



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

**Documen
Code
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SEMESTER LEARNING PLAN (SLP)

COURSE (Course)	CODE	Course Group	CREDIT		SEMESTER	Date of Compilation
Beef Cattle Nutrition Science	PTN3217	Exact	Theory =2	Practice =1	VI	October 2022
AUTHORIZATION / APPROVAL	SLP Developer Lecturer		Vice Dean I		Chairman of LINK-UP USU	
			Dr. Lisnawita, SP, MP		Prof. Dr. Dwi Suryanto M.Sc.	
Learning Outcomes	Learning Outcomes (LO)					
	LO03	Able to identify, formulate, and find solutions to problems related to the livestock sector				
	LO06	Able to manage integrated and sustainable livestock farming based on integration with other agro-ecosystems as well as latest applications in processing livestock products and waste.				
	LO09	Able to develop, understand and apply a variety of the best techniques and methods that combine theory and practice related to livestock expertise.				
	LO11	Have coherent and up-to-date knowledge in the field of animal science and in accordance with applicable legal regulations can apply aspects of animal welfare.				
	Course Learning Outcomes (CLO)					CLO Credit
	CLO0325: Capable explains about the components, composition of nutrients and the nutritional needs of beef cattle and the nutritional metabolism processes that occur in the bodies of beef cattle in fulfilling the needs of livestock productivity					26.5%
	CLO0622: Able to explain the evaluation of feed provision for beef cattle.					22.5%
	CLO0912: Able to explain livestock feed processing technology to ensure sustainable feed availability.					28.75%

	CLO1126: Able to prepare rations for beef cattle by utilizing waste found in the surrounding area	22.5%																																			
Final Ability of Each Learning Stage (Sub-CLO)																																					
Sub-CLO1	After taking this course, students will be able to explain about the scope of livestock nutrition science																																				
Sub-CLO2	After taking this course, students will be able to explain about nutritional needs based on livestock status																																				
Sub-CLO3	After taking this course, students will be able to understand feed processing technology																																				
Sub-CLO4	After taking this course, students will be able to preparing rations for beef cattle																																				
Sub-CLO5	After taking this course, students will be able to evaluate feed for beef cattle according to maintenance objectives																																				
Sub-CLO6	After taking this lecture, students are able to explain nutritional disorders in beef cattle.																																				
Correlation of CLO with Sub-CLO	<table border="1"> <thead> <tr> <th></th> <th>Sub-CLO1</th> <th>Sub-CLO2</th> <th>Sub-CLO3</th> <th>Sub-CLO4</th> <th>Sub-CLO5</th> <th>Sub-CLO6</th> </tr> </thead> <tbody> <tr> <td>CLO0325</td> <td></td> <td>√</td> <td></td> <td></td> <td></td> <td>√</td> </tr> <tr> <td>CLO0622</td> <td></td> <td></td> <td></td> <td></td> <td>√</td> <td></td> </tr> <tr> <td>CLO0912</td> <td></td> <td></td> <td>√</td> <td>√</td> <td></td> <td></td> </tr> <tr> <td>CLO1126</td> <td></td> <td>√</td> <td>√</td> <td>√</td> <td></td> <td></td> </tr> </tbody> </table>			Sub-CLO1	Sub-CLO2	Sub-CLO3	Sub-CLO4	Sub-CLO5	Sub-CLO6	CLO0325		√				√	CLO0622					√		CLO0912			√	√			CLO1126		√	√	√		
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CLO1126		√	√	√																																	
Brief Description of Course	This course is designed to equip students to be able to explain correct science of beef cattle nutrition, so that after taking this course, students expected to have skills in the science of beef cattle nutrition																																				
Study Material:	BK04 Animal Nutrition and Feed Science																																				
Learning materials	<ol style="list-style-type: none"> 1. Scope of beef cattle nutrition science 2. Nutritional requirements based on livestock status 3. Feed processing technology 4. Preparing rations for beef cattle 5. Cattle feed according to maintenance needs 6. Nutritional disorders in beef cattle 																																				
Library	Main:																																				

	<ol style="list-style-type: none"> 1. Tillman, H. Hartadi, S. Reksohadiprodjo, Prawirokusumo, Lebdoesoekojo. 1986. Basic Animal Feed Science. 3rd printing. Yogyakarta: Gadjah Mada University Press. 2. Despal, DA Astuti, T Toharmat, et al. 2007. Introduction to Nutrition Science. Bogor. Department of Nutrition Science and Feed Technology IPB University. 3. Riadi, L. 2013. Fermentation Technology. 2nd Edition. Graha Ilmu. ISBN: 978-979-756- 948-8. Yogyakarta. 4. Parakkasi, A. 1999. Ruminant Animal Feed Science. First printing. Publisher of University of Indonesia, Jakarta. 						
	Supporters:						
	1.						
Supporting lecturer							
Required Courses							
(1)	Final ability of each learning stage (Sub-CLO) (2)	Evaluation		Form of Learning; Learning methods; Student Assignments; [Estimated Time]		Study Materials (Learning materials) (7)	Assessment Criteria (%) (8)
		Indicator (3)	Criteria and Techniques (4)	Asynchronous (5)	Synchronous (6)		
1	Sub-CLO1: After taking this course, students will be able to explain about the scope of livestock nutrition science	<p>Accuracy in explaining</p> <ul style="list-style-type: none"> - Scopebeef cattle nutrition science - Rolebeef cattle nutrition sciencein supporting livestock performance 	<p>Criteria:</p> <p>-</p> <p>Technique:</p> <p><i>Non-test</i></p>	<p>KM+PT (1 week x 2 credits x 120 minutes)</p> <p>Learning methods:</p> <p><i>Self-Paced Learning</i></p> <p>Activity:</p> <ul style="list-style-type: none"> a. Attendance presence b. Download and read the Syllabus (RPS), Learning Implementation Plan (SAP), Course Agreement, and Learning Materials 	<p>TM (1 week x 2 credits x 50 minutes)</p> <p>Learning methods:</p> <ul style="list-style-type: none"> a. Lecture b. Discussion <p>Activity:</p> <ul style="list-style-type: none"> a. Online/offline learning b. Class discussion c. Make notes about learning materials <p>Media:</p> <ul style="list-style-type: none"> a. Slides/ ppt b. Zoom meeting/ LCD 	<p>Subject:</p> <ul style="list-style-type: none"> - Scopebeef cattle nutrition science - Rolebeef cattle nutrition sciencein supporting livestock performance 	0%

				Mode (Learning Management System): class.usu.ac.id	c. Text book		
2-5	Sub-CLO2: After taking this course, students will be able to explain about nutritional needs based on livestock type	Accuracy in explaining components, nutrient composition, and nutritional needs of beef cattle	Criteria: - Technique: Non-test	Mode (Learning Management System): KM+PT (2 weeks x 2 credits x 120 minutes) Learning methods: <i>Self-Paced Learning</i> Activity: a. <i>Recording attendance</i> b. <i>Completing the quiz</i> Case method 1 a. Students are divided into several groups b. Students visit farms and observe livestock by collecting data on the amount of feed given, livestock body Credit, and type of livestock. c. Students analyze the fulfillment of livestock nutritional needs according to the type of livestock.	TM (2 weeks x 2 credits x 50 minutes) Learning methods: a. Lecture b. Discussion Activity: a. Online/offline learning b. Class discussion c. Make notes about learning materials d. Presentation Media: a. Slides/ ppt b. Zoom meeting/ LCD c. Text book	Subject: - Components, nutrient composition: Carbohydrates, protein, fat, vitamins, and minerals - Nutrient metabolism: digestion, absorption, and use by the body - Nutritional needs of calves - Virgin nutritional needs - Nutritional needs of pregnant mothers - Nutritional needs of nursing mothers - Nutritional needs of young males	Cas Meth 12.5 Midt Exam

				d. Students make reports and present them.		- Nutritional needs of males	
6-7	Sub-CLO 3: After taking this course, students will be able to understand feed processing technology	Accuracy in explaining feed processing technology	Criteria: Using assessment rubrics Technique: <i>Quiz</i>	KM+PT (2 weeks x 2 credits x 120 minutes) Learning methods: <i>Self-Paced Learning</i> PJBL 1 Students make fermented feed by utilizing agricultural waste or by-products. Mode (Learning Management System): class.usu.ac.id	TM (2 weeks x 2 credits x 50 minutes) Learning methods: a. Lecture b. Discussion Activity: b. Online/offline learning c. Class discussion d. Make notes about learning materials Media: a. Slides/ ppt b. Zoom meeting/ LCD c. Text book	Subject: - Feed preservation technology - Technology improves the quality of animal feed - Utilization of agricultural waste for animal feed - Processing strategies to ensure year-round feed availability	PJB 12.5 Midt Exam
8	MID SEMESTER EXAMINATION						

<p>9-11</p>	<p>Sub-CLO 4: After taking this course, students will be able to preparing rations for beef cattle</p>	<p>Accuracy in compiling beef cattle ration</p>	<p>Criteria: Using assessment rubrics</p> <p>Technique: <i>Quiz and PJBL</i></p>	<p>KM+PT (2 weeks x 2 credits x 120 minutes)</p> <p>Learning methods: <i>Self-Paced Learning</i></p> <p>Activity:</p> <ol style="list-style-type: none"> <i>Recording attendance</i> <i>Completing the quiz</i> <p>PJBL 2</p> <ol style="list-style-type: none"> Students are divided into several groups Students create feed formulations using local feed ingredients available according to the livestock area determined by the students. The feed formulation must be in accordance with livestock needs and use feed processing techniques. Students present the results of their formulation 	<p>TM (2 weeks x 2 credits x 50 minutes)</p> <p>Learning methods:</p> <ol style="list-style-type: none"> Lecture Discussion <p>Activity:</p> <ol style="list-style-type: none"> Online/offline learning Class discussion Make notes about learning materials <p>Media:</p> <ol style="list-style-type: none"> Slides/ ppt Zoom meeting/ LCD <p>Text book</p>	<p>Subject:</p> <ul style="list-style-type: none"> - The ration formula uses local feed ingredients. - Use of agricultural waste as a source of feed - Nutritional balance in rations for various purposes (maintenance, fattening, etc.) 	<p>PJB 12.5 Quiz</p>
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				<p>Quiz : Quiz to measure students' understanding of the topic preparing rations for beef cattle</p> <p>Mode (Learning Management System): class.usu.ac.id</p>			
12-13	<p>Sub-CLO 5: After taking this course, students will be able to evaluate feed for beef cattle according to maintenance objectives</p>	<p>Accuracy in understand evaluate feed for beef cattle according to maintenance needs</p>	<p>Critehappy: RAssessment section</p> <p>Ttechnique: Quiz</p>	<p>KM+PT (5 weeks x 2 credits x 120 minutes)</p> <p>Learning methods: <i>Self-Paced Learning</i></p> <p>Case method 2</p> <ol style="list-style-type: none"> Students are divided into several groups Students visit and observe the farm Students conduct an analysis to evaluate whether the feed provided meets the needs of the maintenance objectives (fattening/breeding). 	<p>TM (2 weeks x 2 credits x 50 minutes)</p> <p>Learning methods:</p> <ol style="list-style-type: none"> Lecture Discussion <p>Activity:</p> <ol style="list-style-type: none"> Online/offline learning Class discussion Make notes about learning materials Presentation <p>Media:</p> <ol style="list-style-type: none"> Slides/ ppt Zoom meeting/ LCD Text book 	<p>Subject</p> <ul style="list-style-type: none"> - Feed digestibility evaluation methods. - The effect of feeding on the performance of beef cattle. - Analysis of body Credit, feed conversion ratio (FCR), and livestock growth. 	<p>Cas meth 12.5 Final E 10%</p>

				d. Students make reports and present them.			
				Mode (Learning Management System): class.usu.ac.id			
14-15	Sub-CLO 6: After taking this lecture, students are able to explain nutritional disorders in beef cattle.	Accuracy in explaining disorders that occur in the nutrition of beef cattle	Critehappy: - Ttechnique: -	KM+PT (5 weeks x 2 credits x 120 minutes) Learning methods: <i>Self-Paced Learning</i> Mode (Learning Management System): class.usu.ac.id	TM (2 weeks x 2 credits x 50 minutes) Learning methods: c. Lecture d. Discussion Activity: e. Online/offline learning f. Class discussion g. Make notes about learning materials h. Presentation Media: d. Slides/ ppt e. Zoom meeting/ LCD f. Text book	Subject - Nutritional deficiencies - Excess nutrition imbalance - Nutritional disorders - Metabolic disorders - Environmentally Induced Nutritional Disorders	Final E 10%
16	FINAL SEMESTER EXAMINATION						20%

CLO Code and Percentage	CLO0325:26.5%			CLO0622:22.5%		CLO0912:28.75%				CLO1126:22.5%			
CLO Sub Code	Sub- CLO2		Sub- CLO6	Sub- CLO5		Sub- CLO3		Sub- CLO4		Sub- CLO3	Sub- CLO4		Sub- CLO2
Evaluation Form	MID TER ML EXA M	Case Method	FINAL EXAM	Case Method	FINA L EXAM	PJBL	MID TER ML EXA M	PJB L	Quiz	MIDTERM L EXAM	PJB L	Assi gnment	Case Method
Percentage	10%	6.25%	10%	7,5%	10%	12.5%	5%	8.75 %	5%	5%	8.75 %	5%	6.25%
Total	26.5%			22.5%		28.75%				22.5%			
Implementation of Evaluation	Week 8	Week 3	Week 16	Week 10	Week 16	Week 6	Week 8	Week 9	week 11	Week 8	Week 10	Week 3	



ASSESSMENT PLAN

Evaluation Form	Sub-CLO	Assessment Instrument[Frequency]		Invoice (proof)	Assessment Credit (%)
		Formative	Summative		
Quiz	Sub-CLO 4	-	MCQ test rubric [1 time]	Quiz sheets uploaded to USU LMS	5%
Assignment	Sub-CLO 4	-	Assessment rubric[1 time]	Assignments uploaded to USU LMS	5%
Case Method	Sub-CLO 2.5	Feedback results report [2 times]	Report assessment rubric [2 times]	Reports uploaded to USU LMS	20%
PJBL	Sub-CLO 3.4	Feedback results report [2 times]	Report assessment rubric [2 times]	Reports uploaded to USU LMS	30 %
MIDTERM EXAM	Sub-CLO 2	-	Essay Assessment Rubric[1 time]	Mid-term exam scores	20%
FINAL EXAM	Sub-CLO 6	-	Essay Assessment Rubric[1 time]	Final Exam Score	20%
Total					100%

Explanation:

- a) Quiz 5%
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 SLP.
- b) Assignment 5%
During the semester there will be 1 structured assignments. The assignments given are an effort to add insight by making a resume related to the material written in the SLP
- c) Case Method 20%
During one semester there will be a case method, students will analyze the given case and write it in the form of a report. The case method in this course is carried out 2 times. The report that has been made will be presented by students. Students will be assessed according to their presentation skills and accuracy in the presentation, as well as their participation in the question and answer session when other groups are presenting.
- d) Project Based Learning (PJBL) 30%
During one semester there will be PJBL, students will make the given project and write it in the form of a report. PJBL in this course is done 2 times. The report that has been made will be presented by students. Students will be assessed according to their presentation skills and accuracy in the presentation, as well as their participation in the question and answer session when other groups are presenting.
- e) 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.
- f) Final Exam 20%
The final semester exam covers all the materials that have been discussed since the 9th to 15th meeting, both reading and lecture. This exam is conducted in class with 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 twice 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) $20 \times \sum \text{nilai per butir soal}$

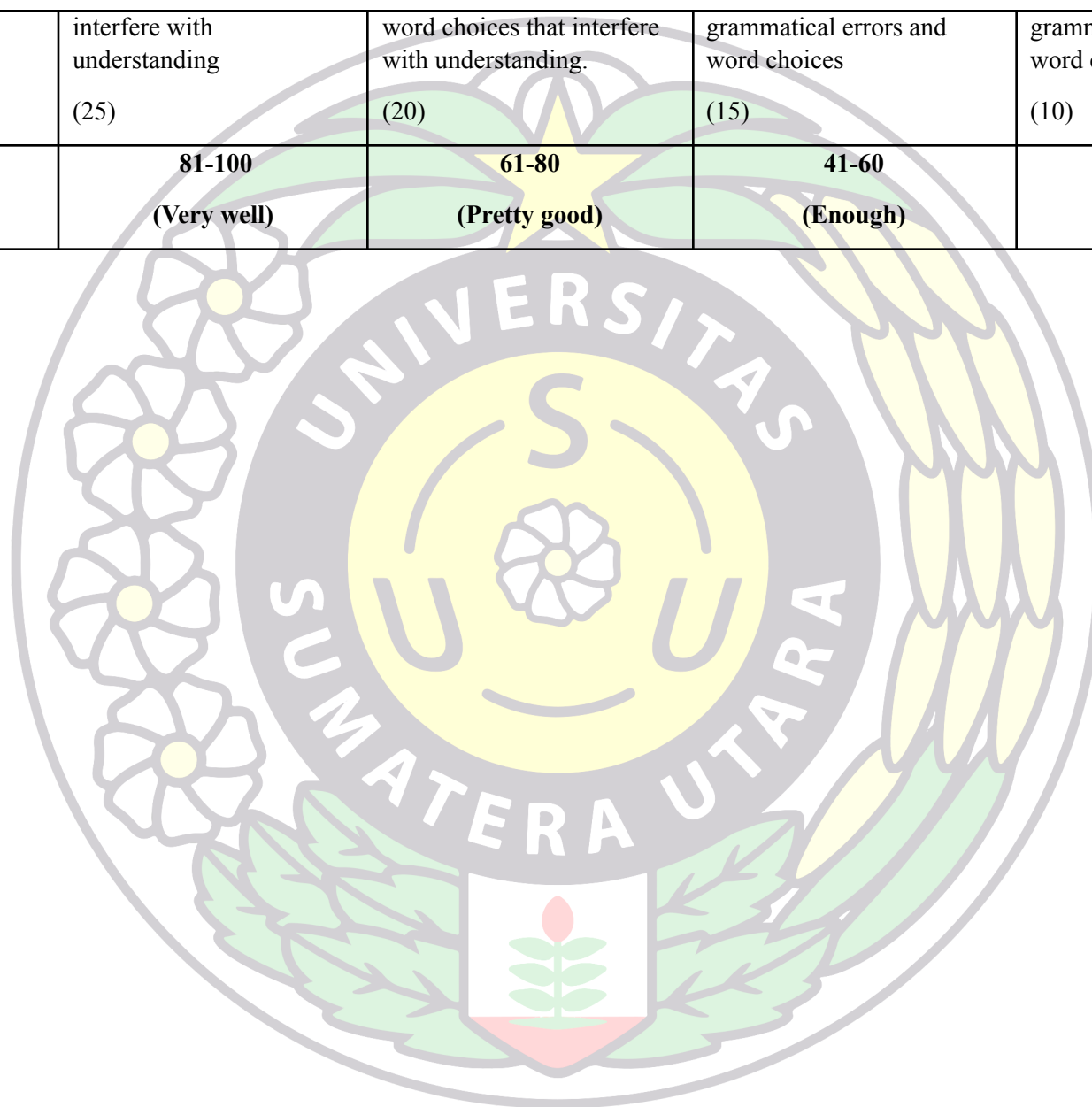
Quiz score 2: (maximum score is 100) $20 \times \sum \text{nilai per butir soal}$

Total score if you take all post-test quizzes with a perfect score is $200 \times 10\%[\text{quiz percentage}] = 20$

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	Uses foreign/Indonesian language quite well and correctly with some	Does not use foreign/Indonesian language properly and correctly because the writing contains many

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



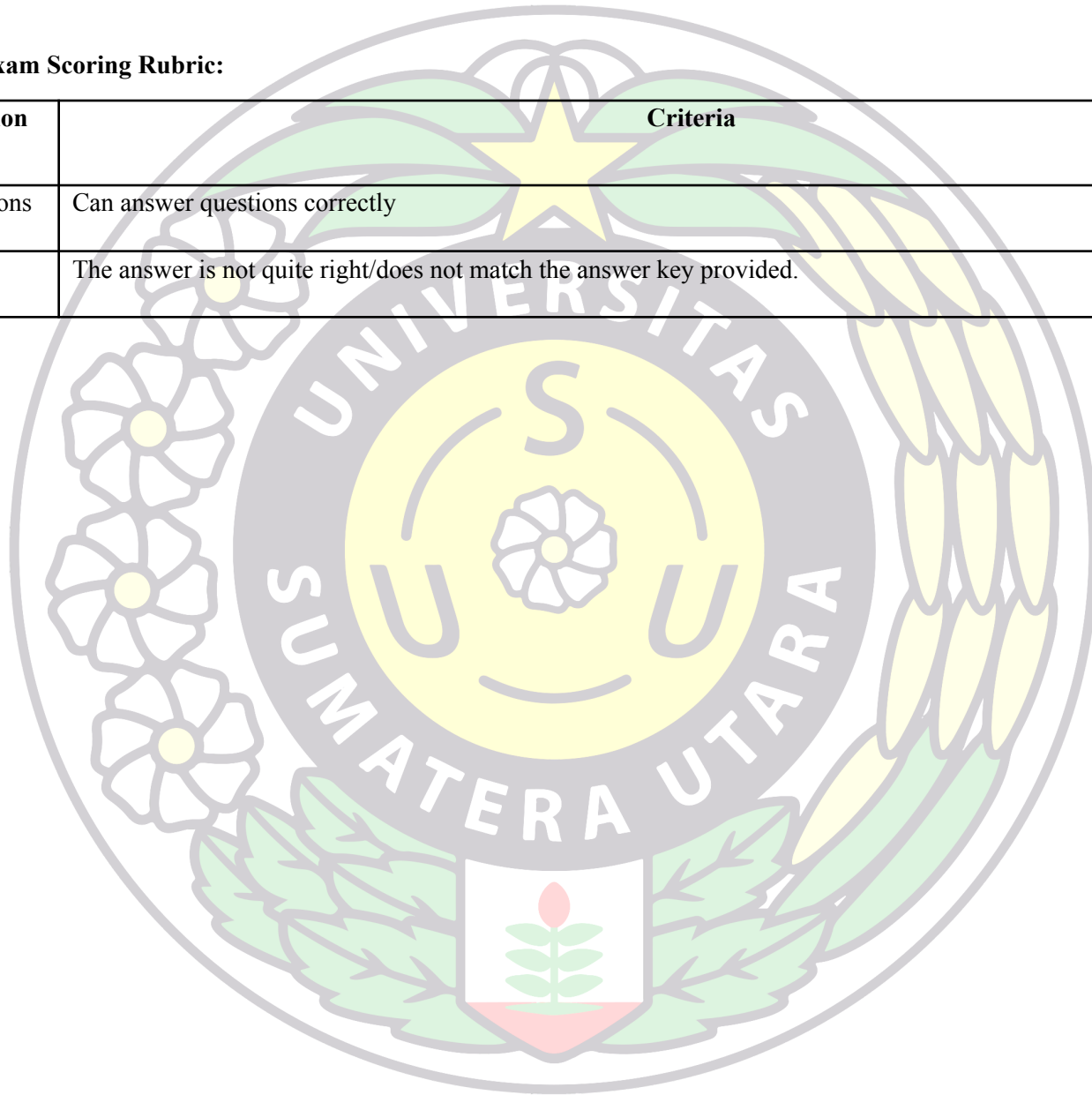
Presentation Assessment Rubric

CATEGORY	4 Very good	3 Good	2 Enough	1 Not enough	Mark
Group Preparation	<p>The group fully prepared themselves and performed optimal presentation exercises.</p> <p>Complement each other between group members with clear tasks for each group member.</p>	<p>The group seemed fairly prepared but may need more presentation practice.</p> <p>The responsibilities of each group member need to be identified.</p>	<p>The group made efforts to prepare themselves but did not practice presentation preparation.</p> <p>Tasks and responsibilities are assigned and accepted without due consideration.</p>	<p>The group did not appear to have prepared at all for their presentation.</p> <p>Tasks and responsibilities are assigned and accepted randomly.</p>	4
Presentation Organization	<p>The group presents the content clearly, logically, and systematically, through an introduction, main ideas, and a cohesive conclusion.</p> <p>Groups use effective visual aids to support and strengthen presentations.</p>	<p>The group presents the content logically and systematically, through an introduction, main ideas and conclusion.</p> <p>Groups use visual aids that show a connection to the content of the presentation.</p>	<p>The group presents the content in a fairly logical and systematic manner, but does not contain an introduction, main ideas, or conclusion.</p> <p>The group occasionally used visual aids that did not support the content of the presentation.</p>	<p>Groups present the content randomly without any introduction, main ideas, or conclusions.</p> <p>The group used visual aids that were not supportive or had no visual aids at all.</p>	3
Task Achievement	<p>Each group member is able to demonstrate solid knowledge through their respective presentations and elaborations, and deliver the part of the</p>	<p>Each group member demonstrated good knowledge through their respective presentations and elaborations but in a</p>	<p>Each group member demonstrated sufficient knowledge but failed to provide elaboration, and presented his part in only</p>	<p>Each group member had no knowledge of the content and presented their respective sections in less than half the time allocated to them.</p>	

	presentation that is their task according to the time allocation.	shorter time than the time allocated for them.	half the time allocated to him.		
Presentation Content Mastery	<p>Each group member demonstrated full understanding of the presentation topic.</p> <p>The main ideas presented are supported by evidence and critically evaluated.</p>	<p>Each group member showed a good understanding of the presentation topic.</p> <p>Most of the main ideas are illustrated with relevant evidence.</p>	<p>Each group member demonstrated a good understanding of some aspects of the topic.</p> <p>Some illustrations are given, but not critically evaluated.</p>	<p>Each member of the group did not appear to understand the presentation topic very well.</p> <p>Some evidence is mentioned, but not integrated into the presentation or evaluated.</p>	
Answers to Questions	The group was able to correctly answer almost all of the questions asked by the audience about their presentation topic.	The group was able to answer most of the questions asked by the audience about the topic of their presentation correctly.	The group was able to answer several questions asked by the audience about their presentation topic correctly.	The group was unable to answer questions asked by the audience about their presentation topic appropriately.	
Communication Quality	Group interaction with the audience shows interest and respect for the opinions of others. The responses given support effective communication.	Group interaction with the audience shows interest and respect for the opinions of others. Responses generally support effective communication.	Some parts of the interaction in the discussion show interest and respect for other people's opinions.	Interaction in discussion shows disrespect for other people's opinions. Responses do not support effective communication.	

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.



REPORT ASSESSMENT RUBRIC

Task	Description	Very good > 80	Good 70 -79	Enough 60 – 69	Not enough < 60	Mark
	Scale	4	3	2	1	
1. Background behind the issues raised	<ul style="list-style-type: none"> Describes various phenomena Situation Analysis Formulation of the problem 	<ul style="list-style-type: none"> The phenomenon raised very clear Analysis very sharp situation Formulation of the problem very precise 	<ul style="list-style-type: none"> The phenomenon raised is clear Analysis sharp situation Correct problem formulation 	<ul style="list-style-type: none"> The phenomenon raised unclear Analysis less sharp situation Formulation of the problem less precise 	<ul style="list-style-type: none"> The phenomenon raised unclear Analysis non-sharp situation Formulation incorrect problem 	
2. Literature Review	<p>Accuracy use of literature</p> <p>Using the most recent literature (Journals: last 5 years; Books: last 10 years)</p>	<p>Use theory/resources are very appropriate</p> <p>Use literature from journals: 80 %</p>	<p>Use appropriate theory/resources</p> <p>Use literature from journals: 60 -70%</p>	<p>Use theory/source library less precise</p> <p>Using literature from journals: 50%</p>	<p>Use theory/source library not exactly</p> <p>Using literature from journals: < 50 %</p>	
3. Implementation Method	Schedule time of activities	Schedule time activities are very much in accordance with the schedule that has been set determined	Schedule time activity in accordance with the schedule that it has been determined	Schedule time activities are not in accordance with the schedule it has been determined	Schedule time activities do not match the schedule it has been determined	

	Division of tasks for each member	Distribution each member's duties group very clear	Distribution each member's duties clear group	Distribution each member's duties group unclear	Distribution each member's duties group unclear	
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