

# PORTFOLIO



## LECTURE OF PHYSIOLOGY AND TECHNOLOGY OF REPRODUCTION

Person in Charge : Prof. Dr. Ismudiono, MS., Drh

Lecture :

1. Prof. Dr. Ismudiono, MS., Drh.
2. Prof. Dr. Pudji Srianto, drh., M.Kes.
3. Prof. Dr. Sri Pantja Madyawati, drh., M.Si.
4. Dr. Abdul Samik, drh., M.Si.
5. Dr. Erma Safitri, drh., M.Si.
6. Prof. Dr. Suherni Susilowati, drh., M.Kes.
7. Dr. Tatik Hernawati, drh., M.Si.
8. Dr. Tri Wahyu Suprayogi, drh., M.Si.
9. Dr. Trilas Sardjito, drh., M.Si.

DEPARTMENT OF VETERINARY REPRODUCTION  
FACULTY OF VETERINARY MEDICINE  
UNIVERSITAS AIRLANGGA  
2018

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Portfolio of Lecture of Physiology and Technology of Reproduction  
Department of Veterinary Reproduction, Faculty of Veterinary Medicine  
Universitas Airlangga

**A. Course Identity**

Modul name	Lecture of Physiology and Technology of Reproduction
Level modul	6 (Bachelor)
Abbreviation of applicable	BIR 201 and BIR 102
Sub-heading, if applicable	-
Courses included in the module of applicable	-
Semester/Term	4/2
Person in Charge	Prof.Dr. Ismudiono, drh., MS.
Lecturer	<ol style="list-style-type: none"> <li>1. Prof. Dr. PudjiSrianto, drh.,M.Kes.</li> <li>2. Prof. Dr. Sri PantjaMadyawati, drh.,M.Si.</li> <li>3. Dr. Abdul Samik, drh.,M.Si.</li> <li>4. Dr. Erma Safitri, drh., M.Si.</li> <li>5. Prof. Dr. Suherni Susilowati, drh., M.Kes.</li> <li>6. Dr. Tatik Hernawati, drh., M.Si.</li> <li>7. Dr. Tri Wahyu Suprayogi, drh., M.Si.</li> <li>8. Dr.Trilas Sardjito, drh., M.Si.</li> </ol>
Language	Bahasa Indonesia and English
Classifications within the curriculum	Compulsory/ <del>elective</del> course
Teaching (hours per week during the semester)	-3 class hour lecture (3 x 170 minutes lecture) x 14 weeks -1 class hour practical (1 x 170 minutes practical) x 14 weeks
Workload per semester	-520 minutes lecture is divided into 150 minutes face to face interaction, 150 minutes structured activities and 210 minutes independent study -170 minutes practical is spent on laboratory/field work.
Credit points	-3 (~4.53 ECTS) -1 (~1.51 ECTS)
Learning goals/compentencies	<p>CO1 Able to understanding and explain about reproductive anatomy and physiology of reproduction, endocrinology, cycle reproductive and technology in livestock, poultry, dogs and cats, include sex secondary of cattle mammary gland.</p> <p>CO2 Able to choose and apply the concept of reproductive technology process and skilled in efforts to improve the reproductive efficiency of livestock (include Artificial Insemination, Estrus Synchronization, Superovulation and Embryo Transfer)</p>

	CO4 Able to conduct a teamwork to discuss some discipline lectures Physiology and Technology Reproduction
Content	<ol style="list-style-type: none"> <li>1. First Meeting / Lecture contract: History of course, lecturer and course schedule, Benefits and course descriptions, Course objectives, Assessment and evaluation</li> <li>2. Reproduction and breeding system: History of reproduction, Breeding system, Kind of fertilisation, Embriology from genital organ, Hystory of artificial Insemination, Development of AI in Indonesia, Benefit and loss of AI</li> <li>3. Anatomi &amp; Physiology Organ reproduction Male : Gonad (testes), Ductus organ, Outside genital, Histology, Vascularization &amp; Inervation, Spermatogenesis, Steroidogenesis, Male Genital Function, Penis Type Ejaculatory mechanism. Spermato genesis in Livestock: Abnormalities of spermatozoa morphology, Biology of spermatozoa</li> <li>4. Anatomy and Physiology of female genital organ : Gonad (ovarium), genital tract, histology of outer genital, Vaskularisasi &amp; inervasi, Folikulogenesis, Steroidogenesis, function of female genital tract, Type of uterus. Biochemical Semen : Chemical semen and plasma seminalis, sperm metabolisme, Semen karakteristik in livestock</li> <li>5. Anatomy and Physiology of Dogs, Cats and Females: Anatomy of male and female dogs, cats, Gonads (ovaries and testes) of dog and cat, Dog and cat reproduction tract Histological, Vascularization &amp; Inervation, Hierarchi follicular Endocrine reproduction of poultry, Egg formation in dog and cat Frozen semen: History of frozen semen, Types of frozen semen, Advantages and disadvantages, History of frozen semen, Types of frozen semen, Provita and losses</li> <li>6. Endocrine Reproduction I: History of hormones, Definition of hormones and endocrine glands, Mechanism of action of hormones, Hypothalamus-pituitary-gonad shaft, Classification (division) hormones, Reproductive hormones and their functions Artificial Insemination (IB) Buffalo Collection: Semen observation, semen processing, Semen storage and implementation of IB</li> <li>7. Endocrine Reproduction II Pituitary and hypothalamic anatomy, Hormones derived from gonads, Hormone levels, Endocrine reproduction Dogs, Cats Artificial Insemination (IB) Buffalo: semen Collection, sement observation, semen Processing, Storage of semen and implementation of AI</li> <li>8. Anatomy and Physiology of Poultry Females: Anatomy of male and female dogs, cats, Gonads (ovaries and testes) of poultry Poultry reproduction tract Histological, Vascularization &amp; Inervation, Hierarchi follicular Endocrine reproduction of poultry, Egg formation in poultry Freezing semen: History of frozen semen, Types of frozen semen, Advantages and disadvantages, History of frozen semen,</li> </ol>

	<p>Types of frozen semen, Provitamin and losses</p> <p>9. Reproductive Cycle I: Prenatal Physiology System, Puberty, Causes of estrus, Season, Ovulation and Fertilization AI Lambs: Semen collection, Semen observation, semen Properties</p> <p>10. Reproductive cycle II: Physiology of pregnancy, Physiology of birth, Post partum events AI of Horse : Semen Collection, Semen Observation, Semen characteristic, semen Processing, Semen Storage and Implementation of AI</p> <p>11. Anatomy and Physiology of Mammary Gland: Anatomy of Mammary Gland, Mammogenesis, Lactogenesis, Galactopoiesis Milk Let Down Obstacles and Lactation Stimulation Artificial Insemination (AI) Poultry: Semen Collection, Semen observation, Semen characteristic, semen Processing, Storage of semen and implementation of AI</p> <p>12. Technology of reproduction I: Synchronization Estrus Superovulation Artificial Insemination of Rabbit : Collection, Semen observation, Semen Characteristic, Semen Processing, Semen Storage and Implementation of AI</p> <p>13. Techniques of reproduction II : Transfer Embryo Recording and AI evaluation : Semen Collection, Semen observation, Semen Characteristic, Semen Processing, Semen Storage and Implementation of AI Recording and AI evaluation</p> <p>14. Capita Selecta : Summarizes Materi 1st to 13th, Presentation assignment for each group</p>
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Study/ exam achievement	<b>Assessment aspect</b>	<b>Assessment element</b>	<b>Point</b>	<b>Course outcome (CO)</b>
	Cognitive	Mid Exam Final Exam	70	CO1,CO2
	Psychomotor	Task Presentation	15	CO1,CO2,CO4
	Affective	Focus Group Discussion (FGD), lecture and laboratory practice Activity; Presence; Discipline; Politeness	15	CO4
Score Index :				
		A	≥ 75	
		AB	70-74.9	
		B	65-69.9	
		BC	60-64.9	
		C	55-59.9	

	D	40-54,9
	E	< 40
Forms of Media	Powerpoint presentation, LCD Projector, Whiteboard, Sheep for collection semen	
Literature	<ol style="list-style-type: none"> <li>1. Hafez, E.S.E., 2000. Reproduction in Farm Animals, 7<sup>th</sup> Edition. Lea and Febiger. Philadelphia</li> <li>2. Ismudiono, P. Srianto, H. Anwar, S.P. Madyawati, A.Samik dan E. Safitri, 2010. Buku Ajar Fisiologi Reproduksi pada Ternak, Airlangga University Press, Surabaya</li> <li>3. Hardijanto, S. Susilowati, T. Hernawati, T. Sardjito dan T.W. Suprayogi. 2010. Buku Ajar Inseminasi Buatan. Airlangga University Press, Surabaya.</li> <li>4. Partodihardjo, 1992. Ilmu Reproduksi Hewan. Penerbit Mutiara, Jakarta.</li> <li>5. Hariadi, M., Hardjopranojoto, Wurlina, H.A.Hermadi, Rimayanti, B.Utomo, I.N.Triana, dan H.Ratnani, 2013. Buku Ajar Ilmu Kemajiran Pada Ternak. Airlangga University Press, Surabaya.</li> </ol>	
Notes	If absolute score on the Final Examination cannot be applied, the calculation with relatives score will be conducted	

## B. Mapping LO to CO

LO5	CO1	CO2	CO4
Asses developing biotechnology of animal reproduction (reproduction engineering), improve the quality of animal genetics to handle the problems on animal reproduction	√	√	√

## C. Course Topic

No.	Content
1	First Meeting / Lecture contract: History of course, lecturer and course schedule, Benefits and course descriptions, Course objectives, Assessment and evaluation
2	Reproduction and breeding system: History of reproduction, Breeding system, Kind of fertilisation, Embriology from genital organ, Hystory of artificial Insemination, Development of AI in Indonesia, Benefit and loss of AI
3	Anatomi & Physiology Organ reproduction Male : Gonad (testes), Ductus organ, Outside genital, Histology, Vascularization & Inervation, Spermatogenesis, Steroidogenesis, Male Genital Function, Penis Type Ejaculatory mechanism. Spermato genesis in Livestock: Abnormalities of spermatozoa morphology, Biology of spermatozoa
4	Anatomy and Physiology of female genital organ : Gonad (ovarium), genital tract, histology of outer genital, Vaskularisasi & inervasi, Folikulogenesis, Steroidogenesis, function of female genital tract, Type of uterus. Biochemical Semen : Chemical semen and plasma seminalis, sperm metabolisme, Semen charasteristik in livestock
5	Anatomy and Physiology of Dogs, Cats and Females: Anatomy of male and female dogs, cats, Gonads (ovaries and testes) of dog and cat, Dog and cat reproduction tract Histological, Vascularization & Inervation, Hierarchi follicular Endocrine

	<p>reproduction of poultry, Egg formation in dog and cat</p> <p>Frozen semen: History of frozen semen, Types of frozen semen, Advantages and disadvantages, History of frozen semen, Types of frozen semen, Provitamin and losses</p>
<b>6</b>	<p>Endocrine Reproduction I: History of hormones, Definition of hormones and endocrine glands, Mechanism of action of hormones, Hypothalamus-pituitary-gonad shaft, Classification (division) hormones, Reproductive hormones and their functions</p> <p>Artificial Insemination (AI) Buffalo Collection: Semen observation, semen processing, Semen storage and implementation of AI</p>
<b>7</b>	<p>Endocrine Reproduction II Pituitary and hypothalamic anatomy, Hormones derived from gonads, Hormone levels, Endocrine reproduction Dogs, Cats</p> <p>Artificial Insemination (AI) Buffalo: semen Collection, semen observation, semen Processing, Storage of semen and implementation of AI</p>
<b>8</b>	<p>Anatomy and Physiology of Poultry Females: Anatomy of male and female dogs, cats, Gonads (ovaries and testes) of poultry</p> <p>Poultry reproduction tract</p> <p>Histological, Vascularization &amp; Innervation, Hierarchy follicular</p> <p>Endocrine reproduction of poultry, Egg formation in poultry</p> <p>Frozen semen: History of frozen semen, Types of frozen semen, Advantages and disadvantages, History of frozen semen, Types of frozen semen, Provitamin and losses</p>
<b>9</b>	<p>Reproductive Cycle I: Prenatal Physiology System, Puberty, Causes of estrus, Season, Ovulation and Fertilization</p> <p>AI Lambs: Semen collection, Semen observation, semen Properties</p>
<b>10</b>	<p>Reproductive cycle II: Physiology of pregnancy, Physiology of birth, Post partum events</p> <p>AI of Horse : Semen Collection, Semen Observation, Semen characteristics, semen Processing, Semen Storage and Implementation of AI</p>
<b>11</b>	<p>Anatomy and Physiology of Mammary Gland: Anatomy of Mammary Gland, Mammarygenesis, Lactogenesis, Galactopoiesis</p> <p>Milk Let Down</p> <p>Obstacles and Lactation Stimulation</p> <p>Artificial Insemination (AI) Poultry: Semen Collection, Semen observation, Semen characteristics, semen Processing, Storage of semen and implementation of AI</p>
<b>12</b>	<p>Technology of reproduction I: Synchronization Estrus Superovulation</p> <p>Artificial Insemination of Rabbit : Collection, Semen observation, Semen Characteristic, Semen Processing, Semen Storage and Implementation of AI</p>
<b>13</b>	<p>Techniques of reproduction II : Transfer Embryo</p> <p>Recording and AI evaluation : Semen Collection, Semen observation, Semen Characteristic, Semen Processing, Semen Storage and Implementation of AI</p> <p>Recording and AI evaluation</p>
<b>14</b>	<p>Capita Selecta : Summarizes Material 1st to 13th, Presentation assignment for each group</p>

#### D. Assessment Rubric

No.	Not Acceptable 0-45	Below Acceptable 45-55	Meet Acceptable 55-60	Exceed Acceptable 60-100
1	Student can not understand the history of reproduction and the ways of animal breeding, anatomy and genitalia physiology of livestock, poultry, dogs and cats, semen collection techniques, semen and sperm properties, processing techniques and preservation of semen, reproductive endocrine, reproduction cycle of livestock, anatomy and physiology of udder gland, gestation and birth physiology in livestock, artificial insemination techniques, synchronisation and superovulation techniques and embryo transfer.	Student has minimum understanding the history of reproduction and the ways of animal breeding, anatomy and genitalia physiology of livestock, poultry, dogs and cats, semen collection techniques, semen and sperm properties, processing techniques and preservation of semen, reproductive endocrine, reproduction cycle of livestock, anatomy and physiology of udder gland, gestation and birth physiology in livestock, artificial insemination techniques, synchronisation and superovulation techniques and embryo transfer.	Student able to understand the history of reproduction and the ways of animal breeding, anatomy and genitalia physiology of livestock, poultry, dogs and cats, semen collection techniques, semen and sperm properties, processing techniques and preservation of semen, reproductive endocrine, reproduction cycle of livestock, anatomy and physiology of udder gland, gestation and birth physiology in livestock, artificial insemination techniques, synchronisation and superovulation techniques and embryo transfer.	Student has extra ability to understand the history of reproduction and the ways of animal breeding, anatomy and genitalia physiology of livestock, poultry, dogs and cats, semen collection techniques, semen and sperm properties, processing techniques and preservation of semen, reproductive endocrine, reproduction cycle of livestock, anatomy and physiology of udder gland, gestation and birth physiology in livestock, artificial insemination techniques, synchronisation and superovulation techniques and embryo transfer.
2	Student can not identify the history of reproduction and the ways of animal breeding, anatomy and genitalia physiology of livestock, poultry, dogs and cats, semen collection techniques, semen and sperm properties, processing techniques and preservation of semen,	Student has minimum understanding the history of reproduction and the ways of animal breeding, anatomy and genitalia physiology of livestock, poultry, dogs and cats, semen collection techniques, semen and sperm properties, processing techniques and preservation of semen,	Student able to identify the history of reproduction and the ways of animal breeding, anatomy and genitalia physiology of livestock, poultry, dogs and cats, semen collection techniques, semen and sperm properties, processing techniques and preservation of semen,	Student has extra ability to identify the history of reproduction and the ways of animal breeding, anatomy and genitalia physiology of livestock, poultry, dogs and cats, semen collection techniques, semen and sperm properties, processing techniques and preservation of semen,

	reproductive endocrine, reproduction cycle of livestock, anatomy and physiology of udder gland, gestation and birth physiology in livestock, artificial insemination techniques, synchronisation and superovulation techniques and embryo transfer.	reproductive endocrine, reproduction cycle of livestock, anatomy and physiology of udder gland, gestation and birth physiology in livestock, artificial insemination techniques, synchronisation and superovulation techniques and embryo transfer.	reproductive endocrine, reproduction cycle of livestock, anatomy and physiology of udder gland, gestation and birth physiology in livestock, artificial insemination techniques, synchronisation and superovulation techniques and embryo transfer.	reproductive endocrine, reproduction cycle of livestock, anatomy and physiology of udder gland, gestation and birth physiology in livestock, artificial insemination techniques, synchronisation and superovulation techniques and embryo transfer.
<b>3</b>	Student can not understand do an analyzing the history of reproduction and the ways of animal breeding, anatomy and genitalia physiology of livestock, poultry, dogs and cats, semen collection techniques, semen and sperm properties, processing techniques and preservation of semen, reproductive endocrine, reproduction cycle of livestock, anatomy and physiology of udder gland, gestation and birth physiology in livestock, artificial insemination techniques, synchronisation and superovulation techniques and embryo transfer.	Student has minimum understanding do an analyzing the history of reproduction and the ways of animal breeding, anatomy and genitalia physiology of livestock, poultry, dogs and cats, semen collection techniques, semen and sperm properties, processing techniques and preservation of semen, reproductive endocrine, reproduction cycle of livestock, anatomy and physiology of udder gland, gestation and birth physiology in livestock, artificial insemination techniques, synchronisation and superovulation techniques and embryo transfer.	Student able to do an analyzing the history of reproduction and the ways of animal breeding, anatomy and genitalia physiology of livestock, poultry, dogs and cats, semen collection techniques, semen and sperm properties, processing techniques and preservation of semen, reproductive endocrine, reproduction cycle of livestock, anatomy and physiology of udder gland, gestation and birth physiology in livestock, artificial insemination techniques, synchronisation and superovulation techniques and embryo transfer.	Student has extra ability to do an analyzing the history of reproduction and the ways of animal breeding, anatomy and genitalia physiology of livestock, poultry, dogs and cats, semen collection techniques, semen and sperm properties, processing techniques and preservation of semen, reproductive endocrine, reproduction cycle of livestock, anatomy and physiology of udder gland, gestation and birth physiology in livestock, artificial insemination techniques, synchronisation and superovulation techniques and embryo transfer.

### E. Assessment System

Assessment aspect	Assessment element	Point	Course outcome (CO)
Cognitive	Mid Exam Final Exam	70	CO1,CO2
Psychomotor	Task Presentation	15	CO1,CO2, CO4
Affective	Focus Group Discussion (FGD), lecture and laboratory practice Activity; Presence; Discipline; Politeness	15	CO4

The final value composition is 15% FGD, 15% task presentation and 30% mid term examination + 40 % final examination

The FGD assessment component includes: attitude (discipline of arrival, dress order and way of discussion), discussion and understanding activities.

Final indexed is defined as follow:

- A :  $\geq 75$
- AB : 70-74.9
- B : 65-69.9
- BC : 60-64.9
- C : 55-59.9
- D : 40-54.9
- E :  $< 40$

## COURSE ASSESSMENT ACADEMIC YEAR 2017/2018

### A. Evaluation Learning Result

CO1	Able to understanding and explain about reproductive anatomy and physiology of reproduction, endocrinology, cycle reproductive and technology in livestock, poultry, dogs and cats, include sex secondary of cattle mammary gland.
CO2	Able to choose and apply the concept of reproductive technology process and skilled in efforts to improve the reproductive efficiency of livestock (include Artificial Insemination, Estrus Synchronization, Superovulation and Embryo Transfer)
CO4	Able to conduct a teamwork to discuss some discipline lectures Physiology and Technology Reproduction

### B. Course Outcome (CO) Achievement : Academic Year 2016/2017 (BIR 201)

	CO1	CO2	CO3	CO4
<b>FGD</b>				<b>76.00</b>
<b>Mid Examination</b>	<b>67.68</b>	<b>50.90</b>		
<b>Final Examination</b>	<b>65.07</b>	<b>64.71</b>		
<b>Total</b>	<b>132.75</b>	<b>115.61</b>		<b>76.00</b>
<b>Mean</b>	<b>66.375</b>	<b>57.805</b>		<b>76.00</b>

#### Information:

- a. The mean of CO1 achievement on 2016/2017 academic year is 66.67; indicated that course outcome bellow acceptable of physiology and technology of reproduction I. Students have minimal knowledge about history of reproduction and breeding system, anatomy and physiology of male and female genital, endocrine of reproduction, anatomy and physiology of poultry, anatomy and physiology of mammary gland, history of artificial insemination, spermatogenesis of livestock and biochemistry cement.
- b. The mean of CO2 achievement is 57.81; indicated that course outcome bellow acceptable. Students have minimal comprehension about ability to application reproduction cycle, technic of reproduction, freezing cement and artificial insemination in livestock.
- c. The mean of CO4 achievement is 76.00; indicated that course outcome exceed acceptable. Students have extra ability to explain about the structure of assignment which given and they able to conduct a good team work in FGD.

### Academic Year 2016/2017 (BIR 102)

	CO1	CO2	CO3	CO4
<b>FGD</b>				
<b>Mid Examination</b>				
<b>Final Examination</b>			<b>69.08</b>	
<b>Total</b>			<b>69.08</b>	
<b>Mean</b>			<b>69.08</b>	

**Information:**

- a. The mean of CO4 achievement is 69.08; indicated that course outcome bellow acceptable. Students have minimal ability to practicum activity. Topic of practicum are collection of cement, macroscopic and microscopic inspection of cement, cement dilution, cement storage, pellet type of freezing cement, artificial insemination technic of livestock

**Academic Year 2017/2018 (BIR 201)**

	CO1	CO2	CO3	CO4
<b>FGD</b>				<b>88.25</b>
<b>Mid Examination</b>	<b>85.01</b>	<b>83.65</b>		
<b>Final Examination</b>	<b>83.91</b>	<b>83.00</b>		
<b>Total</b>	<b>168.92</b>	<b>166.65</b>		<b>88.25</b>
<b>Mean</b>	<b>84.46</b>	<b>83.33</b>		<b>88.25</b>

**Information:**

- a. The mean of CO1 achievement on academic study 2017/2018 is 84.46; indicated that course outcome of exceed acceptable. Students have extra ability knowledge about history of reproduction and breeding system, anatomy and physiology of male and female genital, endocrine of reproduction, anatomy and physiology of poultry, anatomy and physiology of mammary gland, history of artificial insemination, spermatogenesis of cattle and biochemistry cement.
- b. The mean of CO2 achievement is 83.33; indicated that course outcome exceed acceptable. Students have extra comprehension about ability to application reproduction cycle, technic of reproduction, frozen cement and artificial insemination in cattle.
- c. The mean of CO4 achievement is 88.25; indicated that course outcome exceed acceptable. Students have extra ability to explain about the structure of assignment which given and they able to conduct a good team work in FGD.

**Academic Year 2017/2018 (BIR 102)**

	CO1	CO2	CO3	CO4
<b>FGD</b>				
<b>Mid Examination</b>				
<b>Final Examination</b>			<b>84.30</b>	
<b>Total</b>			<b>84.30</b>	
<b>Mean</b>			<b>84.30</b>	

**Information**

- a. The mean of CO4 achievement is 84.30; indicated that course outcome exceed acceptable. Students have extra ability to practicum activity. Topic of practicum are collection of cement, macroscopic and microscopic inspection of cement, cement dilution, cement storage, pellet type of freezing cement, artificial insemination technic of livestock

**C. Course Outcome (CO) mapping to Learning Outcome (LO) Achievement of BIR 201:**

		<b>CO1</b>	<b>CO2</b>	<b>CO4</b>	<b>Average of LO</b>
<b>LO5:</b>	Asses developing biotechnology of animal reproduction (reproduction engineering), improve the quality of animal genetics to handle the problems on animal reproduction	<b>75.4175</b>	<b>70.5675</b>	<b>82.125</b>	<b>76.0367</b>

**Course Development Plan**

To achieve a good goal in the next academic year of physiology and technology of reproduction course we will :

1. Innovate the learning method to increase knowledge the students in every topic course for student actively follow discussion after course.
2. Give more time for the student to do face to face.
3. Improvement ability lecturer to optimize the student score and increase meeting for FGD

**Course Outcome (CO) mapping to Learning Outcome (LO) Achievement of BIR 102:**

		<b>CO3</b>	<b>Average of LO</b>
<b>LO 5:</b>	Asses developing biotechnology of animal reproduction (reproduction engineering), improve the quality of animal genetics to handle the problems on animal reproduction	<b>76.69</b>	<b>76.69</b>

**Course Development Plan**

To achieve a good goal in the next academic year of physiology and technology of reproduction course we will :

1. Improvement ability lecturer to optimize the student score and increase meeting for FGD

**Lecture evaluation by students (EDoM) 2016/2017:**

<b>No.</b>	<b>Question</b>	<b>Respondents</b>	<b>Score (1-4)</b>	<b>Index Satisfaction (%)</b>
<b>1</b>	Lecturer delivering course contracts at the beginning of lecture	<b>215</b>	<b>3.38</b>	<b>84.50</b>

<b>2</b>	Lecturers had start and end lectures on time according to the specified schedule	<b>215</b>	<b>3.21</b>	<b>80.25</b>
<b>3</b>	Lecturers provide constructive feedback on student learning outcomes (assignments, examinations, quizzes, etc.)	<b>215</b>	<b>3.42</b>	<b>85.50</b>
<b>4</b>	Lecturers use the latest reference books and literature (last 5 years)	<b>215</b>	<b>3.37</b>	<b>84.25</b>
<b>5</b>	Lecturers conformity between the material presented with the planning in the lecture contract	<b>215</b>	<b>3.38</b>	<b>84.50</b>
<b>6</b>	Lecturers carry out the test questions and details of the assignments	<b>215</b>	<b>3.41</b>	<b>85.25</b>
<b>7</b>	Lecturers carry out course with teaching materials / dictates / handouts	<b>215</b>	<b>3.33</b>	<b>83.25</b>
<b>8</b>	Lecturers use material course along with examples of application or real illustrations related to material course	<b>215</b>	<b>3.35</b>	<b>83.75</b>
<b>9</b>	Lecturers use of various learning media (whiteboards, properties, OHPs, LCDs, projectors, films, etc.)	<b>215</b>	<b>3.34</b>	<b>83.50</b>
<b>10</b>	Lecturers ability in integrating of various learning media	<b>215</b>	<b>3.36</b>	<b>84.00</b>
<b>11</b>	Lecturers show attention to students (eg, provide opportunities to ask questions, respond to questions / comments)	<b>215</b>	<b>3.31</b>	<b>82.75</b>
<b>12</b>	Lecturers use implement teaching methods that can enhance interaction between students and students with lecturers	<b>215</b>	<b>3.24</b>	<b>81.00</b>
	<b>Mean</b>		<b>3.34</b>	<b>83.54</b>

**Lecture evaluation by students (EDoM) 2017/2018:**

<b>No.</b>	<b>Question</b>	<b>Respondents</b>	<b>Score (1-4)</b>	<b>Index Satisfaction (%)</b>
<b>1</b>	Lecturer delivering course contracts at the beginning of lecture	<b>220</b>	<b>3.55</b>	<b>88.75</b>

<b>2</b>	Lecturers had start and end lectures on time according to the specified schedule	<b>220</b>	<b>3.34</b>	<b>83.50</b>
<b>3</b>	Lecturers provide constructive feedback on student learning outcomes (assignments, examinations, quizzes, etc.)	<b>220</b>	<b>3.56</b>	<b>89.00</b>
<b>4</b>	Lecturers use the latest reference books and literature (last 5 years)	<b>220</b>	<b>3.48</b>	<b>87.00</b>
<b>5</b>	Lecturers conformity between the material presented with the planning in the lecture contract	<b>220</b>	<b>3.48</b>	<b>87.00</b>
<b>6</b>	Lecturers carry out the test questions and details of the assignments	<b>220</b>	<b>3.48</b>	<b>87.00</b>
<b>7</b>	Lecturers carry out course with teaching materials / dictates / handouts	<b>220</b>	<b>3.45</b>	<b>86.25</b>
<b>8</b>	Lecturers use material course along with examples of application or real illustrations related to material course	<b>220</b>	<b>3.44</b>	<b>86.00</b>
<b>9</b>	Lecturers use of various learning media (whiteboards, properties, OHPs, LCDs, projectors, films, etc.)	<b>220</b>	<b>3.43</b>	<b>85.75</b>
<b>10</b>	Lecturers ability in integrating of various learning media	<b>220</b>	<b>3.46</b>	<b>86.50</b>
<b>11</b>	Lecturers show attention to students (eg, provide opportunities to ask questions, respond to questions / comments)	<b>220</b>	<b>3.38</b>	<b>84.50</b>
<b>12</b>	Lecturers use implement teaching methods that can enhance interaction between students and students with lecturers	<b>220</b>	<b>3.32</b>	<b>83.00</b>
	<b>Mean</b>		<b>3.44</b>	<b>86.18</b>