06 December 2018

Course: Advanced Animal Endocrinology

1. **Type** **:** Specialization's Elective
2. **Code** **:** PTR 6505
3. **Credit** **:** 2/0
4. **Semester** **:** Even
5. **Description** **:**

   This course discusses the endocrinology principles, the endocrine system roles in arranging metabolism, growth, reproduction and lactation on mammals.

6. **Course Outcomes (CO)**

   CO 1 : Able to comprehend and explain the endocrine/hormone which have relations with the metabolism process, growth, reproduction, and lactation on animal

   CO 2 : Explore, identify, and analyse the problems which have relation with endocrine connected with the metabolism, growth, reproduction and lactation.

   CO 3 : master the internet application for improving the knowledge and updated information

   CO 4 : Able to cooperate in a team, leadership and be responsible

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 & 3	Introduction	Classical lecture; discussion; e-learning	Quiz	2	Team
2	CO 1 & 2	Neuroendocrine	Classical lecture; discussion; e-learning	Quiz, assignment	2	Team
3	CO 1 & 2	Signal tranduction pathways	Classical lecture; discussion; e-learning	Quiz	2	Team

4	CO 1 & 2	Steroid hormone	Classical lecture; discussion; e-learning	Assignment	2	Team
5	CO 1 & 3	Hypothalamus-pituitary-thyroid and adrenal axis	Classical lecture; discussion; e-learning	Quiz, assignment	2	Team
6	CO 1 & 3	Somatotropic axis and glucose control	Classical lecture; discussion; e-learning	Quiz	2	Team
Midterm Examination						
9	CO 1, 3 & 4	Endocrine control of body fluid/renal function	Classical lecture; discussion; e-learning	Quiz, discussion	2	Team
10	CO 1 & 3	Endocrine control of Ca, P, and bone	Classical lecture; discussion; e-learning	Quiz, assignment	2	Team
11	CO 1 & 2	Prostaglandin	Classical lecture; discussion; e-learning	Quiz, discussion	2	Team
12-13	CO 1, 3 & 4	Endocrine control of reproduction	Classical lecture; discussion; e-learning	Quiz, discussion	2	Team
14	CO 1 & 3	Endocrine control of metabolism	Classical lecture; discussion; e-learning	Quiz, assignment	2	Team
15	CO 1, 3 & 4	Endocrine control of growth	Classical lecture; discussion; e-learning	Assignment	2	Team
Final Examination						

9. Assessment

Component	CO	Percentage (%) for final grade	Minimum Satisfactory Level
Midterm	CO 1 & 2	30	70
Quiz, assignment	CO 1, 2 & 3	20	70
Final exam	CO 1 & 2	30	70
Discussion	CO 2, 3 & 4	20	70
Total		100	

10. Lecturer

1. Ir. Diah Tri Widayati, S.Pt., M.P., Ph.D., IPM.
2. Dr. Ir. Sigit Binatara, S.Pt., M.Si, IPM
3. Prof. Dr. Ir. Ismaya, M.Sc.

11. Reference

1. Arthur, G..E., D.E. Noakes and H. Pearson, 1982, Veterinary Reproduction and Obstetrics, 5th edition, The English Language Book Society and BaillereTindall, London.
2. Austin, C.R. and R.V. Short, 1987, Reproduction in Mammals, 2nd edition, , Cambridge University Press, Cambridge
3. Bearden, J. H. and J.W. Fuquay, 2004, Applied Animal Reproduction, Reston Publishing Company Inc., Virginia.
4. Cupps, P.T., 1991, Reproduction in Domestic Animals, 4th edition, Academic Press Inc, London.
5. Hafez, E.S.E., 2003, Reproduction in Farm Animals, 7th edition, Lea and Febiger, Philadelphia.
6. Kim E. Barrett, Scott Boitano, Susan M. Barman, Heddwen L. Brooks. 2016. Ganong's Review of Medical Physiology, Twenty-Fifth. McGraw-Hill Education, New York.
7. Geoffrey H. Arthur. 2001. Arthur’s Veterinary Reproduction and Obstetric. Saunders, An imprint of Elsevier Limited. Edinburgh.
8. Noakes, D.E., T.J. Parkinson, G.C.W. England, G. H. Arthurs. 2001. Arthus’s Veterinary Reproduction. Saunders, Toronto.
9. Sorensen, 1979, Animal Reproduction: Principles and Practise, McGraw-Hill, New York.