06 December 2018

Course: Dairy Production System

1. **Type** **:** Specialization's Compulsory
2. **Code** **:** PTD 6201
3. **Credit** **:** 2/0
4. **Semester** **:** Odd
5. **Description** **:**

   This course focuses on understanding the complexity of dairy production systems as milk producers. This understanding is in the context of exploring and designing sustainable dairy production. The focus of this course is to build systems by paying attention to livestock and the dual function of livestock, economic viability, social acceptability, animal welfare, (includes animal behavior) and environmental aspects.

6. **Course Outcomes (CO)**

   CO 1 : Able to explain ethics and development system of dairy.

   CO 2 : Able to formulate problems and complexity related to dairy production system that consists of land-livestock-farmer.

   CO 3 : Able to collect, analyse and interpret the linkages of the system (land-animal-farmer) in dairy responsibly.

   CO 4 : Able to carry out simulation of dairy development by considering economics, environmental and social (EES dimensions/issues) dimensions.

   CO 5 : Able to design alternatives of sustainable livestock production system.

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 4								✓	✓	✓	✓						
CO 5									✓	✓	✓						

*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	CPMK 1,2	Introduction: dairy production system in tropic and around the world	Classical lecture; discussion	Midterm	100 minutes	TWM

2	CPMK 1,2	Dairy cow production system	Classical lecture; discussion	Midterm	100 minutes	TWM
3	CPMK 1,2	The role of dairy animals on food system	Classical lecture; discussion	Midterm	100 minutes	TWM
4	CPMK 1,2	Components of dairy production system: land; animal; human resources	Classical lecture; discussion	Midterm	100 minutes	BP
5	CPMK 1,2	Land components: land type; grazing system; carrying capacity	Classical lecture; discussion	Midterm	100 minutes	BP
6	CPMK 1,2	Animal components: hierarchy (local, regional, national); dynamics; population; structure	Classical lecture; discussion	Midterm	100 minutes	BP
7	CPMK 1,2	Human resources components: age; educational background; objective	Classical lecture; discussion	Midterm	100 minutes	BP
Midterm Examination						
8	CPMK 3,4	The relationship between land-animal; land-human resources: feed availability; feed processing; feeding system; waste management	Classical lecture; discussion; individual assignment	Final exam, individual assignment score	100 minutes	BP
9	CPMK 3, 4	The relationship between animal-	Classical lecture;	Final exam, individual	100 minutes	YS

		human: livestock animal management; environment for the animal	discussion; individual assignment	assignment score		
10	CPMK 3, 4	Output production system: milk production and composition; post-harvest management; by products processing	Classical lecture; discussion; individual assignment; presentation	Final exam, individual assignment score; presentation	100 minutes	YS
11	CPMK 3, 4, 5	Development strategy according to the potency of land, animal, human resources, and study case	Classical lecture; discussion; individual assignment; presentation	Final exam, individual assignment score; presentation	100 minutes	YS
12	CPMK 3, 4, 5	Development strategy according to the potency of land, animal, human resources, and study case	Classical lecture; discussion; individual assignment; presentation	Final exam, individual assignment score; presentation	100 minutes	YS
13	CPMK 3,4, 5	Sustainability	Classical lecture; discussion; individual assignment; presentation	Final exam, individual assignment score; presentation	100 minutes	BP
14	CPMK 3,4, 5	Review	Discussion			TWM
Final Examination						

9. Assessment

Component	CO	Percentage (%) for final grade	Minimum Satisfactory Level
Midterm	CO 1; 2	35	70
Quiz	CO 1; 2	10	70

Presentation	CO 3; 4	10	70
Paper	CO 3; 4; 5	10	70
Final exam	CO 1; 2; 3; 4; 5	35	70
Practicum			
Total		100	

10. Lecturer

1. Tim Dosen

11. Reference

1. European Commission. Structure and dynamics of EU farms : changes, trends and policy relevance. EU Agricultural Economics Briefs. 2013: 1–15.
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4. FAO animal production and health guidelines. guide to good dairy farming practice. food and agriculture organization of the united nations and international dairy federation Rome, 2011.
5. Georgina Villarreal Herrera. 2017. Sustaining Dairy,2017.PhD thesis, Wageningen University, Wageningen, the Netherlands. With references, with summaries in English, Dutch and Spanish ISBN 978-94-6343-154-5 DOI 10.18174/410882. 331 pages.
6. Lhoste P. 1986. L'association agriculture - élevage. Evolution du système agropastoral au Siné - Saloum (Sénégal). Paris: INAPG, Cirad.
7. Landais E, Lhoste P, Guerin H. Les systèmes de gestion de la fumure animale et leur insertion dans les relations entre l'élevage et l'agriculture. Cahiers Agricultures 1993; 2: 9-25.
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