Module Handbook
Master in Animal Science UGM

Module designation	Instrumentation in Animal Nutrition and Feed Science
Semester(s) in which the module is taught	Even semester
Person responsible for the module	Prof. Dr. Ir. Zuprizal, DEA., IPU., ASEAN Eng. Prof. Dr. Ir. Kustantinah, DEA., IPU. Prof. Dr. Ir. Lies Mira Yusiati, S.U., IPU., ASEAN Eng. Prof. Dr. Ir. Ali Agus, DAA., DEA., IPU., ASEAN Eng. Dr. Ir. Chusnul Hanim, M.Si., IPM., ASEAN Eng. Ir. Nanung Danar Dono, S.Pt., M.P., Ph.D., IPM., ASEAN Eng. Ir. Cuk Tri Noviandi, S.Pt., M.Anim.St., Ph.D., IPM., ASEAN Eng. Ir. Nafiatul Umami, S.Pt., M.P., Ph.D., IPM., ASEAN Eng.
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. Comprehend about the related basic instruments used in the field of animal nutrition and feed science.
	2. Comprehend about the procedure in sample preparation and further analysis by using related instruments.
	3. Able to interpret the analysis result and create report.
	
	Expected Learning Outcomes:
	– Attitudes and Behaviors:
	   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. (CO1)
	
	– Mastery in Sciences:
	   1. Able to master the current animal science and its application theory. (CO1, CO2, CO3)
	   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. (CO2)
	   3. Able to master the design, management, and development of livestock research. (CO2)
	
	– Special skills:
	   1. Able to make innovation in the animal husbandry based on the development of science and technology. (CO2, CO3)
	   2. Able to solve problems and anticipate issues in the development of animal science and industry. (CO3)
	
	– General skills:
	   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. (CO1, CO2, CO3)
Content	This course is available for students who are interested in becoming experts in animal nutrition and feed science. This course also provides knowledge on how to use instruments, sample preparation, and analytical procedure in the field of animal nutrition and feed science.

Exams and assessment formats			
	Assessment Components	**Course Outcomes (CO)**	**Percentage (%)**
	1. Midterm exam (written test, take home exam, paper assignment)	CO1, CO2 & CO3	50
	2. Final exam (written test, take home exam, paper assignment)	CO1 & CO3	50

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 50% performance on Midterm exam, 50% final exam. Students must have a final grade of 70% or higher to pass
Reading list	– Grobbelaar, J., A.W. Lishman, W.A. Botha, D.J. Millar, and S.F. Lesch. 1981. A simple technique for continuous infusion of adult sheep. S. Afr. J. Anim. Sci. 11: 55-81.