

Module designation	Improvement of Animal Genetic Quality
Semester(s) in which the module is taught	Even Semester
Person responsible for the module	Prof. Dr. Ir. Sumadi, M.S. Ir. Dyah Maharani, S.Pt., M.P., Ph.D. Prof. Tety Hartatik, S.Pt., Ph.D.
Language	Bahasa and English
Relation to curriculum	Specialization's compulsory
Teaching methods	Classical lecture and discussion
Workload (incl. contact hours, self-study hours)	Total workload: 119 hours Contact hours: <ul style="list-style-type: none"> - Lecture: 35 hours - Academic activity: 45 hours Private study: 45 hours
Credit points	3/0
Required and recommended prerequisites for joining the module	None
Module objectives/intended learning outcomes	<p>Course Outcomes (CO):</p> <ol style="list-style-type: none"> 1. Students understand and are able to explain the basic concepts of genetics and statistics in livestock populations. 2. Students understand and are able to explain the effect of changes in genetic structure, gene frequency due to inbreeding, heterosis and the formation of livestock breeds. 3. Students understand and are able to explain the application of livestock genetic quality improvement <p>Expected Learning Outcomes:</p> <ul style="list-style-type: none"> - Mastery in Sciences: <ol style="list-style-type: none"> 1. Able to master the livestock production science, animal nutrition and feed science, animal products technology, and the livestock social economics in relation to food security and environment. (CO1, CO2, CO3) 2. Able to master the design, management, and development of livestock research. (CO1) - Special skills: <ol style="list-style-type: none"> 1. Able to make innovation in the animal husbandry based on the development of science and technology. (CO1, CO3) - General skills: <ol style="list-style-type: none"> 1. 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. (CO2, CO3)
Content	Improvement of Livestock Genetic Quality is a course that studies the genetic quality of livestock and methods of improving the genetic quality of livestock on a population scale with the ultimate goal of obtaining livestock populations with high genetic quality in an economical nature. The material discussed includes basic concepts of genetics and statistics, genetic structure within a population, changes in gene frequency in livestock populations, inbreeding and population size, quantitative diversity, heritability, genetic correlation,

	<p>selection, selection objectives, selection trials, threshold characters, inbreeding depression, heterosis, breed and breed formation, biochemical and genetic polymorphisms population. Students who have taken this course are expected to understand and be able to explain the basic concepts of genetics and statistics in livestock populations, the causes of genetic imbalances and the steps that must be taken so that the population causes an increase in inbreeding and inbreeding depression, the incidence of heterosis in the population, the effect of genes on quantitative diversity, changes in gene frequency due to selection, the influence of nation formation on gene frequency.</p>					
Exams and assessment formats	Assessment Components		Course Outcomes (CO)		Percentage (%)	
	1. Midterm exam (written test, take home exam, paper assignment)		CO1 & CO2		35	
	2. Final exam (written test, take home exam, paper assignment)		CO3		40	
	3. Quizzes		CO1, CO2 & CO3		10	
	4. Take-home written assignments		CO2 & CO3		15	
	Grade and Score					
	Grade		Score		Grade	
	A		≥80		C+	
	A-		75-79,9		C	
	A/B		70-74,9		C-	
	B+		65-69,9		C/D	
	B		60-64,9		D+	
	B-		55-59,9		D	
B/C		50-54,9		E		
Study and examination requirements	<p>The final grade in the module is composed of 35% performance on Midterm, 40% final exam, 10% quiz, 15% assignment. Students must have a final grade of 70% or higher to pass</p>					
Reading list	<ul style="list-style-type: none"> - D.S. Falconer and Trudy F.C. Mackay, 1996, Introduction to Quantitative Genetics. Fourth Edition. - Griffiths, Miller, Susuki, Lewontin and Gelbart. An Introduction to Genetic Analysis. - Hardjosubroto, W. (Prof. Drh. Wartomo Hardjosubroto, MSA). 1998. Pengantar Genetika Hewan. Fakultas Peternakan Universitas Gadjah Mada. Yogyakarta. Indonesia - Philip Meneely, 2009. Advanced Genetic Analysis: Genes, Genomes and Networks in Eukaryotes. - Riley, H. P. 1957. Genetic and Cytogenetics. John Wiley & Sons, Inc. New York. Chapman & Hall, Limited, London. - Snustad and Simmons, 2006. Principles of Genetics Fourth Edition, 2006. - Suryo, H. 1995. Sitogenetika. Gadjah Mada University Press. Yogyakarta. - Tamarin, R. 1999. Principles of Genetics. 					

	- Warwick E.J., J. Maria Astuti dan W. Hardjosubroto. 1983. Pemuliaan Ternak. Fakultas Peternakan UGM. Gadjah Mada University Press. Yogyakarta.
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