



**Course Module**  
**Department of Animal Science**  
**Faculty of Animal Science**  
**Universitas Brawijaya**

Module name	Ruminant Nutrition
Module Level	Undergraduate Study Program of Animal Science
Code	PEN60003
Subtitle	-
Courses	Ruminant Nutrition
Semester(s)	3
Person responsible for the module	Dr. Ir. Marjuki, M.Sc
Lecturer	<ol style="list-style-type: none"> <li>1. Prof. Dr. Ir. Siti Chuzaemi, MS., IPU., ASEAN Eng</li> <li>2. Prof. Dr. Ir. Hendrawan Soetanto, M. Rur. Sc</li> <li>3. Prof. Dr. Ir. Kusmartono</li> <li>4. Prof. Dr. Ir. Hartutik, S.Pt., MP., IPU., ASEAN Eng</li> <li>5. Dr. Ir. Mashudi, M.Agr.Sc., IPM, ASEAN Eng</li> <li>6. Dr. Ir. Marjuki, M.Sc</li> <li>7. Asri Nurul Huda, S.Pt., MP., M.Sc</li> <li>8. Poespitasari Hazanah Ndaru, S.Pt., MP.</li> </ol>
Language	Combination (Indonesian language and English)
Relation to Curriculum	Study Program: Animal Science Specialization: Animal Science Type: Compulsory/ <del>Non-Compulsory</del>
Type of Teaching, Contact Hours	<ol style="list-style-type: none"> <li>1. Lecture/Meeting/Tutorial/Structural assignment: 100 minutes/week/semester</li> <li>2. Independent Study: 50 minutes/week/semester</li> <li>3. Practicum: 100 minutes/week/semester</li> </ol>
Workload	Lecture : 2 credits or 90.67 hours/semester; Practical : 1 credits or 42.50 hours/semester
Credit points	3 credits (Lecture : 3.40 ECTS and Practical : 1.70 ECTS = Total 5.10 ECTS)
Requirements According to the Examination Regulations	-
Recommended Prerequisite	-
Module Objectives / Intended Learning Outcomes	Learning Outcomes: <ol style="list-style-type: none"> <li>1. Capability to develop knowledge and comprehensive mindset based on Animal science and industry (LO 4)</li> <li>2. Capability to analyse the development and implementation of technology through humanities, ethical and scientific value as to provide appropriate solutions and ideas (LO 5)</li> <li>3. Proficient in biology, physiology, animal nutrition, breeding, farm management, and implementation in Animal Science (LO 6)</li> <li>4. Capability to implement technology in Animal Science to increase productivity, efficiency, quality and sustainability</li> </ol>



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	based on breeding, nutrition, processing, management as well as to organize an entrepreneurship concept and a sustainable production system (LO 13)
	<p>Objectives:</p> <p>The Ruminant Nutrition course provide understanding to students about the system and function of the digestive organs, digestion process and metabolism of ruminant animal feed. The course also explains the variety, population, and classification of rumen microbes and their life habitat and reproduction and their role in the rumen digestion process; process of digestion and metabolism of feed substances in ruminant animal, its advantages and disadvantages, and how to optimize them; the process of regulation of the consumption of ruminant animal feed.</p>
	<p>Knowledge:</p> <p>Able to understand about the system and function of the digestive organs, digestion process and metabolism of ruminant animal feed including the metabolism of feed substances in ruminant animal and know how to optimize them.</p>
	<p>Skills</p> <p>Cognitive</p> <p>Able to understand about the principle of ruminant digestive system and nutrition metabolisms.</p> <p>Phsycomotoric</p> <p>Able to formulate ruminant feed in order to optimize the feed efficiency.</p>
	<p>Competences</p> <p>Compiling rations and their feeding strategies for ruminant animal according to nutritional needs and the utilization efficiently and how to evaluate them.</p>
Content	<ol style="list-style-type: none"> <li>1. Digestive system and function in ruminant animals</li> <li>2. Rumen microbiology</li> <li>3. Digestive process and metabolism of food substances in ruminant animals</li> <li>4. Regulation of feed consumption in ruminant animals (physical, metabolic, and physiological factors)</li> <li>5. Principles and procedures for the preparation of ruminant animal rations</li> <li>6. The strategy of feeding ruminant animals</li> <li>7. Evaluation of feed in ruminant animals</li> </ol>



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<p>Study and Examination Requirements and Forms of Examination</p>	<ul style="list-style-type: none"> <li>– Examination requirements: A minimum of 80% attendance to attend the final exam</li> <li>– The forms of the test: Multiple Choice/Essay/Group</li> </ul> <p>The Final Score Component:</p> <ul style="list-style-type: none"> <li>– 30% Midterm Exam,</li> <li>– 30% Final Exam,</li> <li>– 30% Practicum,</li> <li>– 5% Structured Assignments</li> <li>– 5 % Quiz</li> </ul> <p>A : 80 &lt; Final Score ≤ 100            B+ : 75 &lt; Final Score ≤ 80            B : 69 &lt; Final Score ≤ 75            C+ : 60 &lt; Final Score ≤ 69            C : 55 &lt; Final Score ≤ 60            D : 50 &lt; Final Score ≤ 55            D+ : 44 &lt; Final Score ≤ 50            E : 0 &lt; Final Score ≤ 44</p>
<p>Media Employed</p>	<p>Projector and screen, Zoom application, Google Classroom, e-book, WhatsApp Group</p>
<p>Reading List</p>	<p>Main</p> <ol style="list-style-type: none"> <li>1. <u>Babcock Institute</u>. 1999. Dairy Essentials 3<sup>rd</sup> edition. Wisconsin: Babcock Institute.</li> <li>2. McDonald, P., R. a. Edwards, J. F. D. Greenhalgh, and Morgan. 2011. Animal Nutrition 7<sup>th</sup> Edition. New Jersey: Prentice Hall.</li> </ol> <p>Supporter</p> <ol style="list-style-type: none"> <li>3. Moran, John. 2005. Tropical dairy farming: Feeding management for small holder dairy farmers in the humid tropics Chapter 5: How the rumen works?. Colling Wood: Lanlink press.</li> <li>4. Soetanto, H. 2019. Pengantar Ilmu Nutrisi Ruminansia. Malang: UB Press.</li> </ol>