

Module designation	Cytogenetics
Semester(s) in which the module is taught	Even semester
Person responsible for the module	Prof. Dr. Ir. Sumadi, MS., IPU. Prof. Ir. Tety Hartatik, S.Pt., Ph.D., IPM. Ir. Dyah Maharani, S.Pt., MP., Ph.D., IPM.
Language	Bahasa and English
Relation to curriculum	Specialization's Elective
Teaching methods	Classical lecture and discussion
Workload (incl. contact hours, self-study hours)	Total workload: 79 hours Contact hours: - Lecture: 23 hours - Academic activity: 28 hours Private study: 28 hours
Credit points	2/0
Required and recommended prerequisites for joining the module	None
Module objectives/intended learning outcomes	Course Outcomes (CO): 1. Students are able to comprehend the inheritance mechanism. 2. Students are able to comprehend the shapes, structures, numbers, and behaviours of chromosome. 3. Students are able to comprehend the abnormality on animal phenotype caused by chromosome change. Expected Learning Outcomes: - Mastery in Sciences: 1. Able to master the current animal science and its application theory. (CO1, CO2, CO3)
Content	Cytogenetic is a course discusses various aspects related to cell, i.e. shape and structure of chromosome, chromosome behavior, changes on chromosome shape and number, chromosome evolution and its phenotypic expression. Contents discussed in this course include theory of chromosome and its relationship with inheritance, offspring mechanism viewed from cell division, chromosome types, changes on chromosome structure, changes on number of chromosomes and cytoplasmic inheritance, also possibility of phenotypic abnormalities caused by chromosome mutation. Students who already take the cytogenetic course are expected comprehend and able to explain the inheritance mechanism that happen in the cells and know the abnormality types on animal phenotype caused by chromosome abnormalities.

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		35
	3. Short quizzes	CO1, CO2 & CO3		10
	4. Take-home written assignment	CO2 & CO3		20
	Grade and Score			
	Grade	Score	Grade	Score
	A	≥80	C+	45-49,9
	A-	75-79,9	C	40-44,9
	A/B	70-74,9	C-	35-39,9
	B+	65-69,9	C/D	30-34,9
	B	60-64,9	D+	25-29,9
	B-	55-59,9	D	20-24,9
B/C	50-54,9	E	0-19,9	
Study and examination requirements	The final grade in the module is composed of 35% performance on Midterm exam, 35% final exam, 10% quiz, and 20 % take-home written assignment. Students must have a final grade of 70% or higher to pass			
Reading list	<ul style="list-style-type: none"> - D.S. Falconer and Trudy F.C. Mackay, 1996, Introduction to Quantitative Genetics Fourth Edition, 1996 - 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 Genetics 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. 			