

Course: Extension Science and Education

1. **Type** : Specialization's Elective
2. **Code** : PTE 6305
3. **Credit** : 2/0
4. **Semester** : Odd
5. **Description** :

This 2 credits course covers the fundamentality and philosophy of extension science and education, the principle of andragogy, and theory of andragogy. Students will also discuss the extension methods and approaches, planning, evaluation of extension and diffusion, and innovation adoption.

6. Course Outcomes (CO)

- CO 1 : Able to explain the fundamentality and philosophy of extension science and its roles in livestock-industry development.
- CO 2 : Able to evaluate the learning process in extension based the principle of andragogy and theory of adult learning.
- CO 3 : Able to evaluate methods and approaches in livestock-based extension.
- CO 4 : Able to analysis program planning, evaluation & diffusion and adoption of innovations in extension.

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 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	The fundamental of extension science and education <ul style="list-style-type: none"> • Concepts and scope of extension • Historical and emerging perspectives of agricultural 	Presentation and Discussion	Class participation, midterm, presentation	2 x 50 minutes	Trisakti

		and animal husbandry extension education concept, principles and objectives				
2		<p>The roles of agricultural extension</p> <ul style="list-style-type: none"> • Role of agricultural extension in different sectors of agriculture and rural development • Agricultural extension in the context of enhancing productivity, quality, post-harvest technology, product processing, profitability, income and employment 	Presentation and Discussion	Class participation, midterm, presentation	2 x 50 minutes	Trisakti
3		<p>Farming system and participatory development approaches</p> <ul style="list-style-type: none"> • Farming System Research and Extension (FSR&E) and 	Presentation and Discussion	Class participation, midterm, presentation	2 x 50 minutes	Trisakti

		participatory development approaches				
4		Behavioral dimension, gender sensitivity, social structure, alteration process, and groups dynamic <ul style="list-style-type: none"> Behavioral dimensions and gender sensitivity in extension and programs 	Presentation and Discussion	Class participation, midterm, presentation	2 x 50 minutes	Trisakti
5		Behavioral dimension, gender sensitivity, social structure, alteration process, and groups dynamic <ul style="list-style-type: none"> Behavioral dimensions and gender sensitivity in extension and programs 	Presentation and Discussion	Class participation, midterm, presentation	2 x 50 minutes	Trisakti
6		Behavioral dimension, gender sensitivity, social structure, alteration process, and groups dynamic <ul style="list-style-type: none"> Social and technological change processes, 	Presentation and Discussion	Class participation, midterm, presentation	2 x 50 minutes	Trisakti

		group dynamics, concept and theories of rural leadership affecting attitude changes				
7		Behavioral dimension, gender sensitivity, social structure, alteration process, and groups dynamic <ul style="list-style-type: none"> • Importance of feedback in veterinary extension, impact analysis of extension programs 	Presentation and Discussion	Class participation, midterm, presentation	2 x 50 minutes	Trisakti
Midterm Examination						
8	CO 3	The concepts of teaching and learning process, and approaches in extension: <ul style="list-style-type: none"> • Concepts of teaching and learning processes principles of learning as applied to agricultural extension 	Presentation and Discussion	Class participation, final exam, presentation	2 x 50 minutes	Budi G.

9		<p>The concepts of teaching and learning process, and approaches in extension:</p> <ul style="list-style-type: none"> • Individual group and mass approaches in extension 	Presentation and Discussion	Class participation, final exam, presentation	2 x 50 minutes	Budi G.
10		<p>The use of various methods</p> <ul style="list-style-type: none"> • Selection, planning and use of different extension teaching methods like demonstration, exhibition, farmer fair, field days, tours, extension literature, etc. • Preparation and presentation of different projected and non-projected audio-visual aids. 	Presentation and Discussion	Class participation, final exam, presentation	2 x 50 minutes	Budi G.
11		<p>Program planning:</p> <ul style="list-style-type: none"> • Concepts steps, principles and theories of 	Presentation and Discussion	Class participation, final exam, presentation	2 x 50 minutes	Budi G.

		<p>program planning</p> <ul style="list-style-type: none"> • Steps in program planning for livestock development, organizing campaigns, mass vaccination program and variety of extension activity, evaluation of veterinary extension programs, compilation, compilation and report writing. • Evaluation of animal husbandry development programs and schemes 				
12		<p>Monitoring and evaluation:</p> <ul style="list-style-type: none"> • Monitoring and evaluation – concept, significance, types, methods and tools. • Theoretical models of 	<p>Presentation and Discussion</p>	<p>Class participation, final exam, presentation</p>	<p>2 x 50 minutes</p>	<p>Budi G.</p>

		<p>programme planning.</p> <ul style="list-style-type: none"> • Felt needs; need-based programmes. 				
13		<p>Diffusion and adoption:</p> <ul style="list-style-type: none"> • Concept and elements of diffusion and adoption for social change. • Diffusion process, adoption process, models of diffusion and adoption, adopter categories and their characteristics. • Factors influencing adoption and attributes of innovations. 	<p>Presentation and Discussion</p>	<p>Class participation, final exam, presentation</p>	<p>2 x 50 minutes</p>	<p>Budi G.</p>
14		<p>Diffusion and adoption:</p> <ul style="list-style-type: none"> • Concept and stages of innovation-decision process, consequences of innovation privatization of extension, production to 	<p>Presentation and Discussion</p>	<p>Class participation, final exam, presentation</p>	<p>2 x 50 minutes</p>	<p>Budi G.</p>

		consumption and end-to-end innovative approaches.				
Final Examination						

9. Assessment

Component	CO	Percentage (%) for final grade	Minimum Satisfactory Level
Paper	CO 4	10	70
Presentation	CO 1; CO 2; CO 3; CO 4	30	70
Midterm	CO 1; CO 2	30	70
Final Exam	CO 3; CO 4	30	70
Total		100	

10. Lecturer

1. Prof. Ir. Budi Gunoro, S.Pt., M.Sc., Ph.D., IPU.
2. Ir. Fransiskus Trisakti Haryadi, M.Si., Ph.D.

11. Reference

1. CSIRO. 2015. Impact Evaluation Guide. Strategy, Market Vision and Innovation. <http://csiro.au>
2. Dijkstra. J.H., 2009. Competencies for the Future: Using Competencies in the New Era of Social Networking and Co-creation. Dijkstra OAPM, Netherlands.
3. Jain, V. 2014. 3D Model of Attitude. International Journal of Advance Research in Management and Social Sciences, Vol. 3 NO.3:1-12.
4. Neils, R. 1988. Extension Science – Information Systems in Agricultural Development. Cambridge University Press. Cambridge.
5. Van den Ban, A.W. and H.S. Hawkins. 1996. Agricultural Extension. Second Edition. Blacwel Science Ltd, London.