SEMESTER COURSE PLAN (SCP)

ANIMAL REPRODUCTION SCIENCE
(23I01120203)

TEACHING TEAM :

Prof. Dr. Ir. Abd. Latief Tolleng, M.Sc.
195406021978021001

Prof. Dr. Ir. Muhammad Yusuf, S.Pt., IPU.
197007251999031001

Dr. Ir. Sahiruddin, S.Pt., M.Si., IPM, ASEAN Eng.
197901092015041002

Masturi M, S.Pt., M.Si.
198804052019044001

BACHELOR PROGRAMME IN ANIMAL HUSBANDRY
FACULTY OF ANIMAL SCIENCE
HASANUDDIN UNIVERSITY
MAKASSAR
2025

BACHELOR PROGRAMME IN ANIMAL HUSBANDRY
FACULTY OF ANIMAL SCIENCE
HASANUDDIN UNIVERSITY

Vision

Vision of the study program :
Becoming an international standard in livestock education provider based on the Indonesian Maritime Continent

Vision Strategic

In accordance with the vision, mission, and objectives that have been set, the Animal Husbandry Study Program of the Faculty of Animal Science sets the following objectives to be achieved:

a. Improving the quality of learning implementation that is in line with the needs of industry and society based on research and international standards;
b. Creating networks and partnerships in the development of Animal Husbandry science and technology and its utilization in the implementation of learning;
c. Producing graduates who have character, vision, creativity and innovation in the field of animal husbandry science and technology with an entrepreneurial perspective.

Mission

The mission carried out in the implementation of the Bachelor of Animal Husbandry Study Program, Faculty of Animal Husbandry, Hasanuddin University is

1) Organizing quality learning to produce independent and globally competitive Animal Husbandry scholars.
2) Developing animal husbandry science for the benefit of the nation.
3) Providing a conducive academic climate for implementing education with an entrepreneurial perspective.

Graduate Profiles

No	Profile	Description
1	Manager	Graduates who apply concepts and techniques in managing livestock farming and institutions related to livestock businesses such as financial institutions
2	Young Researcher	Graduates who able to apply scientific concepts and methods in solving problems in the development of the field of Animal Husbandry
3	Planners	Graduates who able to prepare potential and problem analysis, as well as formulate plans and strategies for the development of the livestock and related industries
4	Educators	Graduates who have the ability and skills to transfer science and technology to students in the field of animal husbandry
5	Entrepreneur	Graduates who able to apply business in the field of Animal Husbandry as their main business, or business development to support livestock business
6	Bureaucrat	Graduates who are able to organize government duties, especially in the affairs of livestock development

Learning Outcomes imposed on the Course

ILO-5 (KU2) - Able to make appropriate decisions in the context of problem solving, based on the results of data and information analysis (GS-02).

ILO-6 (KU3) - Able to be responsible for the achievement of group work results, supervising and evaluating the completion of work assigned to workers under his/her responsibility (GS-03)

ILO-7 (KK1) - Able to apply livestock science and technology that is oriented towards increasing production, efficiency, quality and sustainability (SS-01).

ILO-8 (KK2) - Able to synthesize production systems by integrating the field of Animal Husbandry with other fields of science.

ILO-9 (KK3) – Skilled in managing livestock enterprises (SS-03).

Course Learning Outcomes (CLO)

CLO-1: Students are able to understand the reproductive process starting from development patterns, anatomy and physiology of male and female reproductive organs, glands and hormones related to the reproductive process, oogenesis and spermatogenesis, puberty, estrus, estrus cycle, ovulation, fertilization, pregnancy, birth and breastfeeding. (ILO5, ILO6 and ILO7)

CLO 2: Students can understand the mechanism of estrus induction / synchronization, factors that affect the reproductive process and calculation of reproductive efficiency. (ILO8 and ILO9)

Sub-CLO

Sub-CLO 1: Understand the scope and urgency of studying the subject of Animal Reproduction Science. (CLO- 1)

Sub-CLO 2: Understand the devSLOpment process, anatomy and physiology of animal reproductive organs and the mechanism of action of hormones in the body regulating the reproductive process (CLO-1)

Sub CLO-3: Explain the process of egg and sperm devSLOpment, reaching puberty, the occurrence of lust and ovulation. (CLO-1)

Sub CLO-4: Explain the process of fertilization, pregnancy and birth and understand the mechanisms that occur during the breastfeeding process (CLO-1)

Sub CLO-5: Evaluate the success of the reproductive process and the factors that influence it (CLO-2)

Sub-CLO 6: Select appropriate efforts to improve reproductive efficiency in livestock. (CLO-2)

Learning Analysis

Animal Reproduction Science

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Sorting out appropriate efforts to improve reproductive efficiency in livestock. (CLO-2)

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Evaluate the success of the reproductive process and the factors that influence it (CLO-2)

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Explain the process of fertilization, pregnancy and birth and understand the mechanisms that occur during

↑

Explain the process of egg and sperm development, reaching puberty, the occurrence of lust and ovulation.

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Understand the process of development, anatomy and physiology of animal reproductive organs and the mechanism of action of hormones in the body regulating the reproductive process (CLO-1)

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Understand the scope and urgency of studying the subject of Animal Reproductive Science. (CLO-1)

Have passed the subject Livestock Physiology

HASANUDDIN UNIVERSITY
FACULTY OF ANIMAL SCIENCE
BACHELOR PROGRAMME IN ANIMAL HUSBANDRY
SEMESTER COURSE PLAN

Course	Code		Course Group	Credit Points	Semester	Date of Preparation
Animal Reproduction Science	23I01120203		Reproduction	3	5	24 September 2024

		Developer Lecturer	Course Coordinator	Head of study Program
Authority		Prof. Dr. Ir. Abd. Latief Tolleng, M.Sc. Prof. Dr. Ir. Muhammad Yusuf, S.Pt., IPU. Ir. Sahiruddin, S.Pt., M.Si., IPM, ASEAN Eng. Masturi M, S.Pt., M.Si	Prof. Dr. Ir. Abd. Latief Tolleng, M.Sc.	Dr. Agr. Ir. Renny Fatmyah Utamy, S. Pt., M. Agr., IPM

Course Learning Outcomes	**ILOs that are imposed on the course**		
	ILO-5		Able to make appropriate decisions in the context of problem solving, based on the results of data and information analysis (GS-02).
	ILO-6		Able to be responsible for the achievement of group work results, supervising and evaluating the completion of work assigned to workers under his/her responsibility (GS-03)
	ILO-7		Able to apply livestock science and technology that is oriented towards increasing production, efficiency, quality and sustainability (SS-01).
	ILO-8		Able to synthesize production systems by integrating the field of Animal Husbandry with other fields of science.
	ILO-9		Skilled in managing livestock enterprises (SS-03).
		ILO⇒ Course Learning Outcomes (CLO)	
		Upon completion of this course, it is expected that:	
	ILO-5	**CLO-1**	Students are able to understand the reproductive process starting from development patterns, anatomy and physiology of male and female reproductive organs, glands and hormones related to the reproductive process, oogenesis and spermatogenesis, puberty, estrus, estrus cycle, ovulation, fertilization, pregnancy, birth and lactation.

	ILO-6	**CLO-1:**	Students are able to understand the reproductive process starting from developmental patterns, anatomy and physiology of male and female reproductive organs, glands and hormones related to the reproductive process, oogenesis and spermatogenesis, puberty, estrus, estrus cycle, ovulation, fertilization, pregnancy, birth and breastfeeding.
	ILO-7	**CLO-1:**	Students are able to understand the reproductive process ranging from developpmental patterns, anatomy and physiology of male and female reproductive organs, glands and hormones related to the reproductive process, oogenesis and spermatogenesis, puberty, estrus, estrus cycle, ovulation, fertilization, pregnancy, birth and breastfeeding.
	ILO-8	**CLO-2:**	Students can understand the mechanism of estrus induction/synchronization, factors affecting the reproductive process and calculation of reproductive efficiency.
	ILO-9	**CLO-2:**	Students can understand the mechanism of estrus induction/synchronization, factors affecting the reproductive process and calculation of reproductive efficiency.
	CLO⇒ Sub-CLOs		
	CLO-1	**SUB-CLO-1:**	Understand the scope and urgency of studying the subject of Animal Reproductive Science.
		SUB-CLO 2:	Understand the devSLOpment process, anatomy and physiology of animal reproductive organs and the mechanism of action of hormones in the body regulating the reproductive process.
		SUB-CLO 3	Explain the process of egg and sperm development, reaching puberty, the occurrence of lust and ovulation.
		SUB-CLO 4:	Explain the process of fertilization, pregnancy and birth and understand the mechanisms that occur during the breastfeeding process.
	CLO-2	**SUB-CLO 5:**	Evaluate the success of the reproductive process and the factors that influence it
		SUB-CLO-6:	Sorting out appropriate efforts to improve reproductive efficiency in livestock.

Correlation between ILOs/CLOs to Sub-CLOs

ILOs that are imposed on the course	**ILO**	**SUB-CLO**	**Formative**	**Form of Assessment***						**Weight**	**Value**	**Student Score**
				Summative								
				Interactive Lecturer	**Individual Presentation**	**Practicum/Field Practice**	**Case Study**	**Quiz**	**Problem Base Learning**			
ILO-7	CLO-1	SUB-CLO- 1		2	3	0	0	0	0	5		
ILO-7	CLO-1	SUB-CLO- 2		0	5	15	0	0	0	20		
ILO-7	CLO-1	SUB-CLO- 4		5	10	25	0	0	0	40		
ILO-9	CLO-2	SUB-CLO- 5		5	0	0	15	0	0	25		
ILO-9	CLO-2	SUB-CLO- 6		0	0	0	0	5	10	15		

		12	18	40	15	5	10	100	

Course Description		This course is a compulsory subject that must be followed by all animal husbandry students. This course discusses the reproductive process starting from devSLOpmental patterns, anatomy and physiology of male and female reproductive organs, glands and hormones related to the reproductive process, oogenesis and spermatogenesis, puberty, estrus, estrus cycle, ovulation, fertilization, pregnancy, birth and lactation, induction / synchronization of estrus, factors that affect the reproductive process and calculation of reproductive efficiency.
Learning Materials / Subject Matter		Urgency in studying Animal Reproductive Science - Scope of this course - Learning contract - Development of female reproductive organs - Anatomy and physiology of female reproductive organs - DevSLOpment of male reproductive organs - Anatomy and physiology of male reproductive organs - Anatomy and physiology of endocrine glands. - Types and functions of reproductive hormones - Mechanism of action of reproductive hormones in regulating the reproductive process - Process of oogenesis - Process of spermatogenesis - Puberty and influencing factors - Estrus cycle - Induction and synchronization of estrus - Ovulation process - Fertilization process - Process and stages of pregnancy - Pregnancy examination - Birth process - Things to consider when breastfeeding - Tolling - BreastfeedingFactors affecting the reproductive process - Influence of internal factors on reproductive efficiency - Genetics - Diseases - Anatomy and physiology - Influence of external factors on reproductive efficiency - Environment - Feeding - Management - Improvement of reproductive efficiency through improved management: - Maintenance - Feeding - Health - Mating - Improved reproductive efficiency through the application of artificial insemination (IB) techniques: - Benefits and drawbacks of IB - Procedures for implementing IB - Semen preservation
Reference		**Key Reference**
		Bearden HJ, Fuquay JW. 1992. Applied Animal Reproduction. 3 rd Ed, Prentice Hall, Englewood Cliffs, Ney Jersey 07 632. 2. Hafez ESE, Hafez B. 2000. Reproduction in Farm Animals. 7 th , Lippincott Williams & Wilkins. Philadelphia, Baltimore, New York, London, Buenos Aires, Hong Kong, Sidney, Tokyo. 3. Peters AR, Ball PJH. 1987. Reproduction in Cattle. Butterworths. London, Boston, Durban, Singapore, Sidney, Toronto, wellington.
		Additional Reference
		1. Roberts SJ. 2002. Kebidanan Hewan dan Penyakit Genital. Edisi kedua, edisi India. Penerbit & Distributor CBS, New Delhi, India. 2. Hutchinson JSM. 1993. Mengontrol Reproduksi. Chapman & Hall, 2-6 Boundary Row, London SE1 8HN.
Teaching Team		Prof. Dr. Ir. Abd. Latief Tolleng, M.Sc. Prof. Dr. Ir. Muhammad Yusuf, S.Pt., IPU. Ir. Sahiruddin, S.Pt., M.Si., IPM, ASEAN Eng. Masturi M, S.Pt., M.Si
Course requirements		Livestock Physiology

Week	**Sub CLO (End ability of each learning stage)**	**Assesment**		**Forms and Methods of Learning [time estimate]**		**Learning Material (Content)**	**Weight of Assesment (%)**
		Indicator	**Technique & Criteria**	**Offline**	**Online**		
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**

1	Understand the scope and urgency of studying the subject of Animal Reproductive Science. (CLO-1)	**Formative:** - **Summative:** Understand the scope and urgency of the importance of studying animal reproductive science.	**Criteria Formative:** **Criteria Sumative:** Interactive Lecture (2) Individual presentation (3) **Assessment Technique:** Test and Non-Test	**Studying:** Cooperative learning, Collaborative learning, Project- based Learning 1 x 2 x 50'		1. Urgency in learning Animal Reproduction Science 2. Scope of this course 3. Study contract	5
2-4	Understand the development process, anatomy and physiology of animal reproductive organs and the mechanism of action of hormones in the body regulating the reproductive process (CLO-1)	**Formative:** - **Summative:** Understand the developmental process, anatomy and physiology of animal reproductive organs and the mechanism of action of hormones in the regulation of the reproductive process.	**Criteria Formative:** **Criteria Sumative:** Individual presentation (5) Practicum/Field Practice (15) assessed with rubric I011240002 presentation (3) **Assessment Technique:** Test and Non-Test	**Studying:** Cooperative learning, Collaborative learning, Project- based Learning 3 x 2 x 50'		1. Devlopment of male and female reproductive organs 2. Anatomy and physiology of male and female reproductive organs 3. Anatomy and physiology of endocrine glands. 4. Types and functions of reproductive hormones 5. The mechanism of action of reproductive hormones in regulating the reproductive process	20

5-6	Explain the process of fertilization, pregnancy and birth and understand the mechanisms that occur during the breastfeeding process (CLO-1)	**Formative:** - **Summative:** Explain the process of egg and sperm development, reaching puberty, the onset of lust and ovulation.	**Criteria Formative:** **Criteria Sumative:** Individual presentation (5) assessed with rubric I011240002 Practicum/Field Practice (15) assessed with rubric I011240002 **Assessment Technique:** Test and Non-Test	**Studying:** Cooperative learning, Collaborative learning, Project- based Learning 2 x 2 x 50'		1. Oogenesis process 2. Process spermatogenesis 3. Puberty and influencing factors 4. Estrus cycle 5. Induction and synchronization of estrus 6. Ovulation process	20
7-9	Explain the process of fertilization, pregnancy and birth and understand the mechanisms that occur during breastfeeding (CLO-1)	**Formative:** - **Summative:** Can explain the process of fertilization, pregnancy and birth and understand the mechanisms that occur during breastfeeding.	**Criteria Formative:** **Criteria Sumative:** Interactive Lecture (5) Individual presentation (5) assessed with rubric I011240002 Practicum/Field Practice (15) assessed with rubric I011240002 **Assessment Technique:** Test and Non	**Studying:** Cooperative learning, Collaborative learning, Project- based Learning 2 x 2 x 50'		1. Fertilization process 2. Pregnancy process and stages 3. Pegnancy examination 4. Birth process 5. Things to consider when breastfeeding	20

10-13	Evaluate the success of the reproductive process and the factors that influence it (CLO-2)	**Formative:** - **Summative:** Can evaluate the success of the reproductive process and the factors that influence it.	**Criteria Formative:** **Criteria Sumative:** Interactive Lecture (5) Case Study (15) assessed with rubric I011240003 **Assessment Technique:** Test and Non	**Studying:** Cooperative learning, Collaborative learning, Project- based Learning 4 x 2 x 50'		1. Benchmarks for the success of the reproductive process 2. Factors that affect the reproductive process 3. Influence of internal factors on reproductive efficiency 4. Influence of external factors on reproductive efficiency	20
14-16	Sorting out appropriate efforts to improve reproductive efficiency in livestock. (CLO-2)	**Formative:** - **Summative:** Can sort out appropriate efforts to improve reproductive efficiency in livestock.	**Criteria Formative:** **Criteria Sumative:** Quiz (5) Problem Base Learning (10) assessed with rubric I011240003 **Assessment Technique:** Test and Non	**Studying:** Cooperative learning, Collaborative learning, Project- based Learning 3 x 2 x 50'		1. Improving reproductive efficiency through the application of artificial insemination (IB) techniques: 2. Benefits and drawbacks of IB 3. Procedures for applying IB 4. Semen preservation 5. Improving reproductive efficiency through the application of other reproductive technologies: 6. Embryo transfer 7. In vitro maturation (IVM) and in vitro fertilization (IVF)	15

						8. Cloning	
9.							100

Matrix ILO, CLO, and Assessment Method

ILO / CLO	CLO-1	CLO-2
ILO-5 (KU2)	Interactive Lecture (Weight 2%) Individual presentation (Weight 3%) Individual presentation (Weight 5%) Practicum / Field Practice (Weight 15%) Individual presentation (Weight 10%) Practicum / Field Practice (Weight 25%) Interactive Lecture (Weight 5%)	
ILO-6 (KU3)	Interactive Lecture (Weight 2%) Individual presentation (Weight 3%) Individual presentation (Weight 5%) Practicum / Field Practice (Weight 15%) Individual presentation (Weight 10%) Practicum / Field Practice (Weight 25%) Interactive Lecture (Weight 5%)	
ILO-7 (KK1)	Interactive Lecture (Weight 2%) Individual presentation (Weight 3%) Individual presentation (Weight 5%) Practicum/Field Practice (Weight 15%) Individual presentation (Weight 10%) Practicum/Field Practice (Weight 25%) Interactive Lecture (Weight 5%)	
ILO-8 (KK2)		Interactive Lecture (Weight 5%) Case Study (Weight 15%) Quiz (Weight 5%) Problem Base Learning (Weight 10%)
ILO-9 (KK3)		Interactive Lecture (Weight 5%) Case Study (Weight 15%) Quiz (Weight 5%) Problem Base Learning (Weight 10%)

Evaluation Type and Assessment Weight

Type	Assessment Weight
Interactive Lecture	12
Individual presentation	18
Practicum/Field Practice	40
Case Study	15
Quiz	5
Problem Base Learning	10
Total	100

Assessment and Evaluation of Student Achievement of CLO

ILOs that are imposed on MK	CLO	SUB CLO	Form of Assessment*						Weight	Value	Student Score
			Formative	Summative							
				Interactive Lecture	Individual Presentation	Practicum/Field Practice	Case Study	Quiz	Problem Base Learning			
ILO-7	CLO-1	SUB- CLO-1		2	3	0	0	0	0	5		
ILO-7	CLO- 1	SUB- CLO-2		0	5	15	0	0	0	20		
ILO-7	CLO- 1	SUB- CLO-4		5	10	25	0	0	0	40		
ILO-9	CLO-2	SUB- CLO-5		5	0	0	15	0	0	20		
ILO-9	CLO- 2	SUB- CLO-6		0	0	0	0	5	10	15		
				12	18	40	15	5	10	100		

	HASANUDDIN UNIVERSITY **FACULTY OF ANIMAL SCIENCE** **BACHELOR PROGRAMME IN ANIMAL HUSBANDRY**

STUDENT STRUCTURED ASSIGNMENT PLAN

Course	Animal Reproduction Science				
Code	23I01120203	**Credit Points**	3	**Semester**	2 (dua)
Developer Lecturer	Prof. Dr. Ir. Abd. Latief Tolleng, M.Sc				

Task Form	**Task Time**
Documents/Magazines	2 Weeks

Task Title

The mechanism of reproductive hormones in regulating the reproductive process

Course Learning Outcomes

Sub-CLO-2 Understanding the developmental processes, anatomy, and physiology of animal reproductive organs and the mechanisms of hormone action in the body that regulate reproductive processes

Task Description

The students' assignment is a group project to write a paper titled “The Mechanism of Reproductive Hormones in Regulating the Reproductive Process.” The paper should be written according to the following procedures:

1) Discuss among the group members to identify the process stages for each of the selected sub-topics. Information related to the selected sub-topic can be obtained from textbooks and journals.
2) Create a paper with the following systematics:
    I. Introduction
    II. Discussion
    III. Conclusion
    IV. Literature
3) Group presentation

Assignment Method

1. Conducted in groups using the Small Group Discussion (SGD) learning method.

Form and Format of Output

a. Object of Cultivation: Male and Female Reproduction
b. Form of Output: Paper

Indicators, Criteria and Assessment Weight

Indicators:

1. Systematics: 10%
2. Accuracy of analysis: 25%
3. Depth of material: 30%
4. Novelty and reputation of library materials: 10%
5. Team cohesiveness: 10%
6. Mastery of the material: 15%

Implementation Schedule

2 weeks	

Other

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Reference List
1. Bearden HJ, Fuquay JW. 1992. Reproduksi Terapan Hewan. 3 rd Ed, Prentice Hall, Englewood Cliffs, Ney Jersey 07 632. 2. Hafez ESE, Hafez B. 2000. Reproduksi pada Hewan Ternak. 7 th, Lippincott Williams & Wilkins. Philadelphia, Baltimore, New York, London, Buenos Aires, Hong Kong, Sidney, Tokyo. 3. Peters AR, Ball PJH. 1987. 2. Reproduksi pada Sapi. Butterworths London, Boston, Durban, Singapura, Sidney, Toronto, wellington. 3. Roberts SJ. 2002. Kebidanan Hewan dan Penyakit Genital. Edisi kedua, edisi India. Penerbit & Distributor CBS, New Delhi, India. 4. Hutchinson JSM. 1993. Mengontrol Reproduksi. Chapman & Hall, 2-6 Boundary Row, London SE1 8HN.

DEFINITION OF 1 CREDIT IN THE FORM OF LEARNING				Time
A	Lecture, Reception, Tutorial			
	Face to Face	Structured Assignment	Independent Learning	
	50 minutes/week/semester	60 minutes/week/semester	60 minutes/week/semester	2,83
B	Seminars or other similar forms of learning			
	Face to face		Self-study	
	100 minutes/week/semester		70 minutes/week/semester	2,83
C	Practicum, studio practice, workshop practice, field practice, research, community service, and/or other equivalent forms of learning			
	170 minutes/week/semester			2,83

No	Metode Pembelajaran Mahasiswa	Kode
1	Small Group Discussion	SGD
2	Role-Play & Simulation	RPS
3	Discovery Learning	DL
4	Self-Directed Learning	SDL
5	Cooperative Learning	CoL
6	Collaborative Learning	CbL
7	Contextual Learning	CtL
8	Project Based Learning	PjBL
9	Problem Based Learning & Inquiry	PBL
10	Atau metode pembelajaran lain, yang dapat secara efektif memfasilitasi pemenuhan capaian pembelajaran lulusan.	