arrangement.	Systematic and complete report arrangement
	Contents of the report	The discussion is not detailed, the language used is not communicative, and the contents of the report are not coherent.	The discussion is detailed, but the language used is not communicative, and the contents of the report are not coherent.	Detailed discussion, communicative language used, but the contents of the report are not coherent.	Detailed discussion, communicative language used, and coherent report content.
	Completeness of the contents of the paper related to the analysis and solution of the project discussion	Incomplete report conveys analysis and solutions to case discussion	The report fully conveys the analysis and solutions to the case discussion but is presented in an unsystematic manner.	The report completely conveys the analysis and solutions to the case discussion and is presented systematically.	The report completely conveys the analysis and solutions to the case discussion, presented in a complete manner and supplemented with supporting information.

2- 5	*Presentation systematics*	The presentation material is presented in an uncoordinated and unsystematic manner.	The presentation material is presented in a less coherent and less systematic manner.	The presentation material is presented in a coherent but less systematic manner.	The presentation material is presented in a coherent and systematic manner.
	Contents of the material	The material presented is incomplete, irrelevant and not interesting.	The material presented is complete but irrelevant and not interesting.	The material presented is complete and relevant but not very interesting.	The material presented is complete, relevant, and presented in an interesting manner.
	Mastery of presentation material	Very poor ability to maintain and respond to questions	Less able to defend and respond to questions or objections well	Able to defend and respond to questions/objections fairly well	Able to defend and respond to questions/objections very well
	Presentation skills	Delivering information that is not interesting, not enthusiastic, not clear, and with inappropriate intonation.	Delivering information that is less interesting, less enthusiastic, less clear, and with less than appropriate intonation.	Delivering information in an interesting way, with enough enthusiasm, enough enthusiasm, enough clarity, and with the right intonation.	Delivering information in a very interesting, enthusiastic, clear, and appropriate intonation manner.

Individual Performance Assessment Rubric within a Team	
Group Number:	
Member Name/No.BP:	
1	
2	
3	
4	
5	

1. Students are able to explain the scope of livestock physiology
2. Students are able to explain the concept of cells, cell functions and organelles.
3. Students are able to explain and identify red blood cells, white blood cells, plasma, platelets, and blood clotting factors.
4. Students are able to explain and identify the lungs, pleura, respiratory mechanisms, and blood circulation.
5. Students are able to explain the physiology of circulation
6. Students are able to explain the central, autonomic, peripheral and reflex nervous systems.
7. Students are able to explain and identify the digestive systems of ruminants, poultry, and monogastrics.
8. Students are able to explain the metabolism of carbohydrates, fats and proteins.
9. Students are able to explain the excretory system
10. Students are able to explain and identify hormones secreted by the pituitary gland.
11. Students are able to explain the influence of the environment around the livestock's body on the physiological functions of livestock.

Course: Animal Physiology

Sub CP-MK	Criteria	(45-49)	(50-59)	(60-74)	(75-100)
		Inferior	***average***	***Good***	***Excellent***
2- 5	*Receive input, share information, and listen to other team members (peers)*	Team members are less willing to accept input, share information and listen to other team members.	Team members are willing to accept input, share information and listen to other team members.	Team members accept input well, share information and listen to other team members.	Team members are very receptive to input, share information and listen to other team members.
	Completion of work according to the established schedule	Team members are always late in completing assigned tasks	Team members are often late in completing assigned tasks.	Team members are rarely late in completing assigned tasks.	Team members are always punctual in completing assigned tasks.

	Participate in work with full responsibility	Team members do not participate in the work	Team members participate in the work but not with full responsibility	Team members participate in the work with full responsibility.	Team members participate in the work with full responsibility and dedication.
	Respond to each other team member	Team members are less responsive to other team members in their work	Team members simply respond to other team members in their work.	Team members respond well to other team members in their work.	Team members respond very well to other team members in their work.
2-9	*Individual Presence*	12 meetings	13 meetings	14 meetings	15-16 meetings