06 December 2018

Course: Biodynamics in Grazed Animal's Feed

1. **Type** **:** Specialization's Elective
2. **Code** **:** PTN 6105
3. **Credit** **:** 2/0
4. **Semester** **:** Odd
5. **Description** **:**

This course mainly talks about definition, biodynamics aspects in farming system, management concept of natural pasture in permaculture, types of permaculture in PPA, nutrient cycle and the role of microorganism, forage quality, anti-quality and feed toxicology, and also economical and supplementation analysis of grazing animal feed.

6. **Course Outcomes (CO)**

CO 1 : Master the principal in the grazing animal feed
CO 2 : Able to choose method in the livestock development biodynamics system
CO 3 : Abe to formulate and solve problems in developing environmentally-friendly forage and pasture.

7. **The Alignment Between CO and ELO**

CO*	ELO**																	
	A				B			C				D					
	1	2	3	4	1	2	3	1	2	3	4	1	2	3	4	5	6
CO 1						✓											
CO 2								✓			✓						
CO 3								✓		✓	✓						

*CO refers to point 6.

**Expected Learning Outcomes (ELO) are written below,

A. Attitudes and Behaviors	
The graduates are able to behave well, correctly, and culturally as the result of internalization and actualization of values and norms, which is reflected in a spiritual and social life through learning process, experience, research, and/or community development in the animal husbandry.	
1	Piety to God and be able to show religious attitude and maintain the humanity values in carrying the task, which is based on religion, moral, and ethics.
2	Be proud and love the homeland show nationalism, and contribute to the improvement of the life quality in the community, nation and country, and the advancement of civilization according to Pancasila.
3	Showing the social sensitivity and attention to the community and environment by respecting the culture diversity, view, religious, beliefs, and other people's opinion, and also obey the rules.
4	Be accountable in carrying the professional practice that includes ability to accept accountability towards decision and professional action. It shall be according to the scope of the practice under their responsibility and laws.
B. Mastery in Sciences	
Master the theory of the current science in the animal husbandry and its application.	
1	Able to master the current animal science and its application theory.
2	Able to master the livestock production science, animal nutrition and fed science, animal products technology, and the livestock social economics in relation to food security and environment.

3	Able to master the design, management, and development of livestock research.
C. Special Skills The graduates are able to develop science, technology, and arts in the animal husbandry through interdisciplinary/multidisciplinary innovative and tested research.	
1	Able to make innovation in the animal husbandry based on the development of science and technology.
2	Able to design interdisciplinary and multidisciplinary research in the animal husbandry.
3	Able to formulate and solve problems in the national development especially in terms of animal husbandry.
4	Able to solve problems and anticipate issues in the development of animal science and industry.
D. General Skills The graduates are able to manage resources by utilizing science, technology, and arts to solve problems in the animal husbandry with current science and also conduct research with accountability and full responsibility.	
1	Able to develop logical, critical, systematic, and creative thought through scientific research, creation of design in the science and technology, which pays attention and applies humanity values according to their expertise. The graduates are able to arrange scientific concept and the study result based on the principles, procedures, and scientific ethics.
2	Able to identify the science that becomes their research object and position it to a research map by using information technology in the context of science development and expertise implementation developed through interdisciplinary or multidisciplinary approaches.
3	Able to make a decision in the context of solving problems in the development of science and technology, which pays attention and applies humanity values based on analysis study or experiment towards information and data.
4	Able to communicate the result of reasoning and scientific research in form of thesis and scientific writing responsibly based on academic ethics in the accredited national journal.
5	Able to maintain the academic integrity generally and avoid the plagiarism practice.
6	Able to communicate spoken and written English effectively by using the information technology for the development of animal science and its implementation.

8. Course Content

Week	CO	Topic/Subtopic	Learning Activity	Assessment Tools	Allocated Time	Lecturer
1	CO 1	Definition of biodynamics on farming system	Classical lecture	Midterm	2 x 50	Bambang Suhartanto
2	CO 1	Aspects on farming system biodynamics	Classical lecture Flip class	Midterm Quiz	2 x 50	Bambang Suhartanto
3	CO 1	Pasture management on permaculture	Classical lecture	Midterm	2 x 50	Bambang Suhartanto
4	CO 1	Concepts of pasture management on permaculture	Classical lecture	Midterm Quiz	2 x 50	Bambang Suhartanto

5	CO 2	Nutrient cycle on biodynamic system	Classical lecture	Midterm	2 x 50	Bambang Suhartanto
6	CO 2	Nutrient cycle on biodynamic system	Classical lecture	Midterm	2 x 50 minutes	Bambang Suhartatno
7	CO 2	Roles of microorganism on farming system biodynamics	Classical lecture	Midterm	2 x 50	Nafiatul Umami
Midterm Examination						
8	CO 2; CO 3	Forage quality	Classical lecture	Final exam	2 x 50	Bambang Suwignyo
9	CO 2; CO 3	Forage quality	Classical lecture	Final exam	2 x 50	Bambang Suwignyo
10	CO 2; CO 3	Feed antiquality and toxicology	Classical lecture	Presentation	2 x 50	Nafiatul Umami
11	CO 2; CO 3	Economical analysis on the pasture system	Classical lecture	Final exam; Quiz	2 x 50	Bambang Suwignyo
12	CO 2; CO 3	Supplementation	Classical lecture	Final exam	2 x 50	Bambang Suhartanto
13	CO 1; CO 2; CO 3	Presentation	Classical lecture	Presentation	2 x 50	Nafiatul Umami
14	CO 1; CO 2; CO 3	Presentation	Classical lecture	Presentation	2 x 50	Nafiatul Umami
Final Examination						

9. Assessment

Component	CO	Percentage (%) for final grade	Minimum Satisfactory Level
Midterm	CO 1	35	70
Quiz	CO 1	5	70
Presentation	CO 1; CO 2; CO 3	20	70
Paper	CO 1; CO 2; CO 3	10	70
Final Exam	CO 2; CO 3	35	70
Total		100	

10. Lecturer

1. Ir. Nafiatul Umami, S.Pt., MP., Ph.D., IPM.
2. Dr. Ir. Bambang Suhartango, DEA.
3. Bambang Suwignyo, Ph.D.

11. Reference