

9.1 Module Descriptions_BAS

CURRICULUM STRUCTURE

1st Semester

Code	Course Name	Credit	ECTS*	Workload	
				Hours in class	Hours Self-Study
MWU60101	Religion	2	3.02	26.65	64.00
MWU60102	Pancasila	2	3.02	26.65	64.00
MWU60103	Citizenship	2	3.02	26.65	64.00
MWU60104	Bahasa	2	3.02	26.65	64.00
PTK61101	Chemistry	3	4.53	39.97	96.04
PTK61102	Mathematic	2	3.02	26.65	64.00
PTK61103	Biology	2	3.02	26.65	64.00
PTK61108	Introduction To Livestock Science and Industry	2	3.02	26.65	64.00
PTK61131	Introduction to Economics	2	3.02	26.65	64.00
Sub-Total		19	28.69	253.17	608.04

2nd Semester

Code	Course Name	Credit	ECTS*	Workload	
				Hours in class	Hours Self-Study
PTK62104	Statistic	3	4.53	39.97	96.04
PTK62105	Biochemistry	2	3.02	26.65	64.00
PTK 62107	Animal Physiology	3	4.53	39.97	96.04
PTK62110	Genetic	3	4.53	39.97	96.04
PTK62124	Feed Science	3	4.53	39.97	96.04
PTK62127	Technology of Animal Product	3	4.53	39.97	96.04
PTK61132	Basics of Management	2	3.02	26.65	64.00
Sub-Total		19	28,69	253.17	608.74

3rd Semester

Code	Course Name	Credit	ECTS*	Workload	
				Hours in class	Hours Self-Study
PTK61106	Microbiology	3	4.53	39.97	96.04

PTK61116	Animal Breeding	3	4.53	39.97	96.04
PTK61117	Animal Reproduction	3	4.53	39.97	96.04
PTK61121	Basics Nutrition	2	3.02	26.65	64.00
PTK61125	Agrostology	3	4.53	39.97	96.04
PTK61128	Quality and Safety Livestock Product	3	4.53	39.97	96.04
PTK61129	Theory and Approach of Development Study	2	3.02	26.65	64.00
PTK61130	Livestock Extension	3	4.53	39.97	96.04
Sub-Total		22	33.22	293.12	704.24

4th Semester

Code	Course Name	Credit	ECTS*	Workload	
				Hours in class	Hours Self- Study
PTK62109	Livestock Policies and Regulations	2	3.02	26.65	64.00
PTK62118	Science and Technology of Poultry Production	3	4.53	39.97	96.04
PTK62119	Science and Technology of Beef Ruminant Production	3	4.53	39.97	96.04
PTK62120	Science and Technology of Dairy Production	3	4.53	39.97	96.04
PTK62122	Poultry Nutrition	3	4.53	39.97	96.04
PTK62123	Ruminant Nutrition and Physiologi	4	6.04	53.31	128.01
PTK61126	Science and Technology of Feed Processing	3	4.53	39.97	96.04
Sub-Total		21	31.71	279.81	672.21

5th Semester

Code	Course Name	Credit	ECTS*	Workload	
				Hours in class	Hours Self- Study
AND60102	Entrepreneur	3	4.53	39.97	96.04
PTK61111	Research Methodology	2	3.02	26.65	64.00
PTK61133	Poultry Breeding and Hatching Industry	3	4.53	39.97	96.04
PTK60134	Experimental Design (TPT, INTP, TPHT)	3	4.53	39.97	96.04
PTK60135	Social Research	3	4.53	39.97	96.04

	Methodology (PnBP)				
PTK62112	English	2	3.02	26.65	64.00
PPK.....	Elective Course	5	7.55	66.62	160.00
Sub-Total		21	31.71	279.81	672.21

6th Semester

Code	Course Name	Credit	ECTS*	Workload	
				Hours in class	Hours Self-Study
AND60101	KKN	4	6.04	53.31	128.01
PPK.....	MBKM	10	15.10	133.25	320.00
PPK.....	Elective Course	8	12.08	106.60	256.00
Sub-Total		22	30.2	293.16	704.01

7th Semester

Code	Course Name	Credit	ECTS*	Workload	
				Hours in class	Hours Self-Study
PTK60113	Farm Experience	4	6.04	53.31	128.01
PPK.....	Elective Course	10	15.10	133.25	320.00
Sub-Total		14	21.14	186.56	448.01

8th Semester

Code	Course Name	Credit	ECTS*	Workload	
				Hours in class	Hours Self-Study
PTK60114	Seminar	1	1.51	13.33	32.00
PTK60115	Thesis	5	7.55	66.63	160.00
Sub-Total		6	9.06	79.96	192.00

Module Descriptions “Compulsory BAS”

Module designation	<i>PTK61102 Mathematics</i>
Semester(s) in which the module is taught	<i>1</i>
Person responsible for the module	<i>1. Dr. Ir. Masrizal, MS</i> <i>2. Dr. Hilda Susanty, S.Pt., M.Si.</i> <i>3. Rusdimansyah, S.Pt., M.Si.</i> <i>4. Noni Novarista, S.Pt., M.Si.</i> <i>5. Eli Ratni, S.Pt., M.P.</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lecture, lesson (small group discussion), project base learning, collaborative learning and self direct learning</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 90.65 hours</i> <i>Contact hours: 26.65 hours (lecture)</i> <i>Private study including examination preparation, specified in hours: 64.00 hours</i>
Credit points	<i>3.02 ECTS</i>
Required and recommended prerequisites for joining the module	<i>-</i>
Module objectives/intended learning outcomes	<i>ILO 4: Using logical thinking, creative thinking, critical thinking, and collaborative thinking</i> <i>PI 2: Able to formulate and describe problems in the livestock sector</i> <i>ILO 9: Integrate innovation and technology in the livestock sector to solve problems in the livestock sector and other relevant sectors.</i> <i>PI 1: Able to present ideas in front of an audience and provide feedback</i> <i>ILO 10: Have a lifelong learning attitude through further study in the development of the professional career being pursued.</i> <i>PI 2: Demonstrate an attitude as a lifelong learner</i> <i>Course Learning Outcomes:</i> <i>1. Able to understand basic mathematical concepts (Functions, Limits, Derivatives, Integrals, and Matrices) using logical thinking, creative thinking, critical thinking, and collaborative thinking.</i> <i>2. Able to understand mathematical problems, analyze them, and solve them.</i>

Content	<i>This course explores basic mathematical concepts, including functions, limits, derivatives, integrals, and matrices, for application in the field of animal husbandry.</i> <i>The learning methods used are the Case-Based Method, Collaborative Learning, and Self-Directed Learning.</i> <i>Case-Based Method: This method involves analyzing and understanding real-life cases related to animal husbandry. Students will study solutions that have been applied to previous cases, helping them connect mathematical theory with its application in the animal husbandry context.</i> <i>Collaborative Learning: This approach encourages students to work collaboratively in groups, share knowledge, and support each other in understanding the material. In this context, students can gain broader and deeper insights from their classmates' perspectives.</i> <i>Self-Directed Learning: This method encourages students to take the initiative in leading their own learning process. Students will play an active role in exploring and understanding the material, thereby developing independent learning and problem-solving skills.</i> <i>The combination of these three methods is expected to provide a comprehensive and applicable learning experience for students in applying mathematical concepts in the animal husbandry context.</i>
Examination forms	<i>Independent assignments, group assignments, mid-term exams, final exams.</i>
Study and examination requirements	1. Independent Assignments: 10% 2. Group Assignments: 10% 3. Mid-Term Exams: 40% 4. Final Exams: 40%
Reading list	1. Mursita, D. 2011. <i>Mathematics for Higher Education</i>. Engineering Science Publishers, Bandung. 2. Sukirman, D. Widagdo, and T. Mulyana. 2008. <i>Mathematics</i>. Open University Publishers, Jakarta. 3. Journalist. 1986. <i>Calculus Textbook: Differential and Integral</i>. Faculty of Animal Husbandry, Andalas University, Padang. 4. Bagio, T.H. 2010. <i>Basic Calculus Textbook</i>. Narotama University, Surabaya, East Java. 5. Purcell, E.J., and D. Varberg. 1992. <i>Calculus and Analytical Geometry</i>. Erlangga Publishers, Jakarta. 6. Suryadi, D.H.S., and S.H. Machmudi. 1990. <i>Introductory Theory and Problems of Linear Algebra</i>. Gajah Mada Publishers, Yogyakarta.

Module Descriptions

Module designation	<i>PTK61101 Chemistry</i>
Semester(s) in which the module is taught	<i>1</i>
Person responsible for the module	<i>1. Prof. Dr. Ir. Fauziah Agustin, MS.</i> <i>2. Dr. Montesqrit, SPt. MP.</i> <i>3. Deni Novia, STP.MP.</i> <i>4. Dr. Zurmiati, SPt.</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lecture, lesson (small group discussion), project base learning, collaborative learning and self direct learning</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136.01 hours</i> <i>Contact hours: 39.97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours: 96.04 hours</i>
Credit points	<i>4.53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 4: Using logical thinking, creative thinking, critical thinking, and collaborative thinking</i> <i>PI 2: Able to formulate and describe problems in the livestock sector</i> <i>ILO 9: Integrate innovation and technology in the livestock sector to solve problems in the livestock sector and other relevant sectors.</i> <i>PI 1: Able to present ideas in front of an audience and provide feedback</i> <i>ILO 10: Have a lifelong learning attitude through further study in the development of the professional career being pursued.</i> <i>PI 2: Demonstrate an attitude as a lifelong learner</i> <i>Course Learning Outcomes:</i> <i>3. Able to understand basic mathematical concepts (Functions, Limits, Derivatives, Integrals, and Matrices) using logical thinking, creative thinking, critical thinking, and collaborative thinking.</i> <i>4. Able to understand mathematical problems, analyze them, and solve them.</i>

Content	<i>This course explores basic mathematical concepts, including functions, limits, derivatives, integrals, and matrices, for application in the field of animal husbandry.</i> <i>The learning methods used are the Case-Based Method, Collaborative Learning, and Self-Directed Learning.</i> <i>Case-Based Method: This method involves analyzing and understanding real-life cases related to animal husbandry. Students will study solutions that have been applied to previous cases, helping them connect mathematical theory with its application in the animal husbandry context.</i> <i>Collaborative Learning: This approach encourages students to work collaboratively in groups, share knowledge, and support each other in understanding the material. In this context, students can gain broader and deeper insights from their classmates' perspectives.</i> <i>Self-Directed Learning: This method encourages students to take the initiative in leading their own learning process. Students will play an active role in exploring and understanding the material, thereby developing independent learning and problem-solving skills.</i> <i>The combination of these three methods is expected to provide a comprehensive and applicable learning experience for students in applying mathematical concepts in the animal husbandry context.</i>
Examination forms	<i>Independent assignments, group assignments, mid-term exams, final exams.</i>
Study and examination requirements	1. Independent Assignments: 10% 2. Group Assignments: 10% 3. Mid-Term Exams: 40% 4. Final Exams: 40%
Reading list	1. Mursita, D. 2011. <i>Mathematics for Higher Education</i>. Engineering Science Publishers, Bandung. 2. Sukirman, D. Widagdo, and T. Mulyana. 2008. <i>Mathematics</i>. Open University Publishers, Jakarta. 3. Journalist. 1986. <i>Calculus Textbook: Differential and Integral</i>. Faculty of Animal Husbandry, Andalas University, Padang. 4. Bagio, T.H. 2010. <i>Basic Calculus Textbook</i>. Narotama University, Surabaya, East Java. 5. Purcell, E.J., and D. Varberg. 1992. <i>Calculus and Analytical Geometry</i>. Erlangga Publishers, Jakarta. 6. Suryadi, D.H.S., and S.H. Machmudi. 1990. <i>Introductory Theory and Problems of Linear Algebra</i>. Gajah Mada Publishers, Yogyakarta.

Module Descriptions

Module designation	<i>PTK61103 Biology</i>
Semester(s) in which the module is taught	<i>1</i>
Person responsible for the module	<i>1. Dr. Lendrawati, S.Pt., M.Si</i> <i>2. Dr. drh. Yulia Yellita, M.P.</i> <i>3. Dr. Reswati, S.Pt., M.P.</i> <i>4. Ananda, S.Si., M.Si.</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lecture, lesson (small group discussion), project base learning.</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 90.65 hours</i> <i>Contact hours: 26.65 hours (lecture)</i> <i>Private study including examination preparation, specified in hours: 64.00 hours</i>
Credit points	<i>3.02 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1: Internalize the university's core values, code of ethics, and scientific ethics</i> <i>PI 4: Able to demonstrate a fully responsible attitude towards assigned tasks.</i> <i>ILO 4: Use logical thinking, creative thinking, critical thinking, and collaborative thinking.</i> <i>PI 2: Able to identify problems in the livestock sector.</i> <i>ILO 5: Communicate effectively orally and/or in writing in both Indonesian and a foreign language.</i> <i>PI 1: Able to demonstrate leadership qualities, responsive to problems in the livestock sector.</i> <i>ILO 6: Master and utilize the latest information technology in the field of animal husbandry or other fields of study.</i> <i>PI 2: Able to write reports according to scientific writing rules.</i> <i>ILO 7: Have a lifelong learning attitude through further study to develop their professional career</i> <i>PI 2: Demonstrate an attitude as a lifelong learner.</i> <i>Course Learning Outcomes:</i> <i>1. Analyze the scope of biology as a science and apply it to understanding several current biological issues.</i> <i>2. Students are able to explain and understand the differences in the structure of animal and plant cells, assessed through assignments and</i>

	<i>presentations.</i> <i>3. Students are able to explain the classification and morphology of plants, assessed through assignments and presentations.</i> <i>4. Students are able to identify and classify forage plants around campus, assessed through projects (20).</i> <i>5. Students are able to identify and differentiate the morphology and anatomy of Pisces, amphibians, reptiles, birds, and mammals, assessed through projects (2). 30</i>
Content	<i>This course examines the basics of anatomy, physiology, and morphology of plants and animals. For animals, the physiology and comparative anatomy of Pisces, amphibians, reptiles, birds, and mammals are further explored using project-based learning methods.</i>
Examination forms	<i>Project 1, project 2, quiz, mid-term exams, and final exams.</i>
Study and examination requirements	<i>1. Project 1 : 25%</i> <i>2. Project 2 : 35%</i> <i>3. Kuis : 10%</i> <i>4. Mid-Term Exams: 15%</i> <i>5. Final Exams: 15%</i>
Reading list	<i>1. Campbell NA, Reece JB, Mitchell LG. Biology. Volume 1. 8th Edition. Damaring Tyas Wulandari. Jakarta: Erlangga; 2008. Translated from: Biology.</i> <i>2. Campbell NA, Reece JB, Mitchell LG. Biology Volume 2. 5th Edition. Wasmen Manalu, translated; Jakarta: Erlangga; 2003. Translated from: Biology.</i> <i>3. Campbell NA, Reece JB, Mitchell LG. Biology Volume 3. 8th Edition. Translated; Damaring Tyas Wulandari, translated; Jakarta: Erlangga; 2008. Translated from: Biology.</i> <i>4. Situmorang, M.V. 2020. Basic Biology. Widina Publisher. 110 pages.</i> <i>5. Renato A. Dela Pena. 2016. Biology. JFS Publishing Services; 1st edition.</i> <i>6. Wijana, N. 2015. Basic Biology. Innosain Publisher.</i>

Module Descriptions

Module designation	<i>PTK611110 Genetics</i>
Semester(s) in which the module is taught	2
Person responsible for the module	1. Dr. Ir. Firda Arlina, MS. 2. Dr. Ir. Tinda Afriani, MP. 3. Dr. Rusfidra, SPt, MP. 4. Adisti Rastosari, S.Pt., M.Sc. 5. Linda Suhartati, S.Pt., M.Si.
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lecture, lesson (small group discussion), project base learning.</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136.01 hours</i> <i>Contact hours: 39.97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours: 96.04 hours</i>
Credit points	<i>4.53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1: Internalizing the university's core values, code of ethics, and scientific ethics.</i> <i>PI 1: Able to demonstrate a fully responsible attitude towards assigned tasks.</i> <i>ILO 2: Demonstrating innovative livestock science and technology</i> <i>PI 2: Mastering the basic concepts of livestock production technology.</i> <i>ILO 3: Applying technology to solve problems in the livestock sector and finding appropriate and effective solutions</i> <i>PI 1: Mastering technical and industrial management skills in the livestock production sector.</i> <i>ILO 4: Using logical thinking, creative thinking, critical thinking, and collaborative thinking</i> <i>PI: Able to formulate and describe problems in the livestock sector.</i> <i>ILO 8: Mastering and utilizing the latest information technology in the field of animal husbandry or other fields that are being pursued</i> <i>PI 2: Able to write reports according to scientific writing rules.</i> <i>Course Learning Outcomes:</i> <i>1. Students are able to demonstrate innovative livestock science and technology in the field of genetics.</i> <i>2. Students are able to apply technology to solve problems in the livestock sector and find appropriate and effective solutions in the field</i>

	<i>of livestock genetics.</i> <i>3. Students are able to use logical, creative, critical, and collaborative thinking in conducting analyses in the field of livestock genetics.</i> <i>4. Students are able to master and utilize the latest information technology in the field of animal husbandry, especially animal genetics.</i>
Content	<i>This course will cover the history of genetics, basic genetic material, protein synthesis, inheritance and relationships between genes, inheritance systems, multiple alleles, probability theory, gene presence and balance in populations, mutations and lethal genes, chromosome linkage and mapping, and the development and use of genetics. The methods used in the genetics learning process are case-based learning and project-based learning. Case-based learning (CBM) integrates real-life cases to enrich the theories and concepts discussed. Project-based learning (PjBL) utilizes projects/activities as a learning medium.</i>
Examination forms	<i>Independent assignments, major assignments, labs, mid-term exams, and final exams..</i>
Study and examination requirements	<i>1. Independent Assignments: 2.5%</i> <i>2. Major Assignments: 50%</i> <i>3. Labs: 15%</i> <i>4. Mid-Term Exams: 16.25%</i> <i>5. Final Exams: 16.25%</i>
Reading list	<i>1. Gunawan, A., Sumantri, C., and Juniarti, R. 2022. Genes and Genetic Diversity of Livestock. IPB Press, Bogor</i> <i>2. Arumingtyas, E.L. 2016. Mendelian Genetics. UB Press. Malang.</i> <i>3. Artadana, I.B.M., and Safitri, W.D. 2018. Fundamentals of Mendelian Genetics and Its Development. Graha Ilmu, Yogyakarta.</i> <i>4. Chaniago, R. 2016. Genetics. Innosain Publisher. Yogyakarta.</i> <i>5. Noor, R.R. 2000. Livestock Genetics. Penebar Swadaya.</i> <i>6. Stansfield, W.D. 1991. Genetics. 2nd Edition. Erlangga. Jakarta.</i> <i>7. Yatim, W. 1991. Genetics. Tarsito. 4th Edition. Bandung.</i> <i>8. Khatib, H. 2015. Molecular and Quantitative Genetics. Wiley Publisher, Madison, USA.</i> <i>9. Matthew L. Spangler. 2023. Animal Breeding Genetics. Springer, USA.</i> <i>10. Suryo. 2005. Genetics (Strata 1). Gadjah Mada University Press. 11th edition. Yogyakarta, Indonesia.</i>

Module Descriptions

Module designation	<i>PTK61131 Introduction to Economics</i>
Semester(s) in which the module is taught	<i>1</i>
Person responsible for the module	<i>1. Dr. Dwi Yuzaria, SE, M.Si.</i> <i>2. Dr. Fitriawati, S.Pt, M.Si.</i> <i>3. Dr. Rahmi Wati, S.Pt, M.Si</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lecture, lesson (small group discussion), Case Base Method, Colaborative Learning dan Self Direct Learning.</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 90.65 hours</i> <i>Contact hours: 26.65 hours (lecture)</i> <i>Private study including examination preparation, specified in hours: 64.00 hours</i>
Credit points	<i>3.02 ECTS</i>
Required and recommended prerequisites for joining the module	<i>-</i>
Module objectives/intended learning outcomes	<i>ILO 1: Internalizing the university's core values, code of ethics, and scientific ethics</i> <i>PI 4: Able to demonstrate a fully responsible attitude towards assigned tasks.</i> <i>ILO 3: Applying technology to solve problems in the livestock sector and finding appropriate and effective solutions</i> <i>PI 4: Mastering technical and management skills in the field of livestock development and business.</i> <i>ILO 4: Using logical thinking, creative thinking, critical thinking, and collaborative thinking</i> <i>PI 4: Mastering technical and management skills in the field of livestock development and business..</i> <i>ILO 7: Have character and leadership spirit as well as entrepreneurial spirit</i> <i>PI 2: Able to demonstrate a strong entrepreneurial spirit (creative, innovative and willing to take risks)</i> <i>ILO 9: Integrating innovation and technology in the livestock sector to solve problems in the livestock sector and other relevant fields.</i> <i>PI 4: Able to demonstrate a strong entrepreneurial spirit (creative, innovative and willing to take risks)</i>

	<i>Course Learning Outcomes:</i> <i>1. Students are able to explain the concept of economics and its scope.</i> <i>2. Students are able to explain the concepts of consumer behavior and producer behavior.</i> <i>3. Students are able to explain the concept of market structure</i> <i>4. Students are able to understand and analyze the concepts of national income and aggregate demand (AD) and aggregate supply.</i> <i>5. Students are able to understand and analyze the concepts of monetary policy and fiscal policy.</i> <i>6. Students are able to understand and analyze the concept of international trade and the theory of economic growth.</i>
Content	<i>This course covers the basic concepts of economics, encompassing microeconomics and macroeconomics. Microeconomics discusses consumer behavior, including utility theory, consumer preferences, demand and elasticity of demand. It also covers producer behavior, including supply and elasticity theory, equilibrium demand and supply, production and cost theory, and market structure. Macroeconomics discusses analyzing the concepts of national income and aggregate demand (AD) and aggregate supply (AS), monetary policy, including finance and banking, fiscal policy, including inflation and unemployment, international trade, including export and import activities and money flow, and economic growth theory.</i>
Examination forms	<i>Independent assignments, major assignments, labs, mid-term exams, and final exams..</i>
Study and examination requirements	<i>1. Task 1: 5%</i> <i>2. Task 2: 10%</i> <i>3. Task 3: 10%</i> <i>4. Independent Assignment: 5%</i> <i>5. Independent Assignment: 5%</i> <i>6. Task 4: 10%</i> <i>7. Assignment: 10%</i> <i>8. Task 5: 10%</i> <i>9. Assignment: 5%</i> <i>10. Task 6: 10%</i> <i>11. Assignment: 5%</i> <i>12. Assignment: 5%</i> <i>13. Assignment: 5%</i> <i>14. Assignment: 5%</i>
Reading list	<i>1. Sukirno, Sadono, 2010. Microeconomics: An Introductory Theory. Third Edition. PT Raja Grafindo Persada: Jakarta.</i> <i>2. Sadono, Sukirno, 2010. Macroeconomics: An Introductory Theory. Third Edition. PT Raja Grafindo Persada: Jakarta.</i> <i>3. Mankiw, N. Gregory, 2008. Introduction to Economics Volume 2. Jakarta: Erlangga</i> <i>4. Pindyck, Robert S., Daniel L. Rubinfeld, 2007. Microeconomics (translation). Sixth Edition. Publisher: PT Indeks, Jakarta</i> <i>5. Nicholson, Walter, 2001. Microeconomic Theory and Basic Principles</i>

	<i>of Its Development. Raja Grafindo Perasada. Jakarta.</i> <i>6. Salvatore, Dominick, 1996. Microeconomic Theory, Third Edition. Erlangga: Jakarta.</i> <i>7. Mankiw, N. Gregory, 2014, Introduction to Microeconomics. Salemba Empat, Jakarta</i> <i>8. Dornbusch, Rudiger, Stanley Fisher, and Richard Startz, 2009. Macroeconomics. Jakarta: Media Global Education.</i> <i>9. Samuelson, P.A., 2004. Macroeconomics. 17th Edition, PT. Global Education Media, Jakarta</i> <i>10. Boediono, 2001. Synopsis Series of Introduction to Economics No. 5: Macroeconomics, Fourth Edition. BPFE, Yogyakarta</i> <i>11. Mankiw, N. Gregory, 2006. Introduction to Macroeconomics. Third Edition, Salemba Empat, Jakarta.</i>
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Module Descriptions

Module designation	<i>PTK61132 Management Basics</i>
Semester(s) in which the module is taught	2
Person responsible for the module	1. Dr. Nurhayati, S.Pt, MM 2. Elfi Rahmi, S.Pt, MP 3. Prof. Dr. Ir. H. James Hellyward, MS, IPU, ASEAN.Eng
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lecture, lesson (small group discussion), Case Base Method, Colaborative Learning dan Self Direct Learning.</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 90.65 hours</i> <i>Contact hours: 26.65 hours (lecture)</i> <i>Private study including examination preparation, specified in hours: 64.00 hours</i>
Credit points	<i>3.02 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1: Internalize the university's core values, code of ethics, and scientific ethics</i> <i>PI 4: Able to demonstrate a fully responsible attitude towards assigned tasks</i> <i>ILO 2 Demonstrate innovative livestock science and technology</i> <i>PI 5: Mastering the basic concepts of livestock development and business.</i> <i>ILO 3 Apply technology to solve problems in the livestock sector and find appropriate and effective solutions</i> <i>PI 4: Mastering technical and management skills in the field of livestock development and business.</i> <i>ILO 4 Use logical thinking, creative thinking, critical thinking, and collaborative thinking</i> <i>PI 4: Able to assess the results of solutions implemented in the livestock sector</i> <i>ILO 5 Communicate effectively orally and/or in writing in both Indonesian and a foreign language</i> <i>PI 2: Mampu menunjukkan jiwa wirausaha yang tangguh (kreatif, inovatif dan berani mengambil resiko)</i> <i>ILO 6 Understand legal and social issues in the livestock sector or other fields pursued</i> <i>PI 1: Able to present ideas in front of an audience and provide feedback</i>

	<i>ILO 7 Possess character, leadership, and an entrepreneurial spirit</i> <i>PI 1: Able to demonstrate performance as a learner by completing the final assignment.</i> <i>ILO 8 Master and utilize the latest information technology in the livestock sector or other fields pursued</i> <i>PI 4: Mastering technical and management skills in the field of livestock development and business.</i> <i>ILO 9 Integrate innovation and technology in the livestock sector to solve problems in the livestock sector and other relevant fields</i> <i>PI 4: Mastering technical and management skills in the field of livestock development and business.</i> <i>ILO 10 Possess an attitude</i> <i>PI 2: Demonstrate an attitude as a lifelong learner</i> <i>Course Learning Outcomes:</i> <i>1. Demonstrate a responsible attitude in understanding basic management concepts, developments in management theory, organizations, and organizational behavior in order to understand the importance of management in achieving organizational goals effectively and efficiently</i> <i>2. Use logical, critical, systematic, strategic, creative, innovative, and collaborative thinking in planning functions and implement strategic planning and management principles in developing an organization</i> <i>3. Be able to implement knowledge of the principles of organizing human resources in an organization</i> <i>4. Master and apply sound managerial skills in the implementation of organizational operations, including human resource management, managerial communication, employee motivation, and leadership</i> <i>5. Be able to understand the principles of supervision and the importance of mastering and applying technology to management information systems in carrying out Supervisory function by integrating dynamic and sustainable innovation and technology</i> <i>6. Able to plan an organization with good management design in small businesses</i>
Content	<i>This course examines the fundamental concepts of management science by explaining each management function or activity (Planning, Organizing, Actuating/Influencing, Controlling) in managing an organization to achieve effectiveness and efficiency in achieving goals. With this knowledge of management fundamentals, students are expected to develop a sound understanding and managerial skills in managing an organization, supported by the ability to apply technology effectively in every management activity.</i>
Examination forms	<i>Individual assignments, case method assignment, project report, group assignment, mit-term exams, final exams, and group reports.</i>

Study and examination requirements	1. <i>Individual Assignments: 10%</i> 2. <i>Case Method Assignments: 30%</i> 3. <i>Project Report: 10%</i> 4. <i>Group Assignments: 10%</i> 5. <i>Mid-Term Exams: 15%</i> 6. <i>Final Exams: 15%</i> 7. <i>Group Reports: 10%</i>
Reading list	1. <i>Stephen P Robin and Mary Coulter. Introduction to Management. 2018. Prentice Hall</i> 2. <i>Mondy Sharplin Holmes Flipppo. Management; Concepts and Practices</i> 3. <i>Drs. H. Malayu S.P. Hasibuan. 1996. Basic Management, Definition, and Problems. PT. Toko Gunung Agung</i> 4. <i>Prof. Dr. A.M. Kadarman SJ and Drs. Jusuf Udaya. 1997. Introduction to Management Science. Student Guidebook. PT. Gramedia Pustaka Utama, Jakarta</i> 5. <i>M. Manulang. 2001. Fundamentals of Management. Gadjah Mada University Press</i> 6. <i>Yayat M. Herujito. 2001. Fundamentals of Management. Grasindo Publishers, Jakarta</i> 7. <i>Rupert Eales-White. 2004. The Effective Leader. Diva Press, Yogyakarta</i> 8. <i>Bernard W. Taylor III. 2005. Introduction to Management Science, Eighth Edition (Book One and Book Two). Salemba Empat Publishers, Jakarta</i> 9. <i>Chr. Jimmy L. Gaol. 2008. Management Information Systems: Understanding and Application. Grasindo Publisher. Jakarta</i> 10. <i>Drs. Tommy Suprpto, MS. 2009. Introduction to Communication Theory and Management. MedPress Publisher. Yogyakarta</i> 11. <i>Frans Mardi Hartanto. 2009. New Paradigm of Indonesian Management. PT. Mizan Publika</i> 12. <i>Prof. Dr. Wilson Bangun, SE, M.Sc. 2012. Human Resource Management. Erlangga Publisher. Jakarta</i> 13. <i>Badrudin. 2013. Fundamentals of Management. CV. Alfabeta. Jakarta</i> 14. <i>Soekarso and Iskandar Putong. 2015. Leadership. Theoretical and Practical Studies. Books & Articles by Iskandar Putong, 2015. Jakarta</i> 15. <i>Karyoto. 2016. Fundamentals of Management: Theory, Definition, and Concepts. Andi Publisher and Printing House, Yogyakarta</i> 16. <i>Eddy Harjanto. Management Science. Quantitative Techniques in Decision Making. Grasindo Publisher. Jakarta</i>

Module Descriptions

Module designation	<i>PTK61125 Agrostology</i>
Semester(s) in which the module is taught	3
Person responsible for the module	1. Dr. Ir. Suyitman, M.S. 2. Dr. Evitayani, S.Pt., M.Agr. 3. Dr. Rieti Sriagtula, S.Pt. M.P. 4. Dr. Mardhiyetti, S.Pt., M.Si 5. Dr. Imana Martaguri, S.Pt., M.Si 6. Dr. Simel Sowmen, S.Pt., M.P. 7. Qurrata Aini, S.Pt., M.Pt 8. Yolani Utami, S.Pt., M.Si.
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lecture, lesson (small group discussion), Case Base Learning.</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136.01 hours</i> <i>Contact hours: 39.97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours: 96.04 hours</i>
Credit points	<i>4.53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1: Internalize the university's core values, code of ethics, and scientific ethics.</i> <i>PI 4: Able to demonstrate a fully responsible attitude towards assigned tasks.</i> <i>ILO 2: Demonstrate innovative livestock science and technology.</i> <i>PI 3: Mastering the basic concepts of nutrition and feed technology.</i> <i>ILO 3: Apply technology to solve problems in the livestock sector and find appropriate and effective solutions.</i> <i>PI 3: Mastering technical and management skills in the field of nutrition and feed technology.</i> <i>ILO 4. Use logical, creative, critical, and collaborative thinking.</i> <i>PI 3: Able to apply solutions to problems in the livestock sector.</i> <i>Course Learning Outcomes:</i> <i>1. Demonstrate a responsible and honest attitude in working independently in the field of forage.</i> <i>2. Demonstrate innovative knowledge and technology in the field of</i>

	<i>agrostology for forage commodities (grass, legumes, and other forages with potential as feed crops).</i> <i>3. Apply technology in the field of forage science to solve problems in the field of forage and find appropriate and effective solutions.</i> <i>4. Use logical, creative, critical, and collaborative thinking in solving cases and projects in the field of forage.</i>
Content	<i>Explains issues related to and control of green fodder availability, identifies forage crops, cultivates forage crops (land selection and division, soil preparation, seed preparation, planting, maintenance, cutting, and grazing), calculates forage production, and cultivates grain-producing forage crops (grasses and forage legumes, cereals, etc.).</i>
Examination forms	<i>Activity report, practical work, mid-term exam, and final exam.</i>
Study and examination requirements	<i>1. Activity report: 10%</i> <i>2. Practical work: 20%</i> <i>3. Midterm exam: 35%</i> <i>4. Final exam: 35%</i>
Reading list	<i>1. Crowder, L. V. and H. R. Cheda. 1982. Tropical Grassland Husbandry. Longman Group Limited. Longman House. London and New York.</i> <i>2. Heath, M. E., D. S. Metcalfe and R. F. Barnes. 1989. Forages. The Science of Grasslands and Agriculture. The Iowa State University Press. Ames. Iowa. USA.</i> <i>3. Miller, D. A. 1988. Forage Crops. McGraw-Hill Book Company. New York.</i> <i>4. Pearson, C. J and R. L. Ison. 1997. Agronomy of Grassland Systems. Cambridge University Press.</i> <i>5. Karti, P.D.M.H., S. Jayadi, and M.A. Setiana. 1999. Forage Cultivation and Feed Technology. Open University. Jakarta.</i> <i>6. McIlroy, R.J. 1977. Introduction to Tropical Grassland Cultivation. Translated by S. Susetyo, Soedarmadi, I. Kismono, and S. Harini. Pradnya Paramita Publishers. Jakarta.</i> <i>7. Reksohadiprodjo, S. 1985. Production of Tropical Forage Crops. BPFE-UGM. Yogyakarta.</i> <i>8. Suyitman, S. Jalaluddin, A. Muhammad, N. Muis, Ifradi, N. Jamaran, M. Peto, and Tanamasni. 2003. Agrostologies. Semi-QUE Program Project 2003. Animal Nutrition and Feed Study Program. Faculty of Animal Husbandry. Andalas University. Padang.</i>

Module Descriptions

Module designation	<i>PTK61106 Microbiology</i>
Semester(s) in which the module is taught	3
Person responsible for the module	<i>Prof. Dr. Ir. Yetti Marlida, MS</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lecture, lesson (small group discussion), Case Base Learning.</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136.01 hours</i> <i>Contact hours: 39.97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours: 96.04 hours</i>
Credit points	<i>4.53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1: Menginternalisasi nilai dasar universitas, kode etik, dan etika ilmiah berdasarkan nilai – nilai Pancasila.</i> <i>PI 2: Able to apply discipline in attendance and completion of assigned tasks.</i> <i>ILO 3: Able to apply animal husbandry science in accordance with developments in the livestock industry and innovative and current scientific activities.</i> <i>PI 2: Mastering technical and management skills in the field of nutrition and feed technology.</i> <i>ILO 4: Able to identify, formulate, provide solutions, and evaluate solutions to problems in the livestock sector.</i> <i>PI: Able to identify problems in the livestock sector.</i> <i>ILO 7: Have an attitude as a lifelong learner and further study in developing a professional career.</i> <i>PI 2: Demonstrate an attitude as a lifelong learner</i> <i>Course Learning Outcomes:</i> <i>1. Internalize the university's core values, code of ethics, and scientific ethics based on Pancasila values.</i> <i>2. Able to apply animal husbandry knowledge in accordance with developments in the livestock industry and innovative and current scientific activities.</i> <i>3. Able to identify, formulate, provide solutions, and evaluate solutions to problems in the livestock sector.</i> <i>4. Possess a lifelong learner attitude and pursue further study to develop a professional career.</i>

Content	<i>This course explains the historical scope of microbiology and microbial cells, the isolation, selection, and identification of microorganisms, the growth and reproduction of microorganisms, and the products of microorganisms.</i>
Examination forms	<i>Lab, progress report, mid-term exam, final report, and ultimate exam</i>
Study and examination requirements	1. Lab: 20% 2. Progress Report: 20% 3. Mid-Term Exam: 10% 4. Final Report: 40% 5. Ultimate Exam: 10%
Reading list	1. Lansing, et al. 1993. <i>Microbiology</i>. Oxford London. 2. Collins, C.H., P.M. Lyne and J.M. Grange. 1989. <i>Microbiological Methods</i>. 6 th Edition Butterworth & Co. Ltd. London. 3. Holt, J.G., Krieg, N.R., Sneath, P.H.A., Staley, J.T. and Williams, S.T. 1994. <i>Bergey's Manual of Determinative Bacteriology</i>. 9thed. The Williams and Wilkins Company. Waverly Press Inc. Mt. Royal and Guildford Aves. Baltimore, MO. USA. 4. Garbutt, J. 1997. <i>Essentials of Food Microbiology</i>. Formerly senior Lecturer in Microbiology Humberside University. UK. 5. Jenie, B.S.L., and D. Muchtadi. <i>Microbiology of Agricultural Products</i>. 6. Jawetz, E., J.L. Melnick, and E.A. Adelberg. 1994. <i>Medical Microbiology</i>. 20th ed. EGC Medical Book Publisher, Jakarta. 7. Plezar, M.J., E.C.S. Chan. <i>Fundamentals of Microbiology</i>.

Module Descriptions

Module designation	<i>PTK62105 Biochemistry</i>
Semester(s) in which the module is taught	2
Person responsible for the module	1. <i>Dr.Ir. Adrizal, Ms (Coordinator)</i> 2. <i>Prof.Dr.Ir. Maria Endo Mahata, MS</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lecture, lesson (small group discussion), independent assignment.</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 90.65 hours</i> <i>Contact hours: 26.65 hours (lecture)</i> <i>Private study including examination preparation, specified in hours: 64.00 hours</i>
Credit points	<i>3.02 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1: Menginternalisasi nilai dasar universitas, kode etik, dan etika ilmiah berdasarkan nilai – nilai Pancasila.</i> <i>PI 2: Able to apply discipline in attendance and completion of assigned tasks.</i> <i>ILO 3: Able to apply animal husbandry science in accordance with developments in the livestock industry and innovative and current scientific activities.</i> <i>PI 2: Mastering technical and management skills in the field of nutrition and feed technology.</i> <i>ILO 4: Able to identify, formulate, provide solutions, and evaluate solutions to problems in the livestock sector.</i> <i>PI: Able to identify problems in the livestock sector.</i> <i>ILO 7: Have an attitude as a lifelong learner and further study in developing a professional career.</i> <i>PI 2: Demonstrate an attitude as a lifelong learner</i> <i>Course Learning Outcomes:</i> <i>1. Students are able to explain the concepts of biochemistry, cells, and membranes.</i> <i>2. Students are able to explain amino acids, peptides, and proteins.</i> <i>3. Students are able to explain about enzymes.</i> <i>4. Students are able to explain the classification and function of carbohydrates, classification and function of lipids.</i> <i>5. Students are able to explain about nucleotides, nucleic acids, DNA,</i>

	and RNA 6. Students are able to explain about bioenergetics 7. Students are able to explain about carbohydrates metabolism 8. Students are able to explain about lipid metabolism 9. Students are able to explain about amino acids and protein metabolism 10. Students are able to explain about photosynthesis 11. Students are able to explain about hormone
Content	The biochemistry course covers: introduction, cells and membranes; amino acids, peptides, and proteins; enzymes; classification and function of carbohydrates; classification and function of lipids; nucleotides, nucleic acids, DNA, and RNA; bioenergetics; carbohydrate metabolism; lipid metabolism; amino acid and protein metabolism; photosynthesis; and hormones.
Examination forms	Individual or group assignment, practical work, mid-term and final exam, intrapersonal skill dimension, interpersonal soft skill attributes, and attitude and value dimension.
Study and examination requirements	1. Individual or Group Assignments: 20% 2. Practical Work: 20% 3. Mid-Term/Final Exam: 30% 4. Intrapersonal Skill Dimension: 10% 5. Interpersonal Soft Skill Attributes: 10% 6. Attitude and Value Dimension: 10%
Reading list	1. Lehninger, A.L. 1994. <i>Fundamentals of Biochemistry</i>. Erlangga Publishers, Jakarta 2. Murray, R.K., D.K. Granner, P.A. Mayes, V.W. Rodwell. 1995. <i>Harper Biochemistry</i>, 22nd Edition, Translated by Dr. Andy Hartono. EGC Medical Book Publishers, Jakarta. 3. Stryer, L. 1996. <i>Biochemistry</i>, 4th Edition. EGC Medical Book Publishers, Jakarta. 4. Bender, D.A., 1985. <i>Amino Acid Metabolism</i>. John Wiley & Sons. Chichester, New York, Brisbane, Toronto, Singapore.17 5. Wirahadikusumah, M., 1985. <i>Biochemistry: Energy, Carbohydrate, and Lipid Metabolism</i>. ITB Publisher, Bandung. 6. Sadikin, H.M., 2002. <i>Biochemistry of Enzymes</i>. Widya Medika Publisher, Jakarta. 7. Mirzah, Nuraini, F. Agustin, Y. Marlida, M. Zain, 2004. <i>Basic Biochemistry Volume I. Course Textbook</i>. Department of Animal Nutrition and Feed. Diploma Program. UNAND Development Project. 8. Ngili, Y., 2009. <i>Biochemistry: Metabolism and Bioenergetics</i>. Graha Ilmu Publisher, Yogyakarta. 9. Rizal, Y., and G. Wu. 2012. <i>Protein and Amino Acid Metabolism</i>. Andalas University Press, Padang.

Module Descriptions

Module designation	<i>PTK62124 Feed Material Knowledge</i>
Semester(s) in which the module is taught	2
Person responsible for the module	1. Dr. Ir. Yuliaty Shafan Nur, MS. 2. Prof. Dr. Ir. Nuraini, MS. 3. Prof. Dr. Ir. Harnentis, M.S. 4. Dr. Ir. Montesqrit, MSi. 5. Prof. Dr. Ir. Yetti Marlida, MS. 6. Prof. Dr. Ir. Khalil, MSc 7. Dr. Ir. Adrizal, MS 8. Yesi Chwenta Sari, S.Pt., M.Sc.
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lecture, lesson (small group discussion), independent assignment.</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136.01 hours</i> <i>Contact hours: 39.97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours: 96.04 hours</i>
Credit points	<i>4.53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1: Internalizing the university's core values, code of ethics, and scientific ethics based on Pancasila values.</i> <i>PI 2: Able to apply discipline in attendance and completion of assigned tasks.</i> <i>ILO 3: Able to apply animal husbandry science in accordance with developments in the livestock industry and innovative and current scientific activities.</i> <i>PI 2: Mastering technical and management skills in the field of nutrition and feed technology.</i> <i>ILO 4: Able to identify, formulate, provide solutions, and evaluate solutions to problems in the livestock sector.</i> <i>PI: Able to identify problems in the livestock sector.</i> <i>ILO 6: Able to communicate verbally and in writing using the latest information media about the field of animal husbandry and integrating it with other sciences.</i> <i>PI 1: Able to present ideas in front of an audience and provide feedback</i> <i>ILO 7: Have an attitude as a lifelong learner and further study in developing a professional career.</i>

	<i>PI 2: Demonstrate an attitude as a lifelong learner</i> <i>Course Learning Outcomes:</i> <i>1. Students are able to explain the concepts of biochemistry, cells, and membranes.</i> <i>2. Students are able to explain amino acids, peptides, and proteins.</i> <i>3. Students are able to explain about enzymes.</i> <i>4. Students are able to explain the classification and function of carbohydrates, classification and function of lipids.</i> <i>5. Students are able to explain about nucleotides, nucleic acids, DNA, and RNA</i> <i>6. Students are able to explain about bioenergetics</i> <i>7. Students are able to explain about carbohydrates metabolism</i> <i>8. Students are able to explain about lipid metabolism</i> <i>9. Students are able to explain about amino acids and protein metabolism</i> <i>10. Students are able to explain about photosynthesis</i> <i>11. Students are able to explain about hormone</i>
Content	<i>Project-Based Learning (PjBL) is a learning method that uses projects/activities as a medium. Students explore, evaluate, interpret, synthesize, and learn from information to produce various learning outcomes. Feed Material Knowledge (PBP) is the study of various types of feed materials, both commonly used and non-conventional feeds, from the perspective of morphology, nutrition, and material characteristics (physical, chemical, and biological) related to the potential availability, quality, and safety of feed and livestock products.</i>
Examination forms	<i>Individual or group assignment, practical work, mid-term and final exam, intrapersonal skill dimension, interpersonal soft skill attributes, and attitude and value dimension.</i>
Study and examination requirements	<i>1. Individual or Group Assignments: 20%</i> <i>2. Practical Work: 20%</i> <i>3. Mid-Term/Final Exam: 30%</i> <i>4. Intrapersonal Skill Dimension: 10%</i> <i>5. Interpersonal Soft Skill Attributes: 10%</i> <i>6. Attitude and Value Dimension: 10%</i>
Reading list	<i>1. Utomo, Ristianto, Ali Agus, Cuk Tri Noviandi, Andriyani Astuti, Abdul Razak Alimon. 2020. Feed Ingredients and Ration Formulation. First Edition. Yogyakarta: Gadjah Mada University Press.</i> <i>2. Lengerken, J.V. and K. Zimmermann. 1991. Feedstock Management. Berlin: DLG Verlag.</i> <i>3. American Feed Industry Association Inc. 1985. Feed Manufacturing Technology. Virginia: Arlington.</i> <i>4. Anggorodi, R. 1979. General Basic Animal Feed Science. Jakarta: Gramedia.</i> <i>5. Cullison, A.E. 1982. Feeds and Feeding. Virginia: Reston Pub. Inc.</i> <i>6. Hartadi, S., S. Reksodihadiprodjo, A.D. Tilman. 1997. Feed Composition Table for Indonesia, Yogyakarta: UGM Press.</i>

	7. <i>Latest research results published in National and International Journals/Proceedings.</i> 8. <i>R.A. Nurfitriani, N. Muhamad. 2021. Knowledge of Animal Feed Ingredients. E-PUBLICING BY BRIN</i>
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Module Descriptions

Module designation	<i>PTK61128 Quality and Safety of Animal Products</i>
Semester(s) in which the module is taught	3
Person responsible for the module	1. Dr. Indri Juliyarsi, S.P., M.P 2. Dr. Sri Melia, S.TP., M.P 3. Deni Novia, S.P., M.P 4. Afriani Sandra, S.Pt., M.Sc 5. Aronal Arief Putra, S.Pt., M.Sc, Ph.D 6. Dr. Ely Vebriyanti, S.Pt., M.P 7. Ade Rakhmadi, S.Pt., M.P 8. Ade Sukma, S.Pt., M.P., Ph.D 9. Rizki Dwi Setiawan, S.Pt., M.Sc.
Language	<i>Indonesia</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lecture, lesson (small group discussion).</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136.01 hours</i> <i>Contact hours: 39.97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours: 96.04 hours</i>
Credit points	<i>4.53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 2 : Mastering the fundamental general knowledge and basic theories in the field of animal science.</i> <i>PI-4: Mastering the basic concepts in the field of animal product technology</i> <i>ILO 4 : Able to identify, formulate, provide solutions, and evaluate the solutions given to problems in the field of animal science.</i> <i>PI-1: Able to identify problems in the field of animal science.</i> <i>PI-3: Able to apply solutions to problems in the field of animal science.</i> <i>PI-4: Able to evaluate the results of solutions implemented in the field of animal science.</i> <i>Course Learning Outcomes:</i> <i>1. Students are able to explain quality principles and analyze the quality of animal-derived food products.</i> <i>2. Students are able to study and independently develop (self-learn) various methods of quality and food safety systems for animal-derived</i>

	<i>food products</i> 3. Students are able to explain quality control methods and evaluate whether a business meets the criteria for quality control by visiting SMEs through Project-Based Learning. 4. Students have the ability to work in teams, engage in discussions, and demonstrate high creativity/hard skills. 5. Students are able to explain various types of certification that must be fulfilled by small, medium, and large industries.
Content	<i>This course studies how to conduct quality control and quality supervision of processed livestock products, starting from raw materials to finished products. In this course, the criteria of ASUH products are also explained, as well as quality classification. Furthermore, various quality control methods are introduced, including Standard Sanitation Operational Procedures (SSOP), Good Manufacturing Practices (GMP), and Hazard Analysis Critical Control Points (HACCP), as well as the halal concept and certification of livestock product quality.</i>
Examination forms	<i>Tasks, quiz, mid-term exam, and final exam.</i>
Study and examination requirements	1. Tasks : 20% 2. Quiz : 24% 3. Mid Test Semester : 26% 4. Final Test Semester : 30%
Reading list	1. Nielsen, S.S. 2010. <i>Food Analysis</i>. 4th Edition of Food Science Text Series. Springer 2. Yadav, V. 2005. <i>Food Analysis and Quality Control</i>. Government Polytechnic. India 3. Winarno, F.G. 2002. <i>HACCP and Its Application in the Food Industry</i>. M-Brio Press. Bogor 4. Mamat, M.Z., Musa, N.Z., and Hasbullah, M. 2017. <i>Institutionalization of the Halal Industry in Malaysia and Thailand: A Preliminary Study</i>. Sejong University. South Korea 5. Food and Drugs Administration. 2022. <i>Bacteriological Analytical Manual (BAM)</i>. United States 6. Trienekens, J., and Zuurbier, P. 2008. <i>Quality and Safety Standards in the Food Industry: Developments and Challenges</i>. <i>International Journal of Production Economics</i>. 113: 107–122 7. Savov, A.V., and Kouzmanov, G.B. 2009. <i>Food Quality and Safety Standards at a Glance</i>. <i>Biotechnology and Biotechnological Equipment</i>. United Kingdom 8. Ramos, L. 2020. <i>Chemical Analysis of Food: Basics and Advances in Sampling and Sample Preparation</i> 9. Hermawati, D. 2000. <i>Quality Testing of Livestock Products</i>. <i>Inofet Magazine</i>. Vol. 7, December 2000 10. Law of the Republic of Indonesia Number 18 of 2012 concerning Food, enacted in Jakarta on November 16, 2012 11. Sugiono. 2004. <i>Food Chemistry</i>. Faculty of Engineering, Yogyakarta State University

Module Descriptions

Module designation	<i>PTK61112 English Course</i>
Semester(s) in which the module is taught	5
Person responsible for the module	<i>Ayendi, S.S., M.Pd., M.Hum.</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lecture, case base method, collaborative learning, and self-learning.</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 90.65 hours</i> <i>Contact hours: 26.65 hours (lecture)</i> <i>Private study including examination preparation, specified in hours: 64.00 hours</i>
Credit points	<i>3.02 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO-1: Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI-1: Able to apply honesty in every academic activity.</i> <i>PI-2: Able to demonstrate discipline in attendance and in completing assigned tasks.</i> <i>PI-3: Able to demonstrate politeness in every academic activity.</i> <i>PI-4: Able to show full responsibility for assigned tasks.</i> <i>ILO 2 : Mastering the fundamental general knowledge and basic theories in the field of animal science.</i> <i>PI-2: Mastering the basic concepts of general knowledge.</i> <i>ILO 5 :Have leadership and entrepreneurship skills in the field of animal science.</i> <i>PI-1 : Able to demonstrate leadership qualities and responsiveness to problems in the field of animal science.</i> <i>PI-2 : Able to demonstrate a strong entrepreneurial spirit (creative, innovative, and willing to take risks).</i> <i>ILO 6 : Mampu berkomunikasi secara lisan dan tulisan menggunakan media informasi terkini tentang bidang peternakan dan mengintegrasikan dengan ilmu pengetahuan lain.</i> <i>PI-1 : Able to present ideas in front of an audience and provide feedback.</i> <i>PI-2 : Able to write reports in accordance with scientific writing standards.</i> <i>Course Learning Outcomes:</i> <i>1. Students are able to apply English grammar by using appropriate</i>

	tenses, aspects, modals, moods, and voice. 2. Students are able to identify language units such as morphemes, words, phrases, clauses, and sentences. 3. Students are able to identify categories of language unit elements in words, phrases, and clauses, including nouns, verbs, adjectives, and adverbs. 4. Students are able to identify the functions of sentence elements such as subject, predicate, object, complement, and adjunct. 5. Students are able to construct sentences in simple, compound, complex, and compound-complex forms. 6. Students are able to use formal and functional language forms in academic contexts. 7. Students are able to deliver academic presentations orally using a formal style of language. 8. Students are able to read and critically review international journal articles. 9. Students are able to write essays or academic articles using a formal and functional style of language.
Content	The materials in this lecture are about the study of English Communication practice for Academic Purposes. The study starts with the shape of language that is grammar focusing on the key grammar of academic English which is required at university. This study concentrates on formal and functional language that are generally used in written and spoken academic language contexts such as in seminar discussions and giving presentation.
Examination forms	Tasks, quiz, mid-term exam, and final exam.
Study and examination requirements	1. Tasks : 10% 2. Quiz : 10% 3. Mid Test Semester : 40% 4. Final Test Semester : 40%
Reading list	1. Paterson, Ken. Oxford Grammar for EAP: English Grammar and Practice for Academic Purposes 2. Walker, Elaine and Steve Elsworth. (2011). Grammar Practice for Upper Intermediate Students. 3. Weissberg, Robert and Suzanne Buker. (1990). Writing up Research: Experimental Research Report Writing for Students of English. 4. Formal Grammar Books 5. Functional Grammar/Syntax Books

Module Descriptions

Module designation	AND60102 Entrepreneurship
Semester(s) in which the module is taught	5
Person responsible for the module	Hafiz Rahman, SE, MSBS, Ph.D
Language	Indonesia
Relation to curriculum	Compulsory
Teaching methods	Lecture, lesson (small group discussions), student-centered learning, personal reflection, and personal discussion
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 136.01 hours Contact hours: 39.97 hours (lecture) Private study including examination preparation, specified in hours: 96.04 hours
Credit points	4.53 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1 : Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI-1: Able to apply honesty in every academic activity.</i> <i>ILO 3 : Able to apply animal science in accordance with the development of the livestock industry and innovative and up-to-date scientific activities.</i> <i>PI-4: Master technical and management skills in the field of livestock development and business.</i> <i>ILO 5 : Have leadership and entrepreneurship abilities in the field of animal science.</i> <i>PI-2 : Able to demonstrate a strong entrepreneurial spirit (creative, innovative, and willing to take risks).</i> <i>Course Learning Outcomes:</i> <i>1. Students are aware of the importance and role of entrepreneurship and the existence of the business world in creating added value and increasing regional economic competitiveness;</i> <i>2. Students are able to understand, explain, and analyze factors and concepts related to entrepreneurship;</i> <i>3. Students are able to understand, examine, and explain the entrepreneurial process, starting from the process of searching for business ideas to the establishment of a start-up business, which is formulated in a written concept in the form of a Business Plan;</i> <i>4. Students are able to formulate, present, and implement the results of studies, planning, and management related to a business/enterprise.</i>

Content	<i>This course is oriented toward strengthening and empowering students' personal capacities, as well as their positive individual characteristics as fundamental capital to be applied in the process of establishing a new business/start-up. Therefore, students will also be equipped with understanding and knowledge from the field of entrepreneurship. Thus, the focus of learning will not only be directed at entrepreneurship as a process that includes aspects of individual personality, spirit, and character that can be applied in various organizations but further on how students use them in the process of establishing a new venture, starting from the process of searching for business ideas to the stage of business management.</i>
Examination forms	<i>Tasks, quiz, mid test semester, and final test semester.</i>
Study and examination requirements	1. Tasks : 20% 2. Quiz : 24% 3. Mid Test Semester : 26% 4. Final Test Semester : 30%
Reading list	1. Kuratko, D.F. (2017). <i>Entrepreneurship: Theory, Process, Practice</i>, 10th Ed. Cengage Learning, Boston, MA: USA. 2. Rahman, H. (2020). <i>Entrepreneurship and Entrepreneurs: A Multi-Perspective Review</i>. RAH Multimedia. 3. Carter, S., Jones-Evans, D. (2000). <i>Enterprises and Small Business: Principles, Practice and Policy</i>, Prentice-Hall: London. 4. Donard Games. (2017). <i>The New Generation of Indonesian Entrepreneurship</i>. Rumah Kayu Publishing. 5. Rahman, H., Besra, E., & Nurhayati, N. (2021). <i>Entrepreneurial Failure: Causes</i>. 6. <i>Construction, and Its Impact in the Entrepreneurship Process</i>. Rumah Kayu Publisher. Padang, Indonesia.

Module Descriptions

Module designation	<i>PTK62127 Animal Product Processing Technology</i>
Semester(s) in which the module is taught	2
Person responsible for the module	1. Dr. Sri Melia, S.TP., M.P 2. Dr. Indri Juliyarsi, S.P., M.P 3. Ade Sukma, S.Pt., M.P., Ph.D 4. Aronal Arief Putra, S.Pt., M.Sc., Ph.D 5. Dr. Ely Vebriyanti, S.Pt., M.P 6. Deni Novia, S.TP., M.P 7. Afriani Sandra, S.Pt., M.Sc 8. Ade Rahmadi, S.Pt., M.P 9. Ferawati, S.Pt., M.P 10. El Latifa Sri Suharto, S.Pt., M.Si 11. Yudi Rahmadian, S.Pt., M.Sc 12. Rizki Dwi Setiawan, S.TP., M.Si 13. Dr. Sri Melia, S.TP., M.P.
Language	<i>Indonesia</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lecture, lesson (small group discussions).</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136.01 hours</i> <i>Contact hours: 39.97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours: 96.04 hours</i>
Credit points	<i>4.53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1 : Internalizing the fundamental values of the university, the code of ethics, and scientific ethics.</i> <i>PI-1: Able to apply honesty in every academic activity.</i> <i>PI-2: Able to apply discipline in attendance and in completing assigned tasks.</i> <i>PI-3: Able to apply politeness in every academic activity.</i> <i>PI-4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO 2 : Demonstrate innovative livestock science and technology.</i> <i>PI-4: Master the basic concepts in the field of animal product technology.</i> <i>ILO 3 : Apply technology to solve problems in the field of animal science</i>

	<i>and find appropriate and effective solutions.</i> <i>PI-3: Master technical and industrial management skills in the field of animal product technology.</i> <i>ILO 4 :Use logical thinking, creative thinking, critical thinking, and collaborative thinking.</i> <i>PI-1: Able to identify problems in the field of animal science;</i> <i>PI-2:Able to formulate and elaborate problems in the field of animal science;</i> <i>PI-3:Able to apply solutions to problems in the field of animal science;</i> <i>PI-4:Able to evaluate the results of solutions implemented in the field of animal science.</i> <i>Course Learning Outcomes:</i> <i>1. Students are able to demonstrate knowledge, preservation technology, and innovative processing technology for animal product commodities (milk, meat, eggs, and livestock by-products).</i> <i>2. Students are able to apply preservation and processing technologies to solve problems in the field of animal product processing and find appropriate and effective solutions.</i> <i>3. Students are able to use logical, creative, critical, and collaborative thinking in conducting analysis and determining alternative ideas for problem-solving in the field of animal product processing based on the university's core values and scientific ethics.</i> <i>4. Students are able to integrate innovation and technology in solving problems at both micro and industrial scales in animal product processing.</i>
Content	<i>This course provides students with an understanding of the composition, physical, chemical, and microbiological properties, preservation principles, and processing technology of animal-derived products (milk, meat, eggs, and livestock by-products) and their processed derivatives by conducting problem analysis and observations in animal product processing industries.</i>
Examination forms	<i>Tasks, final project report, mid test semester, final test semester, and practicum.</i>
Study and examination requirements	<i>1. Tasks : 25%</i> <i>2. Final Project Report : 40%</i> <i>3. Mid Test Semester : 10%</i> <i>4. Final Test Semester : 15%</i> <i>5. Practicum : 10 %</i>
Reading list	<i>1. Aritonang, S.N. 2009. Milk and Its Technology. Swagati Press Publisher;</i> <i>2. Fellows, P. 2000. Food Processing Technology. CRC Press, New York;</i> <i>3. Haryoto. 2002. Preservation of Fresh Eggs. Kanisius, Yogyakarta;</i> <i>4. Ibrahim, L., I. Juliyarsi, and S. Melia. 2005. Science and Technology of Leather Processing. Faculty of Animal Science, Universitas Andalas, Padang;</i> <i>5. Oliver, A. 2006. Techniques to Evaluate Meat Composition and Quality. Handbook. IRTA. California;</i>

	6. Soeparno. 1998. <i>Meat Science and Technology</i>. 3rd Edition. Universitas Gadjah Mada Press, Yogyakarta. 7. Sugitha, I.M., L. Ibrahim, S.N. Aritonang, N. Syair, and S. Melia. <i>Basic Technology of Animal Products. Teaching Book of the Animal Product Technology Study Program, Faculty of Animal Science, Universitas Andalas, Padang;</i> 8. Sugitha, I.M., and M. Jalil. 1989. <i>Milk: Handling and Technology. Animal Product Technology Study Program, Faculty of Animal Science, Universitas Andalas;</i> 9. Sudaryani, T. 2003. <i>Egg Quality</i>. Penebar Swadaya, Jakarta; 10. Suprpti, M.L. 2002. <i>Egg Preservation</i>. Kanisius, Yogyakarta; 11. Toldrá, F. 2010. <i>Handbook of Meat Processing</i>. Wiley-Blackwell Publishing, USA. 12. Buckle, K.A., R.A. Edwards, G.H. Fleet, and M. Wootton. 2007. <i>Food Science</i>. Translated by Hari Purnomo and Adiono. Universitas Indonesia Press (UI-Press), Jakarta; 13. Fennema, O.R. 1996. <i>Food Chemistry</i>. University of Wisconsin–Madison. Marcel Dekker, Inc., New York;
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Module Descriptions

Module designation	<i>PTK61130 Livestock Extension Science</i>
Semester(s) in which the module is taught	3
Person responsible for the module	1. Dr. Ir. Fuad Madarisa, M.Sc 2. Dr. Ir. Basril Basyar, M.M 3. Ir. Amrizal Anas, M.P 4. Ediset, S.Pt., M.Si 5. Reza Andesca Putra, S.Pt., M.Si 6. Aditya Alqamal Alyanta, S.Pt., M.Sc
Language	<i>Indonesia</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lecture, lesson (small group discussions).</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136.01 hours</i> <i>Contact hours: 39.97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours: 96.04 hours</i>
Credit points	<i>4.53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1 : Menginternalisasi nilai dasar universitas, kode etik, dan etika ilmiah</i> <i>PI-3: Able to apply politeness in every academic activity.</i> <i>ILO 2 : Demonstrate innovative livestock science and technology</i> <i>PI-5 : Master the basic concepts in the field of livestock development and business.</i> <i>ILO-3 : Apply technology to solve problems in the field of animal science and find appropriate and effective solutions.</i> <i>PI-4 : Master technical and management skills in the field of livestock development and business.</i> <i>ILO-4 : Use logical thinking, creative thinking, critical thinking, and collaborative thinking;</i> <i>PI-2 : Able to formulate and elaborate problems in the field of animal science.</i> <i>PI-4 : Able to evaluate the results of solutions implemented in the field of animal science.</i> <i>ILO-5 : communicate effectively both orally and in writing.</i> <i>PI-1 : Able to demonstrate leadership qualities and be responsive to problems in the field of animal science.</i>

	<i>Course Learning Outcomes:</i> <i>1. Students have the ability to communicate formally and informally, and have the ability to interact with various parties and their heterogeneity</i> <i>2. Students have the ability to act as facilitators in applying various livestock innovations and are able to study indigenous technology that can also be transferred to solve problems in other places</i> <i>3. Students have the ability to analyze the needs of extension targets logically, creatively, critically, and collaboratively in accordance with applicable scientific principles based on the university's core values</i> <i>4. Students have the systematic ability to create a program that can be aligned with the direction of extension policies</i>
Content	<i>Identify and analyze problems in livestock extension. It consists of processes of participation, empowerment, decentralization, and support from financial institutions. Furthermore, it analyzes government policies and appropriate and relevant solutions. The form includes preparing activity plans and extension programs themselves. The details include the definition, history, objectives, and scope of extension technology; communication; innovation; innovation adoption; innovation diffusion; methods and learning processes in extension; as well as the principles, philosophy, and determining factors for the success of the extension process.</i>
Examination forms	<i>Tasks, final project report, practicum, mid test semester, final test semester.</i>
Study and examination requirements	<i>1. Tasks : 25%</i> <i>2. Final Project Report : 40%</i> <i>3. Practicum : 15 %</i> <i>4. Mid Test Semester : 10%</i> <i>5. Final Test Semester : 10%</i>
Reading list	<i>1. Chamala, S., and P. Mortiss. 1990. Working Together for Landcare: Group Management Skills and Strategies. Australian Academic Press. Brisbane;</i> <i>2. Chambers, R. 1986. Rural Development: Putting the Last First. LP3ES. Jakarta;</i> <i>3. Conway, G., and E. Barbier. 1992. After the Green Revolution: Sustainable Agriculture for Development. Earthscan Publications. London;</i> <i>4. Hellyward, J., Erinaldi, and F. Madarisa. 2017. Dynamics of Livestock Area Development. Andalas University Press. Padang;</i> <i>5. Madarisa, F. 2013. Perspectives on Smallholder Livestock Development. Andalas University Press. Padang;</i> <i>6. Madarisa, F. 2014. Sociological Perspectives on Agribusiness Development. Andalas University Press. Padang;</i> <i>7. Madarisa, F., A. Anas, M. Reza, and S. Anwar. 2018. Introduction to Agricultural Extension Science. Andalas University Press. Padang;</i> <i>8. Madarisa, F. 2021. Facilitation of Village/Nagari Development. Andalas University Press. Padang;</i> <i>9. Mardikanto, T. 2009. Agricultural Extension System. UNS Press.</i>

	Surakarta; 10. Van den Ban, A., and S. Hawkins. 1992. <i>Agricultural Extension</i>. Longman Scientific & Technical. New York 11. Mortiss, P. 1988. <i>Agricultural Extension: A Practical Manual</i>. Department of Primary Industries. Queensland Government. Brisbane; 12. Freire, P. 1984. <i>Pedagogy of the Oppressed</i>. LP3ES. Jakarta; 13. Ediset. 2020. <i>Introduction to Livestock Innovation</i>. Andalas University Press. Padang; 14. Ediset. 2021. <i>Innovation Dissemination and Adoption</i>. Andalas University Press. Padang.
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Module Descriptions

Module designation	<i>PTK62126 Science and Technology of Feed Handling and Processing</i>
Semester(s) in which the module is taught	4
Person responsible for the module	1. Prof. Dr. Ir. Khalil, M.Sc 2. Prof. Dr. Ir. Harnentis, M.S 3. Prof. Dr. Ir. Yetti Marlida 4. Prof. Dr. Ir. Nuraini, M.S 5. Dr. Ir. Yuliaty Shafan Nur, M.S 6. Dr. Ir. Adrizal, M.S 7. Dr. Ir. Montesqrit, M.Si 8. Yesi Chwenta Sari, S.Pt., M.Si
Language	<i>Indonesia</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lecture, lesson (small group discussions).</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136.01 hours</i> <i>Contact hours: 39.97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours: 96.04 hours</i>
Credit points	<i>4.53 ECTS</i>
Required and recommended prerequisites for joining the module	<i>Feed Ingredient Science</i>
Module objectives/intended learning outcomes	<i>ILO 1 : Internalize the fundamental values of the university, the code of ethics, and scientific ethics</i> <i>PI-1: Demonstrate responsibility for work in their field of expertise independently.</i> <i>ILO 2 : Demonstrate innovative livestock science and technology.</i> <i>PI-3 : Able to demonstrate independent, high-quality, and measurable performance.</i> <i>ILO-3 : Apply technology to solve problems in the field of animal science and find appropriate and effective solutions.</i> <i>PI-2 : Master the concepts of solving livestock-related problems based on scientific knowledge using the scientific method.</i> <i>ILO-4 : Use logical thinking, creative thinking, critical thinking, and collaborative thinking.</i> <i>PI-3 : Able to apply logical, critical, systematic, innovative, high-quality, and measurable thinking in performing work in the field of animal science in accordance with competency standards.</i>

	<i>Course Learning Outcomes:</i> 1. Demonstrate responsibility for work in the field of feed handling and processing technology independently 2. Students are able to explain feed handling and processing technology that is of high quality and measurable 3. Students are able to master the concepts of problem solving based on feed handling and processing technology science: physical, chemical, and biological aspects. 4. Students are able to explain feed storage technology 5. Students are able to apply logical, critical, systematic, innovative, high-quality, and measurable thinking in performing work in the field of animal science in accordance with competency standards in the field of feed handling and processing technology.
Content	<i>Feed Handling and Processing Technology (ITPPP) is the study of various types of technologies for feed handling and processing.</i>
Examination forms	<i>Progress report, quiz, final report, mid test semester, and final test semester.</i>
Study and examination requirements	1. Progress Report : 20% 2. Quiz : 10% 3. Final Report : 22 % 4. Mid Test Semester : 24% 5. Final Test Semester : 24%
Reading list	1. Aderemi, B.O., Abu, E., and Highina, B.K. 2008. The Kinetics of Glucose Production from Rice Straw by <i>Aspergillus niger</i>. <i>African Journal of Biotechnology</i>, Vol. 7(3), June, 1745–1752; 2. Bentley, R., and Bennett, J.W. 2008. A Ferment of Fermentations: Reflections on the Production of Commodity Chemicals Using Microorganisms. In <i>Advances in Applied Microbiology</i>, Volume 63. First Edition. Academic Press, Elsevier; 3. Karimi, K., Emtiazi, G., and Taherzadeh, M. 2006. Ethanol Production from Dilute-Acid Pretreated Rice Straw by Simultaneous Saccharification and Fermentation with <i>Mucor indicus</i>, <i>Rhizopus oryzae</i>, and <i>Saccharomyces cerevisiae</i>. <i>Enzyme and Microbial Technology</i>, 40: 138–144; 4. Taherzadeh, M.J., and Karimi, K. 2008. Pretreatment of Lignocellulosic Wastes to Improve Ethanol and Biogas Production: A Review. <i>International Journal of Molecular Sciences</i>, 9: 1621–1651 5. Adham. 2001. Attempt at Improving Citric Acid Fermentation by <i>Aspergillus niger</i> in Beet Molasses. <i>Bioresource Technology</i>, pp. 97–100; 6. Pérez, J., Muñoz-Dorado, J., de la Rubia, T., and Martínez, J. 2002. Biodegradation and Biological Treatments of Cellulose, Hemicelluloses, and Lignin: An Overview. <i>Journal of International Microbiology</i>, 5: 53–63; 7. Zhu, S., et al. 2006. Microwave-Assisted Alkali Pretreatment of Wheat Straw and Its Enzymatic Hydrolysis. <i>Biosystems Engineering</i>, 94: 437–442; 8. Zhu, S., et al. 2005. Simultaneous Saccharification and Fermentation of Microwave/Alkali Pretreated Rice Straw to Ethanol. <i>Biosystems Engineering</i>, 92(2): 229–235.

Module Descriptions

Module designation	<i>PTK62107 Animal Physiology</i>
Semester(s) in which the module is taught	2
Person responsible for the module	1. Dr. Lendrawati, S.Pt., M.Si 2. Dr. drh. Yulia Yellita, M.P 3. Dr. Ir. Yan Heryandi, M.P 4. Dr. Kusnadidi Subekti, M.P 5. Ananda, S.Si., M.Si.
Language	<i>Indonesia</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lecture, lesson (small group discussions).</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136.01 hours</i> <i>Contact hours: 39.97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours: 96.04 hours</i>
Credit points	<i>4.53 ECTS</i>
Required and recommended prerequisites for joining the module	<i>Biology</i>
Module objectives/intended learning outcomes	<i>ILO 1 : Internalize the fundamental values of the university, the code of ethics, and scientific ethics.</i> <i>PI-1: Able to apply honesty in every academic activity.</i> <i>ILO 2 : Demonstrate innovative livestock science and technology.</i> <i>PI-2 : Master the basic concepts in the field of livestock production technology.</i> <i>ILO-4 : Use logical thinking, creative thinking, critical thinking, and collaborative thinking.</i> <i>PI-1 : Able to identify problems in the field of animal science.</i> <i>ILO-6 : Master and utilize the latest information technology in the field of animal science or other related fields of study.</i> <i>PI-2 : Able to write reports in accordance with scientific writing standards.</i> <i>Course Learning Outcomes:</i> <i>1. Students understand the scope of animal physiology, including cells and cell organelles, blood and blood circulation, the nervous system, metabolism, the excretory system, the endocrine system, thermoregulation, and the influence of the environment on the physiological functions of livestock.</i> <i>2. Students are able to identify red blood cells, white blood cells,</i>

	<i>plasma, platelets, and blood clotting factors.</i> <i>3. Students are able to identify the digestive systems of non-ruminants and ruminants.</i> <i>4. Students have the ability to apply critical, logical, and creative thinking in the process of identifying physiological systems in livestock while observing scientific ethics and animal welfare.</i>
Content	<i>This course discusses and studies the normal functions of systems in the bodies of ruminants, non-ruminants, and poultry, especially the physiology of cells, blood and circulatory system, nervous system, respiratory system, digestive system, metabolism, hormonal system, and environmental physiology. The learning methods are conducted through collaborative learning, small group discussions, and self-directed learning.</i>
Examination forms	<i>Practicum, progress report, final report, mid test semester, and final test semester.</i>
Study and examination requirements	<i>1. Practicum : 20%</i> <i>2. Progress Report : 20%</i> <i>3. Final Report : 40 %</i> <i>4. Mid Test Semester : 10%</i> <i>5. Final Test Semester : 10%</i>
Reading list	<i>1. Swenson, M.J. 1970. Dukes' Physiology of Domestic Animals. 8th Ed. Cornell University Press.</i> <i>2. Frandson, R.D. 1986. Anatomy and Physiology of Farm Animals. 4th Ed. Lea & Febiger, Philadelphia, USA.</i> <i>3. Turner, C.D., and J.T. Bagnara. 1976. General Endocrinology. 1st Ed. W.B. Saunders Co.</i> <i>4. Harper, M.A., and P.A. Mayes. 1979. Review of Physiological Chemistry. 17th Ed. Lange Medical Publications.</i> <i>5. Other textbooks on animal physiology relevant to the course material.</i> <i>6. Journal articles related to research in the field of animal physiology</i>

Module Descriptions

Module designation	<i>PTK61117 Animal Reproduction Science</i>
Semester(s) in which the module is taught	3
Person responsible for the module	1. Dr. Ir. Masrizal, M.S; 2. Dr. Ir. Hendri, M.S 3. Dr. Ir. Jaswandi, M.S 4. Syafri Nanda, S.Pt., M.Si 5. Ananda, S.Si., M.Si
Language	<i>Indonesia</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lecture, lesson (small group discussions).</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136.01 hours</i> <i>Contact hours: 39.97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours: 96.04 hours</i>
Credit points	<i>4.53 ECTS</i>
Required and recommended prerequisites for joining the module	<i>Biology</i>
Module objectives/intended learning outcomes	<i>ILO 1 : Internalize the fundamental values of the university, the code of ethics, and scientific ethics.</i> <i>PI-1: Able to apply honesty in every academic activity.</i> <i>ILO 2 : Demonstrate innovative livestock science and technology.</i> <i>PI-2 : Master the basic concepts in the field of livestock production technology.</i> <i>ILO-3 : Apply technology to solve problems in the field of animal science and find appropriate and effective solutions</i> <i>PI-1 : Master technical and industrial management skills in the field of livestock production.</i> <i>ILO-4 : Use logical thinking, creative thinking, critical thinking, and collaborative thinking.</i> <i>PI-3 : Able to apply solutions to problems in the field of animal science;</i> <i>PI-4 : Able to evaluate the results of solutions implemented in the field of animal science.</i> <i>Course Learning Outcomes:</i> <i>1. Internalize the fundamental values of the university, the code of ethics, and scientific ethics in the field of Animal Reproduction Science.</i> <i>2. Demonstrate innovative livestock science and technology in the field</i>

	<i>of Animal Reproduction Science.</i> <i>3. Apply Animal Reproduction Science and technology to solve problems in the field of animal science and find appropriate and effective solutions.</i> <i>4. Use logical thinking, creative thinking, critical thinking, and collaborative thinking in the field of Animal Reproduction Science.</i>
Content	<i>The Animal Reproduction Science course discusses the basic concepts of reproduction, the definition of reproduction in livestock, male and female reproductive organs, reproductive control hormones, the role of the nervous system, reproductive cycles, fertilization, pregnancy, parturition, and sexual behavior (PjBL).</i>
Examination forms	<i>Progress report, final report, mid test semester, and final test semester.</i>
Study and examination requirements	<i>1. Progress Report : 23,5%</i> <i>2. Final Report : 28%</i> <i>3. Mid Test Semester : 23,5%</i> <i>4. Final Test Semester : 25%</i>
Reading list	<i>1. Hafez, E.S.E. 2000. Reproduction in Farm Animals. 7th Ed. Lea & Febiger, 600 Washington Square, Philadelphia.</i> <i>2. Partodihardjo, S. 1992. Reproduction in Animals. Mutiara, Bandung.</i> <i>3. Toelihere, M.R. 1977. Reproductive Physiology in Livestock. Angkasa, Bandung.</i> <i>4. Toelihere, M.R. 1985. Obstetrics in Cattle and Buffalo. UI Press, Jakarta.</i> <i>5. Feradis. 2010. Animal Reproduction. Alfabeta, Bandung.</i> <i>6. Ptaszynska, M. 2009. Compendium of Animal Reproduction. 10th Ed. Intervet International, Netherlands.</i> <i>7. Chedrese, P.J. 2009. Reproductive Endocrinology. Springer, New York, USA.</i> <i>8. Senger, P.L. 1999. Pathways to Pregnancy and Parturition. The Mack Printing Group—Science Press, Washington.</i> <i>9. Etches, R.J. 1996. Reproduction in Poultry. Cambridge University Press, UK.</i> <i>10. Recent research published in national and international journals/proceedings.</i>

Module Descriptions

Module designation	<i>PTK61129 Development Approach Theory</i>
Semester(s) in which the module is taught	3
Person responsible for the module	1. Prof. Dr. Ir. Asdi Agustar, M.Sc 2. Dr. Fitriawati, S.Pt., M.Si 3. Dr. Ir. Amna Suresti, M.Si 4. Ediset, S.Pt., M.Si.
Language	<i>Indonesia</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lecture, lesson (small group discussion)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 90.65 hours</i> <i>Contact hours: 26.65 hours (lecture)</i> <i>Private study including examination preparation, specified in hours: 64.00 hours</i>
Credit points	<i>3.02 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1 : Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI-1: Able to apply honesty in every academic activity.</i> <i>ILO 3 : Able to apply animal science in accordance with the development of the livestock industry and innovative and up-to-date scientific activities.</i> <i>PI-4: Master technical and management skills in the field of livestock development and business.</i> <i>ILO 4 : Able to identify, formulate, provide solutions, and evaluate the solutions given to problems in the field of animal science.</i> <i>PI-4 :Able to evaluate the results of solutions implemented in the field of animal science.</i> <i>ILO 5 : Have leadership and entrepreneurship abilities in the field of animal science.</i> <i>PI-1 :Able to demonstrate leadership qualities and be responsive to problems in the field of animal science.</i> <i>Course Learning Outcomes:</i> <i>1. Students are able to understand the basic concepts of development, including definitions, objectives, and development indicators.</i> <i>2. Students are able to analyze the differences and relevance of development theories in the context of social, economic, and</i>

	<i>environmental problems</i> <i>3. Understand the main elements, scope, and forms of development planning.</i> <i>4. Students are able to explain development approaches in conventional and non-conventional development concepts.</i> <i>5. Students are able to understand the principles of sustainable development (sustainability).</i> <i>6. Students are able to understand and analyze community development.</i>
Content	<i>This course provides students with knowledge and understanding of the concepts and various development theories, development approaches/strategies, and development indicators that explain how planned changes can influence the condition of a nation. The Development Approach Theory course also provides an in-depth understanding of various theories, paradigms, and approaches used in the development process. This course discusses the evolution of development approaches over time, ranging from conventional approaches such as modernization to non-conventional approaches such as sustainable and community-based development.</i>
Examination forms	<i>Task, presentation, and final report.</i>
Study and examination requirements	<i>1. Tasks : 25%</i> <i>2. Presentation : 15 %</i> <i>3. Final Report : 60 %</i>
Reading list	<i>1. Todaro, M. 1983. Economic Development in the Third World. Ghalia Indonesia, Jakarta. pp. 103–138.</i> <i>2. Jhingan, M.L. 2013. Development Economics and Planning. PT RajaGrafindo Persada, Jakarta.</i> <i>3. Castro, C.J. 2004. "Sustainable Development." Organization and Environment, Vol. 17, No. 2, pp. 195–225.</i> <i>4. Bar-On, A.A., and G. Prinsen. 1999. Planning, Communities and Empowerment: An Introduction to Participatory Rural Appraisal. International Social Work.</i> <i>5. Ife, J., and F. Tesoriero. 2006. Community Development: Community-Based Alternatives in an Age of Globalisation. Pearson Education, Australia.</i> <i>6. Budiman, A. 1995. Development Theory of the Third World. Gramedia, Jakarta. pp. 6–40.</i> <i>7. Ndraha, T. 1987. Community Development: Preparing Society for Take-Off. PT Bina Aksara, Jakarta; Law No. 25 of 2004 on the National Development Planning System.</i> <i>8. Suryadi, A. 1998. Rural Community Development. PT Alumni, Bandung.</i> <i>9. Suaib. 2023. Community Development and Empowerment. Referensi, Non-Fiction. ISBN: 978-623-497-911-4. Suaib. 2023. Community Development and Empowerment. Referensi, Non-Fiction. ISBN: 978-623-497-911-4.</i>

Module Descriptions

Module designation	<i>PTK61129 Poultry Production Science and Technology</i>
Semester(s) in which the module is taught	4
Person responsible for the module	1. Prof. Dr. Ir. Hj Husmaini, MP 2. Prof. Dr. Ir. Tertia, Delia Nova, M.Si 3. Dr.Ir. Sabrina, MP 4. Dr. Ir. Yan Heryandi, MS 5. Dr. Kusnadidi Subekti, S.Pt MP
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Cooperation learning, self direct learning, and project based learning</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136.01 hours</i> <i>Contact hours: 39.97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours: 96.04 hours</i>
Credit points	<i>4.53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1: Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI 1. Able to apply honesty in every academic activity.</i> <i>PI 2. Able to apply discipline in attendance and in completing assigned tasks.</i> <i>PI 3. Able to apply politeness in every academic activity.</i> <i>PI 4. Able to demonstrate a full sense of responsibility for assigned tasks.</i> <i>ILO 2: Master the basic general knowledge and fundamental theories in the field of animal husbandry.</i> <i>PI 2. Master the basic concepts in the field of livestock production technology.</i> <i>ILO 3: Able to apply animal husbandry science in accordance with the development of the livestock industry and innovative and up-to-date scientific activities.</i> <i>PI 1. Master technical and management skills in the livestock production industry.</i> <i>ILO 4: Able to identify, formulate, provide solutions, and evaluate the solutions given to problems in the field of animal husbandry.</i> <i>PI 1. Able to identify problems in the field of animal husbandry.</i> <i>PI 2. Able to formulate and elaborate problems in the field of animal husbandry.</i>

	<i>PI 3. Able to apply solutions to problems in the field of animal husbandry.</i> <i>ILO 5: Possess leadership and entrepreneurship skills in the field of animal husbandry.</i> <i>PI 2. Able to demonstrate a strong entrepreneurial spirit (creative, innovative, and willing to take risks).</i> <i>ILO 6: Possess the attitude of a lifelong learner and pursue further study in developing a professional career.</i> <i>PI 2. Demonstrate the attitude of a lifelong learner.</i> <i>Course Learning Outcomes:</i> <i>1. Students are able to explain and identify the basic concepts of poultry development and poultry farming enterprises.</i> <i>2. Students are able to identify the specific anatomy and physiology of poultry.</i> <i>3. Students are able to identify the factors that influence poultry productivity (breeding stock, feed, and stressors in poultry production).</i> <i>4. Students are able to explain and identify the process of meat and egg synthesis.</i> <i>5. Students are able to explain and implement the broiler management system in modern housing.</i> <i>6. Students are able to explain and present the management system of layer and breeder chickens in modern housing.</i> <i>7. Students are able to explain and identify the process of handling poultry products.</i> <i>8. Students are able to explain and identify product quality and standardization.</i>
Content	<i>This course discusses the basic concepts of Poultry Development and Poultry Farming Enterprises, as well as the specific anatomy and physiology of poultry. It also covers factors affecting poultry productivity (breeding stock, feed, and stressors in poultry production), the processes of meat and egg synthesis, and management systems for broilers, layers, and breeder flocks in modern housing systems. In addition, the course addresses the handling processes of poultry products, along with product quality and standardization. This course is offered in the even semester and applies a student-centered learning approach, with a combination of learning methods including cooperative learning, self-directed learning, and project-based learning.</i>
Examination forms	<i>Presentation project, mid test semester, progress report, and final test semester.</i>
Study and examination requirements	<i>1. Report/Presentation project : 30%</i> <i>2. Mid Test Semester : 20%</i> <i>3. Progress report : 30%</i> <i>4. Final Test Semester : 20%</i>
Reading list	<i>1. North, M.O and D.D Bell, 1990. Commercial Chicken Production Manual.</i> <i>2. Bell, D. D and W. D Weaver, 2022. Commercial Chicken Meat and Egg Production.</i>

Module Descriptions

Module designation	<i>PTK62119 Science and Technology of Beef Cattle Production</i>
Semester(s) in which the module is taught	4
Person responsible for the module	1. <i>Prof.Dr.Ir. Salam N. Aritonang, MS</i> 2. <i>Prof.Dr.Ir. Khasrad, M.Si</i> 3. <i>Rusdimansyah, SPt, M.Si</i> 4. <i>Dr. Ferry Lismanto, S.Pt., MP</i> 5. <i>Dr. Yetmanely, S.Pt., MP</i> 6. <i>Dr. Reswati, S.Pt., MP</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lecture, self direct learning, and project based learning</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136.01 hours</i> <i>Contact hours: 39.97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours: 96.04 hours</i>
Credit points	<i>4.53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1 : Demonstrate a responsible attitude toward work in the field of Science and Technology of Meat Livestock Production independently.</i> <i>PI 4. Able to demonstrate a full sense of responsibility for the assigned tasks.</i> <i>ILO 2 : Able to demonstrate independent, high-quality, and measurable performance in the field of Science and Technology of Meat Livestock Production.</i> <i>PI 1. Master the basic concepts in the field of livestock production technology.</i> <i>ILO 3 : Master the concept of solving livestock problems based on scientific knowledge using scientific methods in the field of Science and Technology of Meat Livestock Production.</i> <i>PI 3. Able to apply solutions to problems in the field of animal husbandry.</i> <i>ILO 4 : Able to apply logical, critical, systematic, innovative, high-quality, and measurable thinking in performing types of work in the field of animal husbandry in accordance with work competency standards in the field of Science and Technology of Meat Livestock Production.</i> <i>PI 1. Master technical and management skills in the livestock production industry.</i>

	<i>Course Learning Outcomes:</i> <i>1. Students are able to explain the importance of the science and technology of meat livestock production.</i> <i>2. Students are able to explain the origin of meat livestock and the breeds of meat livestock.</i> <i>3. Students are able to explain meat livestock management systems.</i> <i>4. Students are able to explain the functions, models, and equipment of livestock housing.</i> <i>5. Students are able to explain the forms of growth and the factors that influence growth.</i> <i>6. Students are able to explain muscle structure and meat composition.</i> <i>7. Students are able to explain and be skilled in livestock identification.</i> <i>8. Students are able to explain and be skilled in conducting external livestock evaluation, including body measurements, determination of body condition, and determination of livestock age.</i> <i>9. Students are able and skilled in handling livestock before, during, and after slaughter.</i> <i>10. Students are able to explain and be skilled in carcass evaluation.</i> <i>11. Students are able to explain about meat and be skilled in evaluating meat quality.</i>
Content	<i>The Science and Technology of Meat Livestock Production course studies the origin and breeds of meat livestock, meat livestock management systems, the functions and models of housing and housing equipment, forms of growth and factors affecting growth, muscle structure and meat composition, livestock identification, body measurements of livestock, determination of body condition and age of livestock, handling of livestock before, during, and after slaughter, carcass evaluation, and meat quality assessment.</i>
Examination forms	<i>Progress report, mid test semester, final report, and final test semester.</i>
Study and examination requirements	<i>1. Progress report: 30%</i> <i>2. Mid test semester: 20%</i> <i>3. Final report: 30%</i> <i>4. Final test semester: 20%</i>
Reading list	<i>1. Berg RT, Butterfield RM. 1976. New Concepts of Cattle Growth. Sydney: University Press.</i> <i>2. Quinn, T. 1980. Dairy Farm Management, Delmar Publisher. INC, Canada</i> <i>3. Soeparno. 2005. Ilmu dan Teknologi Daging. Yogyakarta: Gadjah Mada University Press.</i> <i>4. Aberle ED, Forrest JC, Gerrard DE, Mills EW. 2001. Principles of Meat Science. Ed ke-4. Iowa: Kendall/Hunt Publishing Company.</i> <i>5. Forrest, G.J., Aberle, H.B. Hendrick, M.D. Judge dan R.A. Merkel. 1975. Principles of Meat Science. W.H. Freeman and Company, San Francisco</i>

Module Descriptions

Module designation	<i>PTK62120 Science and Technology of Dairy Livestock Production</i>
Semester(s) in which the module is taught	4
Person responsible for the module	1. Prof. Dr. Ir. Elly Roza, M.S 2. Dr. Ir. Arief, M.S 3. Dr. Hilda Susanty, S.Pt., M.Si 4. Eli Ratni, S.Pt., M.P 5. Rizqan, S.Pt., M.Pt
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lecture, self direct learning, and project based learning</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136.01 hours</i> <i>Contact hours: 39.97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours: 96.04 hours</i>
Credit points	<i>4.53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1 : Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI 4. Able to demonstrate a full sense of responsibility for the assigned tasks.</i> <i>ILO 2 : Master the basic general knowledge and fundamental theories in the field of animal husbandry.</i> <i>PI 2. Master the basic concepts in the field of livestock production technology.</i> <i>ILO 6 : Able to communicate orally and in writing using up-to-date information media in the field of animal husbandry and integrate it with other fields of knowledge.</i> <i>PI 2. Able to write reports in accordance with the rules of scientific writing.</i> <i>ILO 7 : Possess the attitude of a lifelong learner and pursue further study in developing a professional career.</i> <i>PI 2. Demonstrate the attitude of a lifelong learner</i> <i>Course Learning Outcomes:</i> <i>1. Students are able to explain and present the history and development of dairy livestock in Indonesia and worldwide.</i> <i>2. Students are able to explain and distinguish the characteristics of</i>

	<i>dairy livestock from other types of livestock.</i> <i>3. Students are able to explain and carry out dairy livestock management.</i> <i>4. Students are able to explain and illustrate the anatomy and physiology of the udder and the hormones that influence milk production.</i> <i>5. Students are able to explain feeding management for dairy livestock based on the animal's condition (calves, heifers, lactating, and dry cows).</i> <i>6. Students are able to carry out selection and recording in dairy livestock.</i> <i>7. Students are able to explain the factors that influence milk production and predict and estimate milk production from dairy livestock.</i> <i>8. Students are able to explain the types of diseases that commonly affect dairy livestock, including methods of prevention and treatment.</i> <i>9. Students are able to explain and carry out post-harvest handling of dairy livestock products.</i>
Content	<i>The Science and Technology of Dairy Livestock Production course discusses various aspects related to dairy livestock, including the history of dairy livestock development in Indonesia and worldwide, their characteristics, dairy livestock management practices, the anatomy and physiology of the udder up to the process of milk formation, proper selection of dairy livestock, estimation of milk production, and the application of production technology in dairy livestock.</i>
Examination forms	<i>Progress report, mid test semester, final report, and final test semester.</i>
Study and examination requirements	<i>5. Progress report: 25%</i> <i>6. Mid test semester: 20%</i> <i>7. Final report: 30%</i> <i>8. Final test semester: 25%</i>
Reading list	<i>1. Quinn, T. 1980. Dairy Farm Management, Delmar Publisher. INC, Canada</i> <i>2. Fao Animal Production And Health. 2011. Guide To Good Dairy Farming Practice. Food And Agriculture Organization Of The United Nations & ;</i> <i>3. International Dairy Federation, Rome.</i> <i>4. Murti, T.W. 2014. Ilmu Manajemen & ; Industri Ternak Perah. Cetakan pertama. Pustaka Reka Cipta, Bandung.</i> <i>5. Hartanto, R, Harjanti D.W, Prayitno E, Restitrisnani V, Prima A. 2021. Manajemen Ternak Perah. UNDIP Press, Semarang.</i> <i>6. Ako, A. 2013. Ilmu Ternak Perah Daerah Tropis. IPB Press, Bogor</i> <i>7. Recent research publications in national and international journals/proceedings</i>

Module Descriptions

Module designation	<i>PTK61108 Introduction to Animal Science and Industry</i>
Semester(s) in which the module is taught	<i>1</i>
Person responsible for the module	<i>1. Dr. Ir. Ade Djulardi, MS</i> <i>2. Dr. Ir. Adrizal, MS</i> <i>3. Dr. Ir. Ahadiyah Yuniza, MS</i> <i>4. Prof. Dr. Ir. Arief, MS</i> <i>5. Prof. Dr. Ir. Elly Roza, MS</i> <i>6. Eli Ratni, S.Pt., MP</i> <i>7. Dr. Ir. Hendri, MS</i> <i>8. Dr. Hilda Susanty, S.Pt., M.Si</i> <i>9. Prof. Dr. Ir. Khasrad, MS</i> <i>10. Prof. Dr. Ir. Maria Endo Mahata, MS</i> <i>11. Dr. Nurhayati, S.Pt, MM</i> <i>12. Prof. Dr. Ir. Tertia Delia Nova, MS</i> <i>13. Dr. Ir. Yan Heryandi, MP</i> <i>14. Prof. Dr. Ir. Yose Rizal, M.Sc.</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Cooperative learning and case based method.</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 90.65 hours</i> <i>Contact hours: 26.65 hours (lecture)</i> <i>Private study including examination preparation, specified in hours: 64.00 hours</i>
Credit points	<i>3.02 ECTS</i>
Required and recommended prerequisites for joining the module	-

Module objectives/intended learning outcomes	<i>ILO 1: Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI 1: Able to apply honesty in every academic activity.</i> <i>PI 2: Able to apply discipline in attendance and in completing assigned tasks.</i> <i>PI 3: Able to apply politeness in every academic activity.</i> <i>PI 4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO 2 : Able to demonstrate independent, high-quality, and measurable performance in the field of Science and Technology of Meat Livestock Production.</i> <i>PI 1. Master the basic concepts in the field of livestock production technology.</i> <i>PI 2. Master the basic concepts in the field of livestock production technology.</i> <i>PI-3. Master the basic concepts in the field of nutrition and feed technology.</i> <i>ILO-4: Able to identify, formulate, provide solutions, and evaluate the solutions given to problems in the field of animal husbandry.</i> <i>PI-1: Able to identify problems in the field of animal husbandry.</i> <i>PI-2: Able to formulate and elaborate problems in the field of animal husbandry.</i> <i>ILO 5: Possess leadership and entrepreneurship skills in the field of animal husbandry.</i> <i>PI-1. Able to demonstrate leadership traits and responsiveness to problems in the field of animal husbandry.</i> <i>PI-2. Able to demonstrate a strong entrepreneurial spirit (creative, innovative, and willing to take risks).</i> <i>ILO-6 : Able to communicate orally and in writing using up-to-date information media in the field of animal husbandry and integrate it with other fields of knowledge.</i> <i>PI-1. Understand the policies for development and business in the field of animal husbandry.</i> <i>PI-2. Understand the problems, potential development, business opportunities, and livestock industry development.</i> <i>PI-3. Understand the scope and contribution of the livestock subsector to development.</i> <i>ILO 8: Master and utilize the latest information technology in the field of animal husbandry or other fields being pursued.</i> <i>PI-1: Able to utilize the latest information technology in the field of animal husbandry.</i> <i>PI-2: Able to document, store, secure, and retrieve data to ensure validity and avoid plagiarism.</i> <i>ILO 10: Possess a lifelong learning attitude through further study in developing a professional career.</i> <i>PI-1: Have high curiosity in the field of animal husbandry science.</i> <i>PI-2: Have high motivation to gain knowledge in animal husbandry not only as a requirement to obtain a diploma.</i> <i>Course Learning Outcomes:</i> <i>1. Students are able to demonstrate responsible and honest attitudes</i> <i>2. Students are able to carry out their duties and roles as students studying animal husbandry</i> <i>3. Students are able to understand the history of animal husbandry and livestock domestication.</i> <i>4. Students are able to understand the role of livestock and the basic concepts of animal husbandry.</i>
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Content	<i>This course is designed to introduce students to the field of animal husbandry in a broad sense. The course begins with the understanding of science and knowledge, animal science and environment, the history and domestication of livestock, basic concepts of animal husbandry, the role of post-harvest livestock products, and problems in the field of animal husbandry. The learning methods used in this course are Cooperative Learning (CL) and Case-Based Method (CBM).</i>
Examination forms	<i>Individual assignment, presentation, case based method, mid test semester, and final test semester.</i>
Study and examination requirements	1. Individual assignment: 6% 2. Presentation: 13% 3. Mid test semester: 18% 4. Case 1: 10% 5. Case 2: 10% 6. Case 3: 10% 7. Case 4: 10% 8. Case 5: 10% 9. Final test semester: 13%
Reading list	1. Abbas, M. H., Hendri and A. Yuniza. 2005. <i>Pengantar Ilmu Peternakan. Buku Ajar. Fakultas Peternakan Unand, Padang.</i> 2. Nasution, A.H. 1993. <i>Pengantar Ke Ilmu-Ilmu Pertanian. P.T. Pustaka Litera AntarNusa.</i> 3. Mardikanto, T. 2007. <i>Pengantar Ilmu Pertanian. Pusat pengembangan Agrobisnis dan perhutanan Sosial. Surakarta.</i> 4. https://ditjenpkh.pertanian.go.id/berita/1096-pembangunan-peternakan-untuk-perkuat-ketahanan-pangan-dan-akselerasi-ekspor

Module Descriptions

Module designation	<i>PTK62122 Poultry Nutrition Science</i>
Semester(s) in which the module is taught	4
Person responsible for the module	1. Prof. Dr. Ir. Yose Rizal, MSc. 2. Dr. Ir. Ahadiyah Yuniza, MS. 3. Prof. Dr. Ir. Mirzah, MS. 4. Prof. Dr. Wizna, MS. 5. Prof. Dr. Ir. Maria Endo Mahata, MS. 6. Prof.Dr.Ir. Mirnawati, MS. 7. Dr.Ir. Ade Djulardi, MS. 8. Dr. Ir. Gita Ciptaan, MS 9. Dr.Ir. Ridho Kurniawan Rusli, SPt. MS 10. Dr. Zurmiati, S.Pt.
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Cooperative learning, case based method, and project based learning.</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136.01 hours</i> <i>Contact hours: 39.97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours: 96.04 hours</i>
Credit points	<i>4.53 ECTS</i>
Required and recommended prerequisites for joining the module	-

Module objectives/intended learning outcomes	<i>ILO-1: Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI-1: Able to apply honesty in every academic activity.</i> <i>PI-2: Able to apply discipline in attendance and in completing assigned tasks.</i> <i>PI-3: Able to apply politeness in every academic activity.</i> <i>PI-4: Able to demonstrate a full sense of responsibility for assigned tasks.</i> <i>ILO-3: Able to apply animal husbandry science in accordance with the development of the livestock industry and innovative and up-to-date scientific activities.</i> <i>PI-2: Master technical and management skills in the field of nutrition and feed technology.</i> <i>ILO-4: Able to identify, formulate, provide solutions, and evaluate the solutions given to problems in the field of animal husbandry.</i> <i>PI-1: Able to identify problems in the field of animal husbandry.</i> <i>PI-2: Able to formulate and elaborate problems in the field of animal husbandry.</i> <i>PI-3: Able to apply solutions to problems in the field of animal husbandry.</i> <i>PI-4: Able to evaluate the results of the solutions applied in the field of animal husbandry.</i> <i>ILO-7: Possess the attitude of a lifelong learner and pursue further study in developing a professional career.</i> <i>PI-2: Demonstrate the attitude of a lifelong learner.</i> Course Learning Outcomes: <i>1. Students are able to explain the definition of nutrition, poultry nutrition science, the parts of the digestive organs, the digestive system, nutrients that are important for poultry, and their respective functions .</i> <i>2. Students are able to explain the definition and classification of carbohydrates (CH), sources of carbohydrates for poultry, carbohydrate digestion in poultry, carbohydrate absorption in poultry, carbohydrate metabolism in the poultry body, and the provision of different types of carbohydrates for poultry.</i> <i>3. Students are able to explain the definition, classification, and function of lipids, important fatty acids for poultry, lipid sources for poultry, lipid digestion and absorption in poultry, lipid metabolism in the poultry body, lipid supplementation in poultry rations, and explain lipid quality.</i> <i>4. Students are able to explain the definition and classification of energy, energy utilization and deposition in poultry, energy requirements, and the factors that influence them.</i> <i>5. Students are able to conduct the measurement/determination of metabolizable energy (ME).</i> <i>6. Students are able to explain the definition and function of protein, protein classification, amino acids for poultry, protein digestion and absorption in poultry, the utilization of protein and amino acids in poultry, and the protein and amino acid requirements of poultry</i> <i>7. Students are able to measure/determine the quality of protein feed through the determination of crude fiber content and nitrogen retention</i> <i>8. Students are able to explain the classification of minerals, their roles, and the impacts of mineral deficiency and excess in poultry.</i> <i>9. Students are able to explain the classification of vitamins, their roles, and the impacts of vitamin deficiency and excess in poultry.</i> <i>10. Students are able to explain the role of water, the factors affecting</i>
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Content	<i>The Poultry Nutrition Science (INTU) course is offered in the even semester with a student-centered learning approach. The learning process applies a combination of Cooperative Learning (CL), Case-Based Method (CBM), and Project-Based Learning (PjBL). The topics covered in this course include the definition of poultry nutrition science, the process of utilizing nutrients and energy required by poultry, the measurement of metabolizable energy (ME) and nutrient digestibility, feed ingredients for poultry, poultry ration formulation, the timing, methods, and frequency of ration feeding, the measurement of poultry responses to the provided ration along with ration efficiency, and research techniques in poultry nutrition.</i>
Examination forms	<i>Individual and group assignment, progress report, mid test semester, practicum, presentation and final report, and final test semester.</i>
Study and examination requirements	1. Individual assignment: 7% 2. Group assignment: 6% 3. Progress report: 15% 4. Mid test semester: 10% 5. Practicum: 15% 6. Presentation and Final report: 36% 7. Final test semester: 11%
Reading list	1. Rizal, Y. 2015. <i>Ilmu Nutrisi Ternak Unggas. Edisi Kedua (Revisi)</i>. Andalas University Press, Padang. 2. Leeson, S. and J.D. Summers. 2001. <i>Nutrition of the Chicken. Third Ed.</i> University Books, Guelph, Ontario, Canada 3. Scott, M. L., M. C. Nesheim and R. J. Young. 1982. <i>Nutrition of the Chicken. Third Ed.</i> M. L. Scott and Associates, Ithaca, New York. 4. NRC. 1994. <i>Nutrient Requirements of Poultry. Ninth Revised Ed.</i> National Academy Press, Washington, DC. 5. Leeson, S. and J. D. Summers. 1997. <i>Commercial Poultry Nutrition. Second Ed.</i> University Books, Guelph, Ontario, Canada. 6. Dasril Tami. 1986. <i>Makanan Ternak Unggas. Diktat. Fakultas Peternakan Universitas Andalas, Padang.</i> 7. Nesheim, M. C., R. E. Austic and L. E. Card. 1979. <i>Poultry Production. Twelfth Ed.</i> Lea & Febiger, Philadelphia. 8. Ensminger, M. E. 1992. <i>Poultry Science Third Ed.</i> Interstate Publishers, Inc., Danville, Illinois, USA. 9. Mercia, L. S. 1990. <i>Raising Poultry the Modern Way.</i> Storey Communications, Inc., Pownal, Vermont. 10. McDonald, P., R. A. Edwards and J. F. D. Greenhalgh. 1981. <i>Animal Nutrition. Third Ed.</i> Longman, Inc., London. 11. Sibbald, I. R. 1986. <i>The TME System of Feed Evaluation: Methodology, Feed Composition Data and Bibliography.</i> Technical 12. <i>Penuntun Praktikum Ilmu Nutrisi Unggas. Fakultas Peternakan Universitas Andalas, Padang</i>

Module Descriptions

Module designation	<i>PTK60135 Social Research Methodology</i>
Semester(s) in which the module is taught	5
Person responsible for the module	1. <i>Prof.Dr.Ir.Asdi Agustar M.Sc</i> 2. <i>Dr.Ir.Arief MS</i> 3. <i>Ida Indrayani S.Pt.M.Si</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lesson, field observations, and practice in preparing research proposal</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136.01 hours</i> <i>Contact hours: 39.97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours: 96.04 hours</i>
Credit points	<i>4.53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO-1: Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI-2: Able to apply discipline in attendance and in completing assigned tasks.</i> <i>ILO-3 : Able to apply animal husbandry science in accordance with the development of the livestock industry and innovative and up-to-date scientific activities.</i> <i>PI-4: Master technical and management skills in the field of livestock development and agribusiness.</i> <i>ILO-4: Able to identify, formulate, provide solutions, and evaluate the solutions given to problems in the field of animal husbandry.</i> <i>PI-1: Able to identify problems in the field of animal husbandry.</i> <i>PI-2: Able to formulate and elaborate problems in the field of animal husbandry.</i> <i>PI-3: Able to apply solutions to problems in the field of animal husbandry.</i> <i>PI-4: Able to evaluate the results of the solutions applied in the field of animal husbandry.</i> <i>ILO-6 : Able to communicate orally and in writing using up-to-date information media in the field of animal husbandry and integrate it with other fields of knowledge.</i> <i>PI-1: Able to present ideas in front of an audience and provide feedback.</i> <i>ILO-7: Possess the attitude of a lifelong learner and pursue further study in developing a professional career.</i> <i>PI-2: Demonstrate the attitude of a lifelong learner.</i>

	<i>Course Learning Outcomes:</i> <i>1. Able to apply logical, critical, systematic, and innovative thinking in the context of the development or implementation of science and technology while considering and applying humanistic values in accordance with their field of expertise.</i> <i>2. Able to demonstrate independent, high-quality, and measurable performance.</i> <i>3. Able to examine the implications of the development or implementation of science and technology while considering and applying humanistic values in accordance with their expertise based on scientific principles, procedures, and ethics in order to produce solutions, ideas, designs, or artistic critiques.</i> <i>4. Able to make appropriate decisions in the context of solving problems in their field of expertise based on the results of information and data analysis.</i>
Content	<i>The Research Methodology course aims to equip students with knowledge, understanding, and the application of various research methods in order to prepare their final assignments. The course discusses various types of research and the steps involved in conducting research, starting from exploring ideas/topics, identifying problems, literature review, determining the focus of the problem, identifying variables, research design, methods and techniques of data collection, analysis, and drawing conclusions. Furthermore, the course also discusses how to prepare research reports and publish research results. Learning activities include lectures using various approaches and methods that actively involve students, such as discussions, field observation activities to learn how to identify problems, and practice in preparing research proposals.</i>
Examination forms	<i>Quiz, mid test semester, and final test semester..</i>
Study and examination requirements	<i>1. Quiz: 30%</i> <i>2. Mid test semester: 30%</i> <i>3. Final test semester: 40%</i>
Reading list	<i>1. Basten, G. 2010. Introduction to Scientific Research Project. Ventus Pub. Co.</i> <i>2. Kothari, C. R., "Research Methodology", 3rd ed, New Age International (P) Ltd., New Delhi.</i> <i>3. McLelland, C.V. 2008. The nature of Science and Scientific Method. The Geological Society of America.</i> <i>4. Sudjana , 2009. Metoda Statitika, Tarsito Bandung</i> <i>5. Creswell, John W, 1994. Research Design : Qualitative and Quantitative Approaches, London : SAGE Publication.</i>

Module Descriptions

Module designation	<i>PTK61116 Animal Breeding Science</i>
Semester(s) in which the module is taught	3
Person responsible for the module	1. Dr. Ir. Firda Arlina, M.Si. 2. Ir.Mangku Mundana, MP 3. Dr. Rusfidra, S.Pt, MP. 4. Dr.Tinda Afriani, MP 5. Linda Suhartati, S.Pt, MP 6. Adisti Rasosari, S.Pt, M.Sc
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Cecture, lesson, and case based method</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136.01 hours</i> <i>Contact hours: 39.97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours: 96.04 hours</i>
Credit points	<i>4.53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO-1: Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI-1: Able to apply honesty in every academic activity.</i> <i>PI-2: Able to apply discipline in attendance and in completing assigned tasks.</i> <i>PI-3: Able to apply politeness in every academic activity.</i> <i>PI-4: Able to demonstrate a full sense of responsibility for assigned tasks.</i> <i>ILO-3: Able to apply animal husbandry science in accordance with the development of the livestock industry and innovative and up-to-date scientific activities.</i> <i>PI-1: Master technical and management skills in the livestock production industry.</i> <i>ILO-4: Able to identify, formulate, provide solutions, and evaluate the solutions given to problems in the field of animal husbandry.</i> <i>PI-1: Able to identify problems in the field of animal husbandry.</i> <i>PI-2: Able to formulate and elaborate problems in the field of animal husbandry.</i> <i>PI-3: Able to apply solutions to problems in the field of animal husbandry.</i> <i>PI-4: Able to evaluate the results of the solutions applied in the field of animal husbandry.</i>

	<i>ILO-7: Possess the attitude of a lifelong learner and pursue further study in developing a professional career.</i> <i>PI-2: Demonstrate the attitude of a lifelong learner.</i> <i>Course Learning Outcomes:</i> <i>1. Demonstrate a responsible and honest attitude toward work in the field of Animal Breeding Science independently.</i> <i>2. Students are able to explain the basic concepts regarding the role of animal breeding science, qualitative and quantitative traits, and trait variation in order to improve the genetic quality of livestock, especially local livestock.</i> <i>3. Students are able to calculate heritability values, repeatability values, genetic correlations, and breeding values as the basis for conducting animal breeding programs.</i> <i>4. Students are able to select appropriate selection and crossbreeding methods (considering genetic parameter values) to carry out livestock breeding programs.</i> <i>5. Students are able to design and conduct animal breeding research and determine the variables from the treatments applied</i>
Content	<i>The Animal Breeding Science (IPT) course provides students with knowledge to explain and understand systems for improving the genetic quality of livestock through selection and crossbreeding approaches. It includes the use of genetic parameters (heritability, repeatability, genetic correlation, and breeding value) and their application in animal breeding. In addition, the course provides knowledge for students to explain and understand the improvement of the genetic quality of local livestock.</i>
Examination forms	<i>Assignment, case based method, mid test semester, practicum, project report, and final test semester.</i>
Study and examination requirements	<i>1. Assignment: 5%</i> <i>2. Case 1: 5%</i> <i>3. Case 2: 5%</i> <i>4. Case 3: 5%</i> <i>5. Case 4: 3%</i> <i>6. Case 5: 3%</i> <i>7. Mid test semester: 17%</i> <i>8. Practicum: 10%</i> <i>9. Project report: 32%</i> <i>10. Final test semester: 15%</i>
Reading list	<i>1. Noor, R. 2015. Genetika Ternak. Penerbit Tarsito Bandung.</i> <i>2. Hardjosubroto, H. 1994. Aplikasi Pemuliaan Ternak di Lapangan. Penerbit PT. Gramedia Widiasarana, Jakarta.</i> <i>3. Warwick E.J. Maria Astuti, dan W. Hardjosubroto. 1995. Pemuliaan Ternak. Gajahmada University Press. Cetakan kelima.</i> <i>4. Martojo, H. Peningkatan Mutu Genetik Ternak. Departemen Pendidikan dan Kebudayaan, PAU Institut Pertanian Bogor Penuntun Praktikum Ilmu Pemuliaan Ternak.</i>

Module Descriptions

Module designation	<i>PTK60113 Farm Experience</i>
Semester(s) in which the module is taught	<i>7</i>
Person responsible for the module	<i>Dr. Ir. Arfai, MS; Dr. Ir. Yuliaty Shafan Nur, MS; Dr. Riesi Sriagtula, S.Pt, MP (Coordinator of Forage and Feed Division); Dr. Hilda Susanty, S.Pt, M.Si (Coordinator of Dairy Science Division); Dr. Sabrina, S.Pt, MP (Coordinator of Poultry Science Division); Dr. Zurmiati, S.Pt; Rusdimansyah, S.Pt, M.Si (Coordinator of Beef Cattle Division); Ananda, S.Si, M.Si; 9. Syafri Nanda, S.Pt, M.Si; 10. Rizky Dwi Saputra, S.T.P, M.Si (Coordinator of Animal Product Technology Division); 11. Noni Novarista, S.Pt, M.Si; 12. Milda Metia, S.Pt</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Cooperative learning</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 181.3 hours Contact hours: 53.3 hours (practic) Private study including examination preparation, specified in hours: 128 hours</i>
Credit points	<i>6.04 ECTS</i>
Required and recommended prerequisites for joining the module	<i>1. Science and Technology of Meat Livestock Production 2. Science 3. Technology of Dairy Livestock 4. Science and Technology of Poultry 5. Agrostology</i>

Module objectives/intended learning outcomes	<i>ILO-1: Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI-1: Able to apply honesty in every academic activity.</i> <i>PI-2: Able to apply discipline in attendance and in completing assigned tasks.</i> <i>PI-3: Able to apply politeness in every academic activity.</i> <i>PI-4: Able to demonstrate a full sense of responsibility for assigned tasks.</i> <i>ILO 2: Master the basic general knowledge and fundamental theories in the field of animal husbandry</i> <i>PI-1 Master the basic concepts of general knowledge.</i> <i>ILO-3: Able to apply animal husbandry science in accordance with the development of the livestock industry and innovative and up-to-date scientific activities.</i> <i>PI-1 Master technical and management skills in the livestock production industry.</i> <i>PI-2 Master technical and management skills in the field of nutrition and feed technology.</i> <i>IP-3 Master technical and management skills in the livestock product technology industry.</i> <i>IP-4 Master technical and management skills in the field of livestock development and agribusiness.</i> <i>ILO 5: Possess leadership and entrepreneurship skills in the field of animal husbandry.</i> <i>PI-2: Able to demonstrate a strong entrepreneurial spirit (creative, innovative, and willing to take risks).</i> <i>ILO-7: Possess the attitude of a lifelong learner and pursue further study in developing a professional career.</i> <i>PI-2: Demonstrate the attitude of a lifelong learner.</i> <i>Course Learning Outcomes:</i> <i>1. Students are able to demonstrate and manage the maintenance of meat livestock (beef), dairy livestock, poultry (broilers and layers), and forage crops as well as pastures.</i> <i>2. Students are able to work collaboratively in teams during the management of meat livestock (beef), dairy livestock, poultry (broilers and layers), and forage crops as well as pastures.</i> <i>3. Students are able to plan and analyze business operations in the fields of meat livestock (beef), dairy livestock, poultry (broilers and layers), and forage crops as well as pastures.</i> <i>4. Students are able to communicate effectively, both orally and in writing, in the fields of meat livestock (beef), dairy livestock, poultry (broilers and layers), and forage crops as well as pastures.</i>
Content	<i>This course aims to provide students with experience in managing livestock enterprises in the fields of meat livestock (beef cattle), dairy livestock, poultry (broilers and layers), as well as forage crops and pasture. The learning method used involves direct field practice combined with Project-Based Learning.</i>
Examination forms	<i>Assessment based on mastery of subject matter, attitude, and final report</i>

Study and examination requirements	1. <i>Assessment based on mastery of subject matter: 60%</i> 2. <i>Attitude: 20%</i> 3. <i>Final report: 20%</i>
Reading list	-

Module Descriptions

Module designation	<i>PTK62104 Statistic</i>
Semester(s) in which the module is taught	2
Person responsible for the module	1. <i>Dr. Ir. Masrizal, MS</i> 2. <i>Dr. Hilda Susanty, S.Pt., M.Si</i> 3. <i>Dr. Lendrawati, S.Pt., MP</i> 4. <i>Dr. Ir. Montesqrit, Spt., MP</i> 5. <i>Rusdimansyah, S.Pt., M.Si</i> 6. <i>Ir. Andri, MS</i> 7. <i>Eli Ratni, S.Pt., M.P</i> 8. <i>El Latifa Sri Suharto, Spt., MSi</i> 9. <i>Kadran Fajrona, Spt., MPt.</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lecture, lesson, Learning management system (i-Learn) , case based method (CBM)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136.01 hours</i> <i>Contact hours: 39.97 hours (lecture, lesson)</i> <i>Private study including examination preparation, specified in hours: 96.04 hours</i>
Credit points	<i>4.53 ECTS</i>
Required and recommended prerequisites for joining the module	-

Module objectives/intended learning outcomes	<i>ILO 1: Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI 1: Able to apply honesty in every academic activity.</i> <i>PI 2: Able to apply discipline in attendance and in completing assigned tasks.</i> <i>PI 3: Able to apply politeness in every academic activity.</i> <i>PI 4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO 2: Master the basic general knowledge and fundamental theories in the field of animal husbandry.</i> <i>PI 1: Master the basic concepts of general knowledge.</i> <i>ILO 7: Possess the attitude of a lifelong learner and pursue further study in developing a professional career.</i> <i>PI 1: Able to demonstrate performance as a lifelong learner by completing the final assignment.</i> <i>Course Learning Outcomes:</i> <i>1. Students are able to explain and understand the basics of statistics, including the concepts of population, sample, parameters, and variables.</i> <i>2. Students are able to understand, process, organize, and present data, and apply it to data in the field of animal husbandry.</i> <i>3. Students are able to understand, know, and apply the function and use of descriptive statistics, including measures of central tendency, measures of position, and measures of dispersion in livestock data.</i> <i>4. Students are able to understand the concept of random variable theory, probability and its application, as well as sampling techniques and their application in the field of animal husbandry.</i> <i>5. Students are able to understand and apply the concept of parameter estimation theory, both point estimation and interval estimation for the mean and variance of one and two populations.</i> <i>6. Students are able to understand the basics of hypothesis testing and perform hypothesis testing using the t-test (Student's test), z-test, chi-square test, and Fisher's test for livestock data, and interpret the results of the analysis</i> <i>7. Students understand and are able to perform regression and correlation analyses, as well as interpret the results of these analyses.</i>
Content	<i>This course explains the basic principles of statistical methods applicable to the field of animal husbandry, including descriptive and inferential statistics, covering data presentation, measures of central tendency and position, dispersion, probability, principles of hypothesis testing for means and proportions, as well as regression analysis.</i>
Examination forms	<i>Quiz, assignment (CBM), mid test semester, final test semester</i>
Study and examination requirements	<i>1. Quiz: 5%</i> <i>2. Assignment (CBM): 50%</i> <i>3. Mid test semester: 20%</i> <i>4. Final test semester: 25%</i>

Reading list	1. Sudjana. 1984. <i>Metoda Statistika</i>. Penerbit Tarsito, Bandung 2. Steel, R.G.D., dan J.H. Torrie. 1989. <i>Prinsip dan Prosedur Statistika Suatu Pendekatan Biometrik</i>. Penerbit Gramedia, Jakarta. 3. Sudjana. 1996. <i>Teknik Analisis Regresi dan Korelasi</i>. Penerbit Tarsito, Bandung 4. Walpole, R.E. 1988. <i>Pengantar Statistika</i>. PT. Gramedia, Jakarta 5. Santoso, R.D., dan M.H. Kusnadi. 1992. <i>Analisis Regresi</i>. Penerbit Andi Offset, Yogyakarta
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Module Descriptions

Module designation	<i>AND60101 Community Service Program (KKN)</i>
Semester(s) in which the module is taught	6
Person responsible for the module	<i>10. Dr. Ir. Masrizal, MS</i> <i>11. Dr. Hilda Susanty, S.Pt., M.Si</i> <i>12. Dr. Lendrawati, S.Pt., MP</i> <i>13. Dr. Ir. Montesqrit, SPT., MP</i> <i>14. Rusdimansyah, S.Pt., M.Si</i> <i>15. Ir. Andri, MS</i> <i>16. Eli Ratni, S.Pt., M.P</i> <i>17. El Latifa Sri Suharto, SPT., MSi</i> <i>18. Kadran Fajrona, SPT., MPt.</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Cooperative learning, and project based learning</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 181.3 hours</i>
Credit points	<i>6.04 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1 : Ability to work in multidisciplinary and multicultural teams;</i> <i>PI-1: Able to apply honesty in every academic activity.</i> <i>PI-2: Able to apply discipline in attendance and in completing assigned tasks.</i> <i>PI-3: Able to apply politeness in every academic activity.</i> <i>PI-4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO 2 : Communication skills;</i> <i>PI-1: Able to present ideas in front of an audience and provide feedback.</i> <i>ILO 3 : Ability to demonstrate responsibility in society and uphold ethical standards;</i> <i>ILO-4: Ability to solve complex problems;</i> <i>PI-4 :Able to present ideas in front of an audience and provide feedback.</i> <i>ILO-5: Lifelong learning ability.</i> <i>PI-2: Demonstrate an attitude as a lifelong learner.</i> <i>Course Learning Outcomes:</i> <i>1. Able to work collaboratively in multidisciplinary teams and take</i>

	<i>responsibility for work independently.</i> <i>2. Able to identify and formulate problems in the community by considering the potential utilization of local resources.</i> <i>3. Able to identify and formulate problems in the community by considering the potential utilization of local resources.</i> <i>4. Possess empathy, social sensitivity, and concern for society and the environment.</i> <i>5. Able to communicate effectively both orally and in writing.</i>
Content	<i>Community Empowerment Learning is a form of learning based on student activities in the community as a learning environment. Students carry out activities to obtain and/or develop specific learning outcomes across all aspects (knowledge, skills both hard and soft and attitudes) in an immersive manner.</i>
Examination forms	<i>Orientation examination, activity proposal, individual and group work activities, activity logbook, case resolution, activity video, activity results presentation, and final activity report.</i>
Study and examination requirements	<i>1. Orientation examination: 10%</i> <i>2. Activity proposal: 10%</i> <i>3. Individual and group work activities: 30%</i> <i>4. Activity logbook: 10%</i> <i>5. Case resolution: 25%</i> <i>6. Activity video: 5%</i> <i>7. Activity results presentation: 5%</i> <i>8. Final activity report: 30%</i>
Reading list	<i>All references relevant to student community service program (KKN) activities.</i>

Module Descriptions “Elective Course BAS”

Module designation	PTK. 60201 Animal Disease and Health Science
Semester(s) in which the module is taught	3
Person responsible for the module	1. Dr. drh. Yulia Yellita, M.P; 2. drh. Yuherman, M.Si., Ph.D; 3. Ananda, S.Si., M.Si; 4. Syafri Nanda, S.Pt., M.Si; 5. Linda Suhart, S.Pt., M.Si.
Language	Indonesia and English
Relation to curriculum	elective
Teaching methods	lecture, lesson, lab works, project
Workload (incl. contact hours, self-study hours)	Total workload: 136,01 hours Contact hours : 39,97 (lecture) Private study including examination preparation, specified in hours : 96,04 hours
Credit points	4,53 ects
Required and recommended prerequisites for joining the module	Animal Physiology
Module objectives/intended learning outcomes	<i>ILO 1 : Internalize the fundamental values of the university, the code of ethics, and scientific ethics.</i> <i>PI-1: Able to apply honesty in every academic activity;</i> <i>PI-2: Able to apply discipline in attendance and in completing assigned tasks;</i> <i>PI-3: Able to apply politeness in every academic activity;</i> <i>PI-4: Able to demonstrate full responsibility for assigned tasks</i> <i>ILO 3 : Able to map, apply, and evaluate solutions to problems and develop an environmentally oriented livestock industry.</i> <i>PI-1: Master technical and industrial management skills in the field of livestock production;</i> <i>PI-3: Master technical and industrial management skills in the field of animal product technology;</i> <i>PI-4: Master technical and management skills in the field of livestock development and business.</i> <i>ILO 4 : Able to implement animal science through the development of the livestock industry and innovative and up-to-date scientific research. PI-1 : Able to identify problems in the field of animal science;</i> <i>PI-2 : Able to formulate and elaborate problems in the field of animal science;</i> <i>PI-3 : Able to apply solutions to problems in the field of animal science; PI-4 : Able to evaluate the results of solutions implemented in the field of animal science.</i> <i>ILO 7 : Have an attitude as a lifelong learner through further studies in developing a professional career.</i> <i>PI-1: Able to demonstrate performance as a learner by completing the final assignment;</i> <i>PI-2: Demonstrate an attitude as a lifelong learner.</i>

	1. Students are able to explain animal health and welfare in large livestock, small livestock, and poultry as an integral part of the production system. 2. Students are able to understand the immune system in large livestock, small livestock, and poultry. 3. Students are able to explain the concept of epidemiology as the relationship between agent–host–environment and the terminology related to disease occurrence. 4. Students are able to identify the causes of infectious diseases and zoonoses. 5. Students are able to identify the causes of non-infectious diseases in large livestock, small livestock, and poultry. 6. Students are able to predict and model disease outbreaks in livestock. 7. Students are able to implement disease control and prevention in livestock Students are able to develop a health program plan for a livestock farm
Content	In this course, students learn about animal health and welfare as an integral part of livestock production. Basic immunology, basic epidemiology, and infectious diseases in large livestock, small livestock, and poultry caused by viruses, bacteria, endoparasites, blood parasites, fungi, and ectoparasites are studied, including etiology, clinical symptoms, pathogenesis, diagnosis, control, and disease prevention. Students also learn the knowledge and skills to develop health programs for large livestock, small livestock, and poultry.
Examination forms	Presentation; Assignment, Practicum Report, Mid Test Semester, Final Test Semester
Study and examination requirements	1. Presentation; Assignment: 25% 2. Practicum Report : 20 % 3. Mid Test Semester : 25 % Final 4. Test Semester : 30 %
Reading list	1. Bratawidjaya, G.K. 2006. Basic Immunology. 7th Ed. FKUI Press, Jakarta. 2. Calnek, B., J.H. Barnes, W.C. Beard, R.L. McDougald, and Y.M. Saif. 1997. Diseases of Poultry. 10th Ed. Iowa State University Press, Ames, Iowa, USA. 3. Directorate General of Livestock and Animal Health. 2014. Poultry Health Manual. Sub-Directorate of Animal Disease Surveillance, 4. Directorate of Animal Health, Directorate General of Livestock and Animal Health. Directorate General of Livestock and Animal Health. 2014. Mammalian Health Manual. Sub-Directorate of Animal Disease Surveillance, Directorate of Animal Health, Directorate General of Livestock and Animal Health. 5. Radostits, O.M., A.J. Henderson, and D.C. Blood. 1981. Veterinary Medicine. Lea & Febiger, Philadelphia.

Module Descriptions “Elective Course BAS”

Module designation	<i>PPK 60204 Beef Cattle Production Management</i>
Semester(s) in which the module is taught	<i>4</i>
Person responsible for the module	<i>1. Prof. Dr. Ir. Salam N. Aritonang, M.S; 2. Prof. Dr. Ir. Khasrad, M.Si; 3. Rusdimansyah, S.Pt., M.Si; 4. Dr. Reswati, S.Pt., M.P; 5. Dr. Yetmanely, S.Pt., M.P; 6. Dr. Ferry Lismanto, S.Pt., M.P.</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Cooperative Learning; Problem-Based Learning</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136,01 Contact hours : 39,97 (lecture) Private study including examination preparation, specified in hours : 96,04</i>
Credit points	<i>4,53 ects</i>
Required and recommended prerequisites for joining the module	<i>-</i>
Module objectives/intended learning outcomes	<i>ILO 1 : Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI-1: Able to apply honesty in every academic activity.</i> <i>PI-2: Able to apply discipline in attendance and in completing assigned tasks.</i> <i>PI-3: Able to apply politeness in every academic activity.</i> <i>PI-4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO 2 : Master the fundamental general knowledge and basic theories in the field of animal science</i> <i>PI-2: Master the basic concepts in the field of livestock production technology.</i> <i>ILO 3 : Able to apply animal science in accordance with the development of the livestock industry and innovative and up-to-date scientific activities.</i> <i>PI-1 : Master technical and industrial management skills in the field of livestock production.</i> <i>ILO 4 : Able to identify, formulate, provide solutions, and evaluate solutions to problems in the field of animal science.</i> <i>PI-1: Able to identify problems in the field of animal science.</i> <i>PI-2: Able to formulate and elaborate problems in the field of animal science</i> <i>ILO 5 : Have leadership and entrepreneurship abilities in the field of animal science.</i> <i>PI-1: Able to demonstrate leadership qualities and be responsive to problems in the field of animal science.</i> <i>ILO 6 : Able to communicate orally and in writing using current information media about the field of animal science and integrate it with other fields of knowledge.</i> <i>PI-1: Able to present ideas in front of an audience and provide feedback. PI-2:</i>

	<i>Able to write reports in accordance with scientific writing standards.</i> <i>ILO 7 : Have an attitude as a lifelong learner and pursue further studies in developing a professional career.</i> <i>PI-1: Able to demonstrate performance as a learner by completing the final assignment.</i> <i>:1. Students are able to demonstrate responsibility and leadership in managing beef cattle production.</i> <i>2. Students are able to master basic concepts and apply technical management of beef cattle husbandry efficiently to improve livestock productivity.</i> <i>3. Students are able to identify, formulate, and evaluate solutions to technical and managerial problems in beef cattle enterprises based on scientific data and field conditions.</i> <i>4. Students are able to present analysis results and provide data-based recommendations to farmers or related stakeholders effectively in managing beef cattle production.</i> <i>5. Students are able to prepare scientific reports in accordance with academic writing standards and have a commitment to lifelong learning and self-development.</i>
Content	<i>The Beef Cattle Production Management course studies in detail the basic principles of management in beef cattle production, which include breeding management, feed management, and management of calves, young cattle, and pregnant cows. In addition, this course also discusses general management, housing, sanitation, disease prevention, and solutions to current emerging problems. The learning method used is the Case-Based Method (CBM), which integrates theory with its application in real case studies.</i>
Examination forms	<i>Progress Report, Progress, Mid Test Semester, Final Test Semester</i>
Study and examination requirements	<i>1. Progress Report: 28%</i> <i>2. Progress : 28 %</i> <i>3. Mid Test Semester : 22 %</i> <i>4. Final Test Semester : 22 %</i>
Reading list	<i>1. Quinn, T. 1980. Dairy Farm Management. Delmar Publisher Inc., Canada.</i> <i>2. Soeparno. 2005. Meat Science and Technology. Gadjah Mada University Press, Yogyakarta.</i> <i>3. Aberle, E.D., J.C. Forrest, D.E. Gerrard, and E.W. Mills. 2001. Principles of Meat Science. 4th Ed. Kendall/Hunt Publishing Company, Iowa.</i> <i>4. Forrest, J.C., H.B. Aberle, M.D. Hendrick, M.D. Judge, and R.A. Merkel. 1975. Principles of Meat Science. W.H. Freeman and Company, San Francisco.</i>

Module Descriptions “Elective Course BAS”

Module designation	<i>PPK 60205 Dairy Cattle Production Management</i>
Semester(s) in which the module is taught	<i>4</i>
Person responsible for the module	<i>1.Prof. Dr. Ir. Salam N. Aritonang, M.S; 2. Prof. Dr. Ir. Khasrad, M.Si; 3. Prof. Dr. Ir. Elly Roza, M.S; 4. Prof. Dr. Ir. Arief, M.S; 5. Dr. Hilda Susanty, M.Si; 6. Rusdimansyah, S.Pt., M.Si.</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Student-Centered Learning; Cooperative Learning (CL); Case-Based Method (CBM).</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 90,65 hours Contact hours : 26,65 hours Private study including examination preparation, specified in hours : 64,00 hours</i>
Credit points	<i>3,02 ECTS</i>
Required and recommended prerequisites for joining the module	<i>-</i>
Module objectives/intended learning outcomes	<i>ILO 1 : Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI-1: Able to apply honesty in every academic activity.</i> <i>PI-2: Able to apply discipline in attendance and in completing assigned tasks.</i> <i>PI-3: Able to apply politeness in every academic activity.</i> <i>PI-4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO 3 : Able to apply animal science in accordance with the development of the livestock industry and innovative and up-to-date scientific activities.</i> <i>PI-2 : Master technical and management skills in the field of nutrition and feed technology.</i> <i>ILO 4 : Able to identify, formulate, provide solutions, and evaluate solutions to problems in the field of animal science.</i> <i>PI-1: Able to identify problems in the field of animal science.</i> <i>PI-2: Able to formulate and elaborate problems in the field of animal science.</i> <i>PI-3: Able to apply solutions to problems in the field of animal science.</i> <i>PI-4: Able to evaluate the results of solutions implemented in the field of animal science.</i> <i>ILO 7 : Have an attitude as a lifelong learner and pursue further studies in developing a professional career.</i> <i>PI-2: Demonstrate an attitude as a lifelong learner.</i> <i>:1. Students are able to demonstrate honesty, politeness, discipline, and responsibility for assigned tasks and show an attitude as lifelong</i>

	learners. 2. Students are able to apply management principles in decision-making for livestock production. 3. Students are able to explain the definition of livestock management 4. Students are able to explain the basic concepts of breeding management. 5. Students are able to explain and demonstrate skills in feed management for livestock production 6. Students are able to explain the functions and models of housing and housing equipment. 7. Students are able to explain the principles of reproductive management, young livestock management, and husbandry systems 8. Students are able to explain and demonstrate skills in determining body condition score, recording, ear tagging, and age determination of livestock 9. Students are able to explain and demonstrate skills in livestock care management including bathing, hoof trimming, shearing, castration, and horn management.
Content	The Dairy Cattle Production Management course discusses various aspects related to management in dairy cattle, including characteristics of the dairy industry, breeding stock, feed management, husbandry practices, housing, general care, age determination, recording, milking management, and disease prevention and control in dairy cattle.
Examination forms	Individual Assignment, Collaborative Group Assignment, Progress Report, Mid Test Semester, Final Test Semester
Study and examination requirements	1. Individual Assignment : 6 % 2. Collaborative Group Assignment : 13 % 3. Progress Report : 50 % 4. Mid Test Semester : 13 % 5. Final Test Semester : 18 %
Reading list	1. Alcock, R., R. de Neef, H. de Villiers, and T. Dugmore. 2005. <i>Goat Production Handbook</i>. Department of Agricultural and Rural Development, Heifer International, South Africa. 2. Devendra, C., and G.B. Mc. Leroy. 1982. <i>Goat and Sheep Production in the Tropics</i>. Intermediate Tropical Agriculture Series. Longman, New York. 3. Devendra, C., and M. Burns. 2008. <i>Goat Production in the Tropics</i>. Commonwealth Agricultural Bureaux, Liberties, Australia. 4. Abebe, G., and A. Yami. 2008. <i>Sheep and Goat Management in Sheep and Goat Production Handbook for Ethiopia</i>. Brana Publishing House. 5. Mathis, C.P. 2000. <i>Sheep Production and Management</i>. Cooperative Extension Service, College of Agriculture and Home Economics, New Mexico 6. Other textbooks on goat and sheep management relevant to the course material. 7. Journal articles, proceedings, and theses related to research in goat and sheep management.

Module Descriptions “Elective Course BAS”

Module designation	<i>PPK 60217 Poultry Nutrition Science</i>
Semester(s) in which the module is taught	<i>4</i>
Person responsible for the module	<i>1. Prof. Dr. Ir. Mirnawati, M.S; 2. Prof. Dr. Ir. Yose Rizal, M.Sc; 3. Prof. Dr. Ir. Mirzah, M.S; 4. Prof. Dr. Ir. Wizna, M.S; 5. Prof. Dr. Ir. Gita Ciptaan, M.S.</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Student-Centered Learning; Cooperative Learning (CL); Case-Based Method (CBM).</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136,01 hours</i> <i>Contact hours : 39,97 hours</i> <i>Private study including examination preparation, specified in hours : 96,04 hours</i>
Credit points	<i>3 SKS/ 4,53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1 : Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI-1: Able to apply honesty in every academic activity.</i> <i>PI-2: Able to apply discipline in attendance and in completing assigned tasks.</i> <i>PI-3: Able to apply politeness in every academic activity.</i> <i>PI-4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO 3 : Able to apply animal science in accordance with the development of the livestock industry and innovative and up-to-date scientific activities.</i> <i>PI-2 : Master technical and management skills in the field of nutrition and feed technology.</i> <i>ILO 4 : Able to identify, formulate, provide solutions, and evaluate solutions to problems in the field of animal science.</i> <i>PI-1: Able to identify problems in the field of animal science.</i> <i>PI-2: Able to formulate and elaborate problems in the field of animal science.</i> <i>PI-3: Able to apply solutions to problems in the field of animal science.</i> <i>PI-4: Able to evaluate the results of solutions implemented in the field of animal science.</i> <i>ILO 7 : Have an attitude as a lifelong learner and pursue further studies in developing a professional career.</i> <i>PI-2: Demonstrate an attitude as a lifelong learner.</i> <i>: 1. Students are able to explain the concept of non-ruminant nutrition science.</i>

	2. Students are able to explain the differences in the digestive tract of non-ruminant animals (rabbits and horses) 3. Students are able to explain feed ingredients for non-ruminant animals (rabbits, horses, and pigs). 4. Students are able to explain nutrients and their requirements for non-ruminant animals (rabbits, horses, and pigs). 5. Students are able to explain energy and its requirements for non-ruminant animals (rabbits, horses, and pigs). 6. Students are able to explain the basic principles and methods of ration formulation for non-ruminant animals. 7. Students are able to explain the forms and feeding methods of rations for non-ruminant animals (rabbits, horses, and pigs). 8. Students are able to formulate rations for non-ruminant animals at various production levels. 9. Students are able to explain research techniques for non-ruminant animals (rabbits, horses, and pigs).
Content	<i>The Non-Ruminant Nutrition Science course studies the basic concepts and theories of monogastric animals (non-ruminants), namely rabbits, horses, and pigs; differences in the digestive tract of non-ruminant animals; digestive enzymes; nutrients and energy; feed ingredients for rabbits, horses, and pigs; ration formulation and feeding systems; and research on non-ruminant animals.</i>
Examination forms	<i>Individual Assignment, Collaborative Group Assignment, Progress Report, Practicum, Mid Test Semester, Final Test Semester</i>
Study and examination requirements	1. Individual Assignment : 3 % 2. Collaborative Group Assignment : 2 % 3. Progress Report : 55 % 4. Practicum : 20 % 5. Mid Test Semester : 10 % 6. Final Test Semester : 10 %
Reading list	1. Parakkasi, A. 1986. <i>Monogastrics</i>. UI Press, Jakarta. 2. De Blas, C., and J. Wiseman. 2010. <i>Nutrition of the Rabbit</i>. 2nd Ed. Typeset by SPi, Pondicherry, India. Printed and Bound in the UK by CPI Antony Rowe Ltd. 3. Cunha, T.J. 1991. <i>Horse Feeding and Nutrition</i>. Academic Press Inc., San Diego. 4. Cheeke, P.R. 1987. <i>Rabbit Feeding and Nutrition</i>. Academic Press Inc., Orlando. 5. NRC. 1973. <i>Nutrient Requirements of Domestic Animals</i>. Washington, DC. 6. Tami, D. 1986. <i>Rabbit and Horse Feed</i>. Lecture Notes. Faculty of Animal Science, Universitas Andalas, Padang. 7. McDonald, P., R.A. Edwards, and J.F.D. Greenhalgh. 1981. <i>Animal Nutrition</i>. 3rd Ed. Longman Inc., London. 8. Sihombing, D.T.H. 1977. <i>Pig Production</i>. Gadjah Mada University Press, Yogyakarta.

Module Descriptions “Elective Course BAS”

Module designation	<i>PPK 60218 Feed Toxicology</i>
Semester(s) in which the module is taught	4
Person responsible for the module	1. Dr. Ir. Montesqrit, S.Pt., M.Si; 2. Prof. Dr. Ir. Nuraini, M.S; 3. Prof. Dr. Ir. Yetti Marlida, M.S; 4. Prof. Dr. Ir. Harnentis, M.S; 5. Prof. Dr. Ir. Khalil, M.Sc; 6. Dr. Ir. Yuliaty Shafan Nur, M.S; 7. Dr. Ir. Adrizal, M.S; 8. Yesi Chwenta Sari, S.Pt., M.Si.
Language	<i>Indonesia and Engglish</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Cooperative Learning (CL); Project-Based Learning (PjBL)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136,01 hours</i> <i>Contact hours : 39,97 hours</i> <i>Private study including examination preparation, specified in hours : 96,04 hours</i>
Credit points	<i>3 SKS/ 4,53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1 : Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI-1: Able to apply honesty in every academic activity.</i> <i>PI-2: Able to apply discipline in attendance and in completing assigned tasks.</i> <i>PI-3: Able to apply politeness in every academic activity.</i> <i>PI-4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO 3 : Able to apply animal science in accordance with the development of the livestock industry and innovative and up-to-date scientific activities.</i> <i>PI-1 : Master technical and industrial management skills in the field of livestock production.</i> <i>ILO 4 : Able to identify, formulate, provide solutions, and evaluate solutions to problems in the field of animal science.</i> <i>PI-1: Able to identify problems in the field of animal science.</i> <i>PI-2: Able to formulate and elaborate problems in the field of animal science.</i> <i>PI-3: Able to apply solutions to problems in the field of animal science.</i> <i>PI-4: Able to evaluate the results of solutions implemented in the field of animal science.</i> <i>ILO 7 : Have an attitude as a lifelong learner and pursue further studies in developing a professional career.</i> <i>PI-2: Demonstrate an attitude as a lifelong learner.</i> <i>CLO : 1. Students are able to demonstrate honesty, politeness, discipline, and responsibility for assigned tasks and show an attitude as</i>

	<i>lifelong learners.</i> <i>2. Students are able to explain the definition of toxic and antinutritional compounds and provide examples in feed ingredients.</i> <i>3. Students are able to explain antinutritional compounds in feed ingredients.</i> <i>4. Students are able to explain toxic compounds in plant-based feeds.</i> <i>5. Students are able to explain toxic compounds resulting from feed processing.</i> <i>6. Students master the technical and management skills in determining and identifying antinutritional and toxic compounds in feed ingredients.</i>
Content	<i>This course discusses antinutritional compounds and toxic substances found in plant- and animal-based feed ingredients. Students will study the identification and recognition of hazardous compounds in feed, as well as their mechanisms of action and impacts on animal and human health. In addition, this course also covers methods of analysis and risk evaluation related to feed toxicology, as well as strategies for managing and controlling toxin contamination in the feed industry.</i>
Examination forms	<i>Persentation , Task Project , Mid Test Semester, Final Test Semester</i>
Study and examination requirements	<i>1. Persentation : 12 %</i> <i>2. Task Project : 42%</i> <i>3. Mid Test Semester : 20 %</i> <i>Final Test Semester : 26 %</i>
Reading list	<i>1. Natural Toxins in Food. New Zealand Food Safety Authority.</i> <i>2. Plant Toxins and Antinutrients: Genetically Engineered Organisms – Public Issues Education Project.</i> <i>3. Natural Toxins in Fresh Fruit and Vegetables. Canadian Food Inspection Agency.</i> <i>4. Linamarin, the Toxic Compound of Cassava. Journal of Venomous Animals and Toxins</i> <i>5. D'Mello, J.P.F. (Ed.). 2016. Handbook of Plant and Fungal Toxicants. CRC Press.</i> <i>6. Gupta, R.C. (Ed.). 2012. Veterinary Toxicology: Basic and Clinical Principles. 2nd Ed. Academic Press.</i> <i>7. Richard, J.L., and G.A. Payne (Eds.). 2003. Mycotoxins: Risks in Plant, Animal, and Human Systems. Council for Agricultural Science and Technology (CAST).</i> <i>8. Diaz, D.E. (Ed.). 2004. The Mycotoxin Blue Book. Nottingham University Press.</i> <i>9. Watson, D.H. (Ed.). 2008. Pesticide, Veterinary and Other Residues in Food. Woodhead Publishing.</i> <i>10. Gupta, R.C. (Ed.). 2016. Handbook of Foodborne Diseases. CRC Press.</i>

Module Descriptions “Elective Course BAS”

Module designation	<i>PPK 60215 Pasture Management</i>
Semester(s) in which the module is taught	5
Person responsible for the module	<i>1. Dr. Ir. Suyitman; 2. Dr. Evitayani, S.Pt., M.Agr; 3. Dr. Riesa Sriagtula, S.Pt., M.P; 4. Dr. Mardhiyetti, S.Pt., M.Si; 5. Dr. Imana Martaguri, S.Pt., M.Si; 6. Dr. Simel Sowmen, S.Pt., M.P; 7. Qurrata Aini, S.Pt., M.Pt.</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Cooperative Learning (CL); Project-Based Learning (PjBL)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136,01 hours Contact hours : 39,97 hours Private study including examination preparation, specified in hours : 96,04 hours</i>
Credit points	<i>3 SKS/ 4,53 ECTS</i>
Required and recommended prerequisites for joining the module	<i>Agrostologi</i>
Module objectives/intended learning outcomes	<i>ILO 1 : Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI-1: Able to apply honesty in every academic activity.</i> <i>PI-2: Able to apply discipline in attendance and in completing assigned tasks.</i> <i>PI-3: Able to apply politeness in every academic activity.</i> <i>PI-4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO 3 : Able to apply animal science in accordance with the development of the livestock industry and innovative and up-to-date scientific activities.</i> <i>PI-2 : Master technical and management skills in the field of nutrition and feed technology.</i> <i>ILO 4 : Able to identify, formulate, provide solutions, and evaluate solutions to problems in the field of animal science.</i> <i>PI-1: Able to identify problems in the field of animal science.</i> <i>PI-2: Able to formulate and elaborate problems in the field of animal science.</i> <i>PI-3: Able to apply solutions to problems in the field of animal science.</i> <i>PI-4: Able to evaluate the results of solutions implemented in the field of animal science.</i> <i>ILO 5 : Have leadership and entrepreneurship abilities in the field of animal science.</i> <i>PI-1: Able to demonstrate leadership qualities and be responsive to problems in the field of animal science.</i> <i>PI-2: Able to demonstrate a strong entrepreneurial spirit (creative, innovative, and willing to take risks).</i>

	<i>ILO 6 : Able to communicate orally and in writing using current information media about the field of animal science and integrate it with other fields of knowledge.</i> <i>PI-1: able to present ideas in front of an audience and provide feedback</i> <i>PI-2: Able to write reports in accordance with scientific writing standards.</i> <i>ILO 7 : Have an attitude as a lifelong learner and pursue further studies in developing a professional career.</i> <i>PI-2: Demonstrate an attitude as a lifelong learner.</i> <i>CLO : 1. Students are able to demonstrate responsibility and honesty for work in the field of pasture management independently.</i> <i>2. Students are able to apply scientific knowledge to identify types of forage plants in pastures.</i> <i>3. Students are able to apply methods in pasture management to determine pasture productivity.</i> <i>4. Students are able to apply scientific knowledge to identify pasture systems and grazing systems in a pasture.</i> <i>5. Students are able to formulate the stages of pasture development.</i> <i>6. Students are able to apply methods in pasture management to determine botanical composition and carrying capacity of a pasture</i> <i>7. Students are able to apply methods in pasture management to determine botanical composition and carrying capacity of a pasture</i>
Content	<i>This course discusses knowledge and management of pastures, both pure pastures and those integrated with food crops, plantations, and forestry. It also covers forms of grazing lands, grazing systems, grazing pressure, pasture degradation and improvement, pasture supplementation, carrying capacity and botanical composition, forage conservation, and ranch facilities and infrastructure related to pasture management.</i>
Examination forms	<i>Individual Assignment, persentation , Case Assignment , Mid Test Semester ,Final Test Semester</i>
Study and examination requirements	<i>1. Individual Assignment : 8 %</i> <i>2. Persentation : 11 %</i> <i>3. Case Assignment : 46 %</i> <i>4. Mid Test Semester : 16 %</i> <i>5. Final Test Semester : 19 %</i>
Reading list	

Module Descriptions “Elective Course BAS”

Module designation	<i>PPK 60220 Feed Biotechnology</i>
Semester(s) in which the module is taught	<i>4</i>
Person responsible for the module	<i>1. Prof. Dr. Ir. Nuraini, M.S; 2. Prof. Dr. Ir. Yetti Marlida, M.S; 3. Prof. Dr. Ir. Harnentis, M.S; 4. Dr. Ir. Yuliaty Shafan Nur, M.S; 5. Dr. Ir. Montesqrit, S.Pt., M.Si; 6. Yesi Chwenta Sari, S.Pt., M.Si.</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Cooperative Learning (CL); Project-Based Learning (PjBL)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 90,65 hours Contact hours : 26,65 hours Private study including examination preparation, specified in hours : 64,00 hours</i>
Credit points	<i>2 SKS/ 3,02 ECTS</i>
Required and recommended prerequisites for joining the module	<i>1. Biotechnology 2. Probiotics.</i>
Module objectives/intended learning outcomes	<i>ILO 1 : Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI-1: Able to apply honesty in every academic activity.</i> <i>PI-2: Able to apply discipline in attendance and in completing assigned tasks.</i> <i>PI-3: Able to apply politeness in every academic activity.</i> <i>PI-4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO 3 : Able to apply animal science in accordance with the development of the livestock industry and innovative and up-to-date scientific activities.</i> <i>PI-2 : Master technical and management skills in the field of nutrition and feed technology.</i> <i>ILO 4 : Able to identify, formulate, provide solutions, and evaluate solutions to problems in the field of animal science.</i> <i>PI-1: Able to identify problems in the field of animal science.</i> <i>PI-2: Able to formulate and elaborate problems in the field of animal science.</i> <i>PI-3: Able to apply solutions to problems in the field of animal science.</i> <i>PI-4: Able to evaluate the results of solutions implemented in the field of animal science.</i> <i>ILO 6 :Able to communicate orally and in writing using current information media about the field of animal science and integrate it with other fields of knowledge.</i> <i>PI-1: Able to present ideas in front of an audience and provide feedback.</i> <i>ILO 7 : Have an attitude as a lifelong learner and pursue further studies in developing a professional career. PI-2: Demonstrate an attitude as a</i>

	<i>lifelong learner.</i>
Content	<i>This course explains the important role of microbes in feed biotechnology, including the production of single-cell protein, organic acids, amino acids, enzymes, carotenoids, probiotics, and vitamins.</i>
Examination forms	<i>Persentation, Task Project, Mid Test Semester , Final Test Semester</i>
Study and examination requirements	<i>1. Persentation : 10 %</i> <i>2. Task Project : 55%</i> <i>3. Mid Test Semester : 18 %</i> <i>4. Final Test Semester : 18 %</i>
Reading list	<i>1. Other Textbooks on Feed Biotechnology Relevant to the Course Material;</i> <i>2. Literature Search on the Internet for Materials Related to the Topics Discussed in This Course.</i>

Module Descriptions “Elective Course BAS”

Module designation	<i>PPK 60221 Nutrition Science of Various Poultry Specie</i>
Semester(s) in which the module is taught	5
Person responsible for the module	<i>Dr. Ir. Ade Djulardi, M.S; 2. Dr. Ir. Ahadiyah Yuniza, M.S; 3. Dr. Ridho Kurniawan Rusli, S.Pt., M.P; 4. Dr. Zurmiati, S.Pt; 5. Robi Amizar, S.Pt., M.Si.</i>
Language	<i>Indonesia and Engglish</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Cooperative Learning (CL); Project-Based Learning (PjBL)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136,65 hours</i> <i>Contact hours : 39,97 hours</i> <i>Private study including examination preparation, specified in hours : 96,04 hours</i>
Credit points	<i>3 SKS/ 4,53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1 : Master effective and efficient livestock science and technology supported by digital technology, including breeding, feed provision, product processing, marketing management, and the organization of sustainable livestock production systems.</i> <i>PI-1: Able to master the concepts, principles, and applications of poultry nutrition knowledge in society and poultry farming;</i> <i>PI-2: Able to master knowledge and technology in the field of poultry nutrition effectvely and efficiently.</i> <i>ILO 3 : Able to apply livestock technology at both industrial and smallholder farm scales aimed at improving production, efficiency, quality, and sustainability, based on mastery of animal science including breeding, feed provision, product processing, management, and sustainable livestock production systems, including optimizing the potential of local livestock.</i> <i>PI-3 : Able to apply poultry nutrition science and livestock technology to solve problems in poultry farming;</i> <i>PI-4 : Demonstrate a diligent work attitude by dedicating all abilities so that ILO 4 : Able to assess the implications of the development or implementation of science and technology by considering and applying humanities values in accordance with their expertise based on scientific principles, procedures, and ethics in order to produce solutions, ideas, and scientific descriptions of their studies in the form of scientific works.</i> <i>PI-5 : Able to apply creative thinking, critical thinking, analytical thinking, logical argumentation, problem solving, case handling, and project work to achieve outcomes in the development or application of poultry farming.</i> <i>ILO 5 : Able to implement knowledge of leadership principles, effective communication, human resource management, and create innovative business opportunities in the field of animal science. ILO 6 :Able to</i>

	<i>communicate orally and in writing using current information media about the field of animal science and integrate it with other fields of knowledge</i> <i>PI-1: Able to present ideas in front of an audience and provide feedback.</i> <i>ILO 7 : Have an attitude as a lifelong learner and pursue further studies in developing a professional career.</i> <i>PI-2: Demonstrate an attitude as a lifelong learner.</i> <i>CLO :</i> <i>1. Demonstrate responsibility, honesty, and discipline in performing work in the field of poultry nutrition science independently.</i> <i>2. Able to demonstrate knowledge and technology in the field of poultry nutrition science innovatively in poultry nutrition commodities (feed, ration formulation, and the relationship between feed and poultry production).</i> <i>3. Able to apply technology in the field of poultry nutrition science to solve problems in poultry nutrition and provide appropriate and effective solutions.</i> <i>4. Use logical thinking, creative thinking, critical thinking, and collaborative thinking in solving cases and projects in the field of poultry nutrition.</i>
Content	<i>The Poultry Nutrition Science course studies the differences in digestive systems of various poultry species, the processes of digestion, absorption, metabolism, and utilization of nutrients, identification of feed ingredients, explanation of nutrient and energy requirements, and formulation of rations for various poultry species.</i>
Examination forms	<i>Quiz , Assignment, Task Project ,Practicum, Mid Test Semester, Final Test Semester</i>
Study and examination requirements	<i>1. Quiz : 4 %</i> <i>2. Assignment : 6%</i> <i>3. Task Project : 35%</i> <i>4. Practicum : 10 %</i> <i>5. Mid Test Semester : 10 %</i> <i>6. Final Test Semester : 15 %</i>
Reading list	<i>1. Djulardi, A., A.L. Suslina, and H. Muis. 2006. Nutrition of Various Livestock and Potential Animal Species. Unand Press, Padang.</i> <i>2. Djulardi, A. 2022. Quail Nutrition: Concepts and Applications. Minangkabau Press, Padang.</i> <i>3. NRC. 1994. Nutrient Requirements of Poultry. National Academy Press, Washington, DC.</i> <i>4. Leeson, S., and J.D. Summers. 2001. Nutrition of the Chicken. 4th Ed. University Books, Ontario (CA).</i> <i>5. Leeson, S., and J.D. Summers. 2005. Commercial Poultry Nutrition. 3rd Ed. University Books, Ontario (CA).</i>

Module Descriptions “Elective Course BAS”

Module designation	PTK 267 Feed Quality Control
Semester(s) in which the module is taught	5
Person responsible for the module	1. Prof. Dr. Ir. Khalil, M.Sc.; 2. Prof. Dr. Ir. Nuraini, M.S.; 3. Prof. Dr. Ir. Harnentis, M.S.; 4. Prof. Dr. Ir. Yetti Marlida, M.S.; 5. Dr. Ir. Yuliaty Shafan Nur, M.S.; 6. Dr. Ir. Adrizal, M.Si.; 7. Dr. Ir. Montesqrit, S.Pt., M.Si.; 8. Yesi Chwenta Sari, S.Pt., M.Si.
Language	Indonesia and English
Relation to curriculum	elective
Teaching methods	Cooperative Learning (CL); Project-Based Learning (PjBL)
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 90,65 hours Contact hours : 26,65 hours Private study including examination preparation, specified in hours : 64,00 hours
Credit points	2 SKS/ 3,02 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1 : Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI-1: Able to apply honesty in every academic activity.</i> <i>PI-2: Able to apply discipline in attendance and in completing assigned tasks.</i> <i>PI-3: Able to apply politeness in every academic activity.</i> <i>PI-4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO-2: Demonstrate innovative knowledge and technology in animal science.</i> <i>PI-1: Master the basic concepts of nutrition science and feed technology.</i> <i>PI-2: Able to identify problems in the field of animal science.</i> <i>ILO-4: Use logical, creative, critical, and collaborative thinking.</i> <i>PI-1: Able to apply creative, critical, logical, and collaborative thinking in preparing scientific written assignments.</i> <i>PI-2: Actively participate both orally and in writing in course assignments and group discussions.</i> <i>ILO-5: Communicate effectively both orally and/or in writing in Indonesian and/or foreign languages.</i> <i>PI-1: Able to communicate orally and/or in writing in Indonesian.</i> <i>PI-2: Able to prepare and report the results of assigned studies in the form of scientific work.</i> <i>ILO 7 : Have an attitude as a lifelong learner and pursue further studies in developing a professional career.</i> <i>PI-2: Demonstrate an attitude as a lifelong learner.</i>

	CLO : 1. Knowledge and understanding of feed quality terminology, feed quality parameters and testing methods, mechanisms of quality deterioration during storage, feed quality standards and control methods, as well as applicable regulations related to feed quality. 2. Ability and skills in conducting feed quality control (including raw materials and products), starting from sampling and sample preparation to performing feed quality testing both in the laboratory and in the field. 3. Demonstrate honesty, discipline, accuracy, and responsibility in conducting feed quality control in accordance with company work standards and applicable regulations.
Content	This course provides knowledge and skills on feed quality criteria, methods of monitoring and testing; quality changes and their causal factors; feed quality standards and regulations applicable for feed quality control. The course material is complemented with assignments on sampling methods, sample preparation, and sample analysis using a project-based learning approach.
Examination forms	Task , Mid Test Semester, Final Test Semester
Study and examination requirements	1. Task : 60% 2. Mid Test Semester : 10 % 3. Final Test Semester : 10 %
Reading list	1. Lengerken, J.V., and K. Zimmermann. 1991. <i>Feed Testing</i>. DLG Verlag, Berlin. 2. Khajarn, J. et al. 1987. <i>Manual of Feed Microscopy and Quality Control</i>. Kasetsart University and ASA, USA. 3. Directorate General of Livestock. 1998. <i>Feed Quality Standards</i>. Ministry of Agriculture. 4. McElhiney, R.R. 1994. <i>Feed Manufacturing Technology IV</i>. American Feed Industry Association (AFIA), Arlington, USA. Themenbereich 5. McElhiney, R.R. 1994. <i>Feed Manufacturing Technology IV</i>. American Feed Industry Association (AFIA), Arlington, USA. 6. Themenbereich 5: <i>Legal Foundations of Feed Regulations</i>. Available at: https://www.ages.at/tier/futtermittel/herstellung-inverkehrbringung/rechtliche-grundlagen . 7. Unit 2. <i>Evaluating Feedstuffs for Farm Animals</i>. Available at: https://slideplayer.com/slide/6192020/ . Research results related to feed quality control

Module Descriptions “Elective Course BAS”

Module designation	<i>PPK 60223 Beef Cattle and Buffalo Nutrition Science</i>
Semester(s) in which the module is taught	5
Person responsible for the module	<i>1. Prof. Dr. Ir. Fauzia Agustin, M.S.; 2. Prof. Dr. Ir. Novirman Jamarun, M.Sc.; 3. Prof. Dr. Ir. Hermon, M.Agr.; 4. Prof. Dr. Ir. Mardiaty Zain, M.S.; 5. Dr. Ir. Rusmana W.S. Ningrat, M.Rur.Sc.; 6. Dr. Ir. Elihasridas, M.S.; 7. Ir. Erpomen, M.S.; 8. Dr. Roni Pazla, S.Pt., M.Pt.</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Cooperative Learning (CL); Project-Based Learning (PjBL)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136,01 hours Contact hours : 39,97 hours Private study including examination preparation, specified in hours : 96,04 hours</i>
Credit points	<i>3 SKS/ 4,53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1 : Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI-1: Able to apply honesty in every academic activity.</i> <i>PI-2: Able to apply discipline in attendance and completion of assigned tasks.</i> <i>PI-3: Able to demonstrate politeness in every academic activity.</i> <i>PI-4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO-2: Able to master the basic general knowledge and fundamental theories in the field of animal science.</i> <i>PI-3: Master the basic concepts in the field of nutrition and feed industry technology.</i> <i>PI-6: Able to identify problems in the field of animal science.</i> <i>LO-3: Able to apply animal science in accordance with the development of the livestock industry and innovative and up-to-date scientific activities.</i> <i>PI-2: Master technical and management skills in the field of animal nutrition and feed technology.</i> <i>ILO-4: Able to identify, formulate, apply, and evaluate solutions to problems in the field of animal science.</i> <i>PI-1: Able to identify problems in the field of animal science.</i> <i>PI-2: Able to formulate and elaborate problems in the field of animal science.</i> <i>PI-3: Able to apply solutions to problems in the field of animal science.</i> <i>ILO-6: Able to communicate orally and in writing using current information media in the field of animal science and integrate it with</i>

	<i>other fields of knowledge.</i> <i>PI-1: Able to present ideas in front of an audience and provide feedback.</i> <i>PI-2: Able to write reports in accordance with scientific writing standards.</i> <i>ILO-7: Possess the attitude of a lifelong learner and pursue further study in developing a professional career.</i> <i>PI-1: Able to demonstrate performance as a learner by completing the final assignment.</i> <i>PI-2: Demonstrate an attitude as a lifelong learner.</i> <i>CLO :</i> <i>1. Students are able to explain the definition and scope of beef cattle and buffalo nutrition science and explain specific nutritional aspects for beef cattle and buffalo fattening</i> <i>2. Students are able to identify forages, concentrates, and agricultural by-products and their roles in meeting the nutritional requirements of beef cattle and buffalo</i> <i>3. Students are able to determine the standard requirements and intake of nutrients for beef cattle and buffalo and the factors affecting them</i> <i>4. Students are able to master the basic concepts of ration formulation for beef cattle and buffalo, including nutrient requirements and the ideal ration composition for beef cattle and buffalo</i> <i>5. Students are able to explain factors that can improve the efficiency of ration utilization and their effects on beef cattle and buffalo production</i> <i>6. Students are able to identify and present case studies on metabolic disorders and malnutrition in beef cattle and buffalo</i>
Content	<i>Beef Cattle and Buffalo Nutrition Science includes the understanding of forage feed, concentrates, agricultural by-products, supplements, and additives in rations for beef cattle and buffalo, as well as the calculation of nutrient requirements such as dry matter (DM), crude protein (CP), energy, minerals, and vitamins. In addition, it is important to study ration formulation and mixing techniques, as well as beef cattle and buffalo fattening programs to improve livestock productivity and welfare. In this context, the optimization of bypass protein, non-protein nitrogen (NPN), and microbial protein synthesis also becomes a focus to improve production efficiency. This knowledge helps farmers manage feed-related diseases and ensure optimal management of beef cattle and buffalo.</i>
Examination forms	<i>Assignment Individual Performance, Project and Presentation, Assignment Team Performance, Final Project Report and Presentation, Mid Test Semester, Final Test Semester</i>
Study and examination requirements	<i>1. Assignment Individual Performance : 5 %</i> <i>2. Proposal Preparation: Project and Presentation : 20%</i> <i>3. Final Project Report and Presentation :35%</i> <i>4. Mid Test Semester : 20 %</i> <i>5. Final Test Semester : 20 %</i>

Reading list	1. Maynard, L.A., J.K. Loosli, H.F. Hintz, and R.G. Warner. 1981. <i>Animal Nutrition</i>. 7th Ed. Tata McGraw-Hill Publishing Limited. 2. Lloyd, L.E., B.E. McDonald, and E.W. Crampton. 1990. <i>Fundamentals of Nutrition</i>. W.H. Freeman and Company, San Francisco. 3. Church, D.C. 1988. <i>Digestive Physiology and Nutrition of Ruminants</i>. Reston Book, Prentice Hall, New Jersey. 4. Van Soest, P.J. 1982. <i>Nutritional Ecology of the Ruminant</i>. O & B Books, Inc. 5. NRC. 1985. <i>Ruminant Nitrogen Usage</i>. National Research Council. Haresign, W., and D.J.A. 6. Cole. 1981. <i>Recent Developments in Ruminant Nutrition</i>. University of Nottingham, School of Agriculture. Butterworths. 7. NRC. 1986. <i>Nutrient Requirements of Beef Cattle</i>. National Research Council. 8. NRC. <i>Nutrient Requirements of Ruminants in Developing Countries</i>. National Research Council.
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Module Descriptions “Elective Course BAS”

Module designation	<i>PPL 60224 Goat and Sheep Nutrition Science</i>
Semester(s) in which the module is taught	5
Person responsible for the module	1. Prof. Dr. Ir. Mardiaty Zain, M.Si.; 2. Prof. Dr. Ir. Fauzia Agustin, M.S.; 3. Prof. Dr. Ir. Novirman Jamarun, M.Sc.; 4. Prof. Dr. Ir. Hermon, M.Agr.; 5. Dr. Ir. Rusmana W.S. Ningrat, M.Rur.Sc.; 6. Dr. Ir. Elihasridas, M.S.; 7. Dr. Roni Pazla; 8. Ir. Erpomen, M.S.
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Cooperative Learning (CL); Project-Based Learning (PjBL)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136,01 hours</i> <i>Contact hours : 39,97 hours</i> <i>Private study including examination preparation, specified in hours : 96,04 hours</i>
Credit points	<i>3 SKS/ 4,53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO-1: Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI-1: Able to apply honesty in every academic activity.</i> <i>PI-2: Able to demonstrate discipline in attendance and in completing assigned tasks.</i> <i>PI-3: Able to demonstrate politeness in every academic activity.</i> <i>PI-4: Able to show full responsibility for assigned tasks.</i> <i>ILO-2 : Able to master the basic general knowledge and fundamental theories in the field of animal science.</i> <i>PI-3 : Master the basic concepts in the field of nutrition and feed industry technology.</i> <i>PI-6 : Able to identify problems in the field of animal science.</i> <i>ILO-3: Able to apply animal science in accordance with the development of the livestock industry and innovative, up-to-date scientific activities.</i> <i>PI-2: Master technical and managerial skills in the field of animal nutrition and feed technology.</i> <i>ILO 4 : Able to identify, formulate, provide solutions, and evaluate solutions to problems in the field of animal science.</i> <i>PI-1: Able to identify problems in the field of animal science.</i> <i>PI-2: Able to formulate and elaborate problems in the field of animal science.</i> <i>PI-3: Able to apply solutions to problems in the field of animal science.</i> <i>PI-4: Able to evaluate the results of solutions implemented in the field of animal science.</i> <i>ILO 6 :Able to communicate orally and in writing using current</i>

	information media about the field of animal science and integrate it with other fields of knowledge. PI-1: Able to present ideas in front of an audience and provide feedback. ILO 7 : Have an attitude as a lifelong learner and pursue further studies in developing a professional career. PI-2: Demonstrate an attitude as a lifelong learner. CLO : 1. Students are able to explain the origin, classification, and distribution of goats and sheep in Indonesia, and explain the adaptation processes of goats and sheep in Indonesia 2. Students are able to explain the digestive system, characteristics, and feeding habits of goats and sheep 3. Students are able to explain the factors affecting feed intake and digestibility, methods for measuring digestibility in goats and sheep, and how digestibility is determined 4. Students are able to determine the nutrient requirements for goats and sheep, including energy, minerals, and vitamins, according to production objectives 5. Students are able to explain potential agricultural by-products for goats and sheep and their processing, identify feed ingredients for goats and sheep, and formulate rations according to their nutritional requirements 6. Students are able to explain the management of feeding and husbandry practices for goats and sheep according to production objectives
Content	The Goat and Sheep Nutrition Science course discusses the implementation of a project design process, including the requirements and roles of nutrients for goats and sheep, as well as factors affecting feed intake and digestibility, methods for measuring digestibility, and the formulation of rations based on standard nutrient requirements. The course also covers the utilization of agricultural by-product feeds in ration formulation, feeding methods, and evaluation techniques. At the end of this course, students are expected to be able to formulate efficient rations and evaluate them for production purposes.
Examination forms	Task, Final Project Report, Practicum, Quiz Pre test, Mid Test Semester : Final Test Semester
Study and examination requirements	1. Task : 25% 2. Final Project Report : 30 % 3. Practicum : 10 % 4. Quiz : 5 % 5. Pre test : 10 % 6. Mid Test Semester : 15 % 7. Final Test Semester : 15 %

Reading list	1. <i>NRC. 1981. Nutrient Requirements of Sheep. National Research Council.</i> 2. <i>NRC. 1981. Nutrient Requirements of Goats. National Research Council.</i> 3. <i>Shaitanso, S., and B. Norton. 1991. Goat Production in the Asian Humid Tropics.</i> 4. <i>Manik, W.T., et al. 1993. Goat and Sheep Production in Indonesia.</i> 5. <i>Edey, T.N. 1983. Tropical Sheep and Goat Production.</i> 6. <i>Devendra, C., and M. Burns. 1983. Goat Production in the Tropics.</i>
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Module Descriptions “Elective Course BAS”

Module designation	<i>PTK 61108 Agribusiness Management</i>
Semester(s) in which the module is taught	5
Person responsible for the module	<i>1. Dr. Ir. Dwi Yuzaria, S.E., M.Si; 2. Dr. Ir. Arfai, M.S; 3. Dr. Nurhayati, S.Pt., M.M; 4. Dr. Winda Sartika, S.Pt., M.Si; 5. Elfi Rahmi, S.Pt., M.P; 6. Tevina, S.Pt., M.P.</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Cooperative Learning (CL); Project-Based Learning (PjBL)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 90,65 hours Contact hours : 26,65 hours Private study including examination preparation, specified in hours : 64,00 hours</i>
Credit points	<i>2 SKS/ 3,02 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>1. Introduction to Economics</i>
Content	<i>Agribusiness management is the application of management science in carrying out agribusiness activities, including the management of input supply and procurement, farming (production), post-harvest handling, technology and risk management, as well as marketing. The Livestock Agribusiness Management course discusses the fundamentals of management, the role of management in agribusiness, agribusiness systems, production management, marketing and distribution of agribusiness products, risk management, technology management, and agribusiness institutions. This course also specifically discusses livestock agribusiness from various livestock commodities, including broiler and layer poultry, beef and dairy cattle, goats, sheep, and other livestock commodities.</i>
Examination forms	<i>Task, Individual Assignment, Persentation, Mid Test Semester, Final Test Semester</i>
Study and examination requirements	<i>1. Task : 50% 2. Individual Assignment : 6% 3. Persentation: 13 % 4. Mid Test Semester : 18 % 5. Final Test Semester : 13%</i>

Reading list	1. Downey, W.D., and S.P. Erickson. 2004. <i>Agribusiness Management</i>. Erlangga. Said, E.G., R.M. 2. Muhammad, and Z.M. Muttaqin. 2001. <i>Agribusiness Technology Management: The Key to Global Competitiveness of Agribusiness Products</i>. 3. Ghalia Indonesia. Soekartawi. 2016. <i>Agribusiness: Theory and Applications</i>. Rajawali Press. Yuzaria, D. 2010. <i>Management in Agribusiness</i>. Penerbit AD, Bandung. 4. Aziz, A., and B. Khrisnamurti. 2001. <i>Agribusiness</i>. Yayasan Sinar Tani. 5. Purnomo, S.H., A.I. Sari, S. Emawati, and E.T. Rahayu. 2016. <i>Livestock Agribusiness Management in Indonesia</i>. UNS Press. 6. Purnomo, S.H., and A. Ratriyanto. 2013. <i>Broiler Chicken Agribusiness Management in Indonesia</i>. UNS Press. 7. Santoso, E.P., Dyanasari, and E. Fitasari. 2022. <i>Agribusiness Marketing Management in Livestock</i>. 8. Recent publications, journals, and seminar papers on agribusiness at local, national, and international levels.
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Module Descriptions “Elective Course BAS”

Module designation	<i>PT 278 Integrated Farming System</i>
Semester(s) in which the module is taught	6
Person responsible for the module	<i>Dr. Ir. Arfa'i, M.S.; 2. Dr. Ir. Amna Suresti, M.Si.; 3. Dr. Dwi Yuzaria, S.E., M.Si.; 4. Ir. Boyon, M.P.</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Cooperative Learning (CL); Project-Based Learning (PjBL)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 90,65 hours</i> <i>Contact hours : 26,65 hours</i> <i>Private study including examination preparation, specified in hours : 64,00 hours</i>
Credit points	<i>2 SKS/ 3,02 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1 : Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila. PI-1: Able to apply honesty in every academic activity.</i> <i>PI-2: Able to apply discipline in attendance and in completing assigned tasks.</i> <i>PI-3: Able to apply politeness in every academic activity.</i> <i>PI-4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO 3 : Able to apply animal science in accordance with the development of the livestock industry and innovative and up-to-date scientific activities.</i> <i>PI-3 :Able to apply animal science in line with developments in the livestock industry and current, innovative scientific activities.</i> <i>ILO-4: Able to identify, formulate, provide solutions, and evaluate solutions to problems in the field of animal science.</i> <i>PI-4 : Able to evaluate the outcomes of solutions implemented in the field of animal science.</i> <i>ILO-5: Communicate effectively both orally and/or in writing in Indonesian and/or foreign languages.</i> <i>PI-1: Able to communicate orally and/or in writing in Indonesian.</i> <i>PI-2: Able to prepare and report the results of assigned studies in the form of scientific work.</i> <i>ILO 7 : Have an attitude as a lifelong learner and pursue further studies in developing a professional career.</i> <i>PI-2: Demonstrate an attitude as a lifelong learner.</i> <i>CLO :</i> <i>1. Students are able to explain the basic concepts of integrated farming systems and their scope</i>

	2. Students are able to explain current models of integrated farming systems 3. Students are able to explain technologies for processing and utilizing by-products in integrated farming systems. 4. Students are able to analyze various problems (challenges and opportunities) arising from integrated farming systems based on economic, ecological, and social considerations 5. Students are able to explain the scientific basis of integrated agriculture and analyze income and profit calculations from one model of an integrated farming system to support sustainable agriculture
Content	<i>This course discusses the objectives and concepts of farming systems, the definition and development of integrated farming systems through a systems approach, the functions and roles of livestock as an important component of farming systems, efficiency in integrated farming systems (LEISA), constraints and challenges in integrated farming systems, integration of livestock with crops (food crops and plantations), and technologies for processing and utilizing livestock and crop wastes.</i>
Examination forms	<i>Case Resolution, Report, Presentation</i>
Study and examination requirements	1. Case Resolution : 25% 2. Report : 50 % 3. Presentation 25%
Reading list	1. Ruthenberg, H. 1980. <i>Farming Systems in the Tropics</i>. 3rd Ed. Clarendon Press, Oxford. 2. Shaner, W.W., P.F. Philip, and W.R. Schurehl. 1982. <i>Farming Systems Research and Development: Guidelines for Developing Countries</i>. Westview Press Inc., Boulder, Colorado. 3. Spedding, C.R.W. 1979. <i>An Introduction to Agricultural Systems</i>. 2nd Ed. Elsevier Applied Science, London and New York. 4. Petheram, J., I. Subagio, and R.S. Copland. 1993. <i>Animal Science: Short Course on Animal Farming Systems</i>. University of Mataram, Lombok, Indonesia. 5. <i>Analysis of Social, Economic, and Environmental Impacts on Integrated Farming Models in Sindu Agung Village, Mangkutana District, East Luwu Regency.</i> 6. <i>Syntax Literate: Jurnal Ilmiah Indonesia</i>, Vol. 7(10), October 2022. 7. <i>Analysis of Social, Economic, and Environmental Impacts on Integrated Farming Models in Sindu Agung Village, Mangkutana District, East Luwu Regency.</i> 8. <i>Syntax Literate: Jurnal Ilmiah Indonesia</i>, Vol. 7(10), October 2022. 9. Saragih, B. 1998. <i>Livestock-Based Agribusiness</i>. Center for Development Studies, Research Institute, Bogor Agricultural University. 10. Directorate General of Livestock. 2010. <i>Technical Guidelines for the Development of Integrated Cattle and Crop Farming Systems</i>. Ministry of Agriculture, Directorate General of Livestock, Directorate of Ruminant Livestock Production.

Module Descriptions “Elective Course BAS”

Module designation	PPK 60244 Rural Sociology
Semester(s) in which the module is taught	5
Person responsible for the module	<i>Ediset, S.Pt, M.Si; Dr. Ir. Fuad Madarisa, M.Sc; Ir. Amrizal Anas MP; Riza; Andesca Putra, SPT, M.Si; Aditya Alqamal Alianta, S.Pt., M.Sc</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Small group discussion, Directed Learning</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 90,65 hours</i> <i>Contact hours : 26,65 hours</i> <i>Private study including examination preparation, specified in hours : 64,00 hours</i>
Credit points	<i>2 SKS/ 3,02 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO-1: Internalizing the university's core values, code of ethics, and scientific ethics based on Pancasila values.</i> <i>PI-1: Able to implement honesty in all academic activities.</i> <i>PI-3: Able to implement politeness in all academic activities.</i> <i>PI-4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO-2: Master the basics of general knowledge and basic theories in the field of animal husbandry.</i> <i>PI-6: Able to identify problems in the livestock sector.</i> <i>ILO-3: Able to apply animal husbandry science in accordance with developments in the livestock industry and innovative and current scientific activities.</i> <i>PI-4: Able to apply animal husbandry knowledge in accordance with developments in the livestock industry and innovative and current scientific activities.</i> <i>ILO-4: Able to identify, formulate, provide solutions and evaluate solutions given to problems in the livestock sector.</i> <i>PI-1: Able to identify problems in the livestock sector.</i> <i>PI-2: Able to formulate and describe problems in the livestock sector.</i> <i>PI-3: Able to apply solutions to livestock problems.</i> <i>ILO-6: Able to communicate orally and in writing using the latest information media on the field of animal husbandry and integrate it with other sciences.</i> <i>PI-1: Able to present ideas to an audience and provide feedback.</i> <i>PI-2: Able to write reports in accordance with scientific writing standards.</i> <i>ILO-7: Have an attitude as a lifelong learner and further study in</i>

	<i>developing a professional career.</i> <i>PI-2: Demonstrate attitudes as a lifelong learner.</i> <i>CLO :</i> <i>1. Students are able to explain the meaning, concept and scope of rural sociology.</i> <i>2. Students can explain the concept of villages, communities, village communities and development problems.</i> <i>3. Students are able to explain social units, institutions, value systems and their relationship to various existing field phenomena.</i> <i>4. Students are able to explain and analyze social sciences such as culture, social interaction, social stratification and social change.</i> <i>5. Students are able to understand community groups, livestock groups, group dynamics, group performance, and innovation for groups.</i> <i>6. Students are able to compile rural development planning documents, especially development planning for the livestock sub-sector.</i>
Content	<i>Definition, concept, scope, and methods of approach to understanding rural sociology. Rural communities, social units, institutions, value systems, villages and settlements, power and authority. Culture (customs, structures, values, and norms), social processes, social stratification and social change, community groups, livestock farming groups, group dynamics, group performance and participation in groups, and preparing rural development planning documents.</i>
Examination forms	<i>Class activity and progress, Mid-Term Exam, Assignments, Final Exam</i>
Study and examination requirements	<i>1. Class activity and progress: 18%</i> <i>2. Mid-Term Exam: 21%</i> <i>3. Assignments: 28%</i> <i>4. Final Exam: 28%</i>
Reading list	<i>1. Giddens, Anthony, 1990. Sociology. Polity Press. London.</i> <i>2. Shanin, Teodor, 1998. Peasant and Peasant Societies. Penguin Book. London.</i> <i>3. Soerjono Soekanto, 2007. Sociology: An Introduction. PT RajaGrafindo Persada, Jakarta</i> <i>4. Madariza, Fuad. 2008. Community Empowerment Facilities. Strategies and Processes for Working Together in Groups. Faculty of Animal Husbandry, Andalas University Padang.</i> <i>5. Sunarto Kamanto, 2004. Introduction to Sociology. LPFE UI. Jakarta</i> <i>6. Rahardjo, 2004. Introduction to Rural and Agricultural Sociology. UGM Press. Yogyakarta Chambers,</i> <i>6. Robert. 1988. Village Development Starting from the Back. Jakarta. LP3ES (Institute for Economic and Social Research, Education, and Information).</i> <i>7. Lauer, H. Robert. 1993. Perspectives on Social Change. Jakarta: Rineka Cipta Ediset, 2020. Introduction to Livestock Innovation. Andalas University Press. Padang.</i>

Module Descriptions “Elective Course BAS”

Module designation	<i>PTK 61108 Strategic Management</i>
Semester(s) in which the module is taught	5
Person responsible for the module	<i>Prof. Dr. Asdi Agustar, MSc; Dr. Nurhayati, S.Pt, MM; Dr. Fitriawati, S.Pt., M.Si; Dr. Ir. Amna Suresti, MSi; Dr. Ir. Fuad Madarisa, MSc; Dr. Ir. Arfai, MS; and Tevina Edwin, S.Pt, MP</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Small group discussion, Directed Learning</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 90,65 hours</i> <i>Contact hours : 26,65 hours</i> <i>Private study including examination preparation, specified in hours : 64,00 hours</i>
Credit points	<i>2 SKS/ 3,02 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO-1: Internalizing the university's core values, code of ethics, and scientific ethics based on Pancasila values.</i> <i>PI-1: Demonstrate honesty in exams, report scientific data and information, and cite credible sources.</i> <i>PI-2: Behave politely in appearance and communication in accordance with the student code of ethics.</i> <i>PI-3: Have confidence in presenting theories, concepts, and empirical facts in scientific forums.</i> <i>PI-4: Demonstrate full responsibility for assigned tasks.</i> <i>PI-5: Be disciplined in attendance and completing assigned tasks.</i> <i>ILO-2: Master the basics of general knowledge and basic theories in the field of animal husbandry.</i> <i>PI-1: Mastery of the history and basic concepts of management</i> <i>PI-2: Mastery of the strategic management process</i> <i>PI-3: Able to design business strategies</i> <i>ILO-4: Able to identify, formulate, provide solutions and evaluate solutions given to problems in the livestock sector.</i> <i>PI-1: Able to identify problems in the livestock sector.</i> <i>PI-2: Able to formulate and describe problems in the livestock sector.</i> <i>ILO-5: Communicate effectively orally and/or in writing in both Indonesian and foreign languages.</i> <i>PI-1: Able to communicate verbally and/or in writing in Indonesian</i> <i>PI-2: Able to compile and report the results of assigned studies in the form of scientific work</i> <i>ILO-6: Able to communicate orally and in writing using the latest information media on the field of animal husbandry and integrate it</i>

	<i>with other sciences.</i> <i>PI-1: Able to present ideas to an audience and provide feedback.</i> <i>PI-2: Able to write reports in accordance with scientific writing standards.</i> <i>PI-3: Understand the scope of strategic management</i> <i>ILO 8: Mastering and utilizing the latest information technology in the field of animal husbandry or other fields of study.</i> <i>PI-1: Able to utilize the latest information technology in strategic management.</i> <i>PI-2: Able to document, store, secure, and retrieve data to ensure validity and avoid plagiarism.</i> CLO : <i>1. Students are able to demonstrate responsible and honest attitudes</i> <i>2. Students are able to carry out their duties and roles as students studying in the field of animal husbandry.</i> <i>3. Students are able to understand the history of strategic management</i> <i>4. Students are able to understand strategic management concepts</i> <i>5. Students are able to understand the strategic management process</i> <i>6. Students are able to understand the stages in strategic management</i>
Content	<i>This course is designed to provide students with an overview of the best way to make important decisions about strategic management, especially in the use of various strategies in the business world. The learning methods used in this course are Cooperative Learning (CL) and Case Based Method (CBM).</i>
Examination forms	<i>Individual assignment, Presentation, Case 1, Case 2, Case 3, Case 4, Case 5, Midterm exam, Final exam</i>
Study and examination requirements	<i>1. Individual assignment: 6%</i> <i>2. Presentation: 13%</i> <i>3. Case 1: 10%</i> <i>4. Case 2: 10%</i> <i>5. Case 3: 10%</i> <i>6. Case 4: 10%</i> <i>7. Case 5: 10%</i> <i>8. Midterm exam: 18%</i> <i>9. Final exam: 13%</i>
Reading list	<i>1. Gamble, 2015. Essentials of Strategic Management, Mc Graw Hill</i> <i>2. Fred David, 2010, Strategic Management Concepts and Cases.</i> <i>3. Pearson Johnson, 2017, Exploring Strategic, Pearson Hitt, Ireland,</i> <i>4. Hoskisson, 2011, Concepts Strategic Management Competitiveness and Globalization, South Western Cengage Learning, Canada</i>

Module Descriptions “Elective Course BAS”

Module designation	<i>PPK 60207 Poultry Production Management</i>
Semester(s) in which the module is taught	5
Person responsible for the module	<i>Prof. Dr. Ir. Tertia Delia Nova MSi</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Small group discussion, Directed Learning, and Cooperative Learning (CL) and Project-Based Learning (PjBL).</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 90,65 hours</i> <i>Contact hours : 26,65 hours</i> <i>Private study including examination preparation, specified in hours : 64,00 hours</i>
Credit points	<i>2 SKS/ 3,02 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO-1: Internalizing the university's core values, code of ethics, and scientific ethics based on Pancasila values.</i> <i>PI-1: Demonstrate honesty in exams, report scientific data and information, and cite credible sources.</i> <i>PI-2: Behave politely in appearance and communication in accordance with the student code of ethics.</i> <i>PI-3: Have confidence in presenting theories, concepts, and empirical facts in scientific forums.</i> <i>PI-4: Demonstrate full responsibility for assigned tasks.</i> <i>ILO-3: Able to apply animal husbandry science in accordance with developments in the livestock industry and innovative and current scientific activities.</i> <i>PI-1 Mastering technical and industrial management skills in the livestock production sector.</i> <i>ILO 4: Able to identify, formulate, implement and evaluate solutions to problems in the livestock sector.</i> <i>PI-1: Able to identify problems in the livestock sector</i> <i>PI-2: Able to formulate and describe problems in the livestock sector</i> <i>PI-3: Able to apply solutions to livestock problems</i> <i>PI-4: Able to assess the results of solutions implemented in the livestock sector</i> <i>ILO-7 Have an attitude as a lifelong learner and further study in developing a professional career.</i> <i>PI-2 Demonstrate an attitude as a lifelong learner</i> <i>CLO :</i> <i>1. Students are able to carry out their duties and roles as students studying in</i>

	<i>the field of animal husbandry.</i> <i>2. Students are able to master and apply livestock environmental management concepts that can influence livestock productivity.</i> <i>3. Students are able to identify, formulate, implement, and evaluate solutions to problems related to livestock environmental management.</i>
Content	<i>The Poultry Production Management major is an elective major taken by all undergraduate students at Faculty of Animal Husbandry, Andalas University. It studies the management of breeding broilers, commercial chickens (layers and broilers), and local poultry (chickens and KUB), including breeding selection, housing, maintenance, feeding, disease prevention, and handling of poultry products (meat and eggs) prior to processing. The learning methods used in this course are Cooperative Learning (CL) and Project-Based Learning (PjBL).</i>
Examination forms	<i>Presentation, Mid-Term Exam, Final Exam, Project</i>
Study and examination requirements	<i>1. Presentation: 10%</i> <i>2. Mid-Term Exam: 18%</i> <i>3. Final Exam: 17%</i> <i>4. Project: 55%</i>
Reading list	<i>1. Bojiraj, M. 2017. Livestock and Poultry Production Management. Publisher: Thanthai Roever Institute of Agriculture and Rural Development. Tamil Nadu, India.</i> <i>2. Cobb-Vantress. 2018. Broiler Management Guide. Cobb-Vantress. Inc. United stated</i> <i>3. Cobb-Vantress. 2019. Cobb 500 Breeder Management Supplement Female Fast Feather. Cobb-Vantress Inc. United stated</i> <i>4. F.A.O. 2021. Gateway to poultry production and products. Food and Agriculture Organization of the United Nations.</i> <i>5. Isabel Guerrero-Legarreta. 2010. Handbook of Poultry Science and Technology. A John Wiley & Sons, Inc., Publication. United States of America</i> <i>6. Jon Moyle. 2020. Basic Management of Poultry in Developing Communities. University of Maryland</i> <i>7. Saxena, V.K. and G. Kolluri. 2018. Selection Methods in Poultry Breeding: From Genetics to Genomics. Intechopen. DOI: 10.5772/intechopen.77966</i> <i>8. Salam, S., A. Fatahilah, D. Sunarti, and Isroli. 2013. Carcass Weight and Abdominal Fat of Broiler Chickens Fed with Black Cumin (Nigella sativa) Flour in the Ration During Summer. Animal Science Vol. 11 (2), September 2013: 84-89</i> <i>9. Sauveur, B. 1988. Volatile Reproduction and Production. INRA. Paris.</i> <i>Scanes G. C., G. Brant, and M. E. Ensminger. 2004. Poultry Science. 4th Edition. Published by Pearson Prentice Hall, Upper Saddle River, New Jersey.</i> <i>10. Setioko, A.R., D.J.S. Hetzel, and A.J. Evans. Duck Production in Indonesia. In: Duck Production Science and World Practice (Ed. D.J. Farrel and P. Stapleton). University of New England, Armidale.</i> <i>11. Shen, T.F. Nutrient Requirements of Egg-Laying Ducks. In: Duck Production Science and World Practice (Ed. D.J. Farrel and P. Stapleton). University of New England, Armidale.</i> <i>12. Sinurat, A.P. Miftah, and T. Pasaribu. 1993. The Effect of Dietary Energy Source and Level on the Performance of Local Male Ducks. Science and Animal Husbandry, 6(2): 20-24.</i> <i>13. Soeparno. 2005. Meat Science and Technology. 4th Edition. Yogyakarta. Gadjah Mada University Press.</i>

	14. Indonesian National Standard. 2009. <i>Chicken Carcass and Meat Quality</i>. SNI 3924:2009. Jakarta. National Standardization Agency. 15. Sumarni and Nan Djuarnani. 1995. <i>Poultry Post-Harvest Handling Instructions</i>. Ministry of Agriculture. Agricultural and Livestock Training Center, Ciawi, Bogor. 16. Sunari, Rukmiasih, and P.S. Hardjosworo. 2001. "Percentage of Food and Non-Food Portions of Mandalung Ducks at Various Ages," <i>Proceedings of the Waterfowl Workshop. Development of Waterfowl Agribusiness as a New Business Opportunity</i>. Ciawi, August 6-7, 2001. Animal Husbandry Research Institute, Ciawi: 202-207 17. Syarief, R. and Halid, H. 1991. <i>Food Storage Technology</i>. Inter-University Center for Food and Nutrition, IPB: ARCAN Publisher 18. Srigandono, B. 1986. <i>Waterfowl Science</i>. Gadjah Mada University Press, Yogyakarta. 19. Sugandi, D. 1980. <i>Cages. Training for Chicken and Duck Demonstrators</i>. Directorate General of Animal Husbandry. Jakarta. 20. Suswoyo, I. 1990. <i>Companion of Extensive Systems of Duck Farming in Central Java</i>. University of Melbourne. Melbourne. 21. Suswoyo, I. 1990. <i>Companion of Extensive Systems of Duck Farming in Central Java</i>. University of Melbourne. Melbourne. 22. Technical Service Department. 2017. <i>Broiler Breeder Male and Female, Feeding and Management Guide</i>. Arbor Acres Farm, Inc., Glastonbury, Connecticut. 23. Triyantini, Abubakar, I.A.K. Bintang, and T. Antawidjaja. 1997. "Comparative Study of Quality and Nutritional Preferences of Several Types of Poultry Meat", <i>JITV</i> 2: 157-163. 24. Winarno, F.G. and Koswana, S. 2002. <i>Eggs: Composition, Handling, and Management</i>, Bogor Agricultural University, Bogor.
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Module Descriptions “Elective Course BAS”

Module designation	<i>PPK 60208 Livestock Reproductive Disorder Management</i>
Semester(s) in which the module is taught	5
Person responsible for the module	<i>Dr. Ir. Hendri, M.S.; Dr. Ir. Masrizal, M.S.; Dr. Ir. Jaswandi, M.S.; Syafri Nanda, S.Pt., M.Si.; and Ananda, S.Si., M.Si.</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Small group discussion, Directed Learning</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 90,65 hours</i> <i>Contact hours : 26,65 hours</i> <i>Private study including examination preparation, specified in hours : 64,00 hours</i>
Credit points	<i>2 SKS/ 3,02 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO-2: Master the basics of general knowledge and basic theories in the field of animal husbandry.</i> <i>PI-2: Menguasai konsep-konsep dasar bidang teknologi produksi ternak.</i> <i>ILO-3: Able to apply animal husbandry science in accordance with developments in the livestock industry and innovative and current scientific activities.</i> <i>PI-3: Able to apply solutions to problems in the livestock sector.</i> <i>ILO 6: Able to identify, formulate, implement and evaluate solutions to problems in the livestock sector.</i> <i>PI-2: Able to write reports according to scientific writing rules.</i> <i>ILO-7 Have an attitude as a lifelong learner and further study in developing a professional career.</i> <i>PI-2 Demonstrate an attitude as a lifelong learner.</i> <i>CLO :</i> <i>1. Students are able to identify common types of reproductive disorders in livestock and understand their causes and risk factors.</i> <i>2. Students are able to analyze the impact of reproductive disorders on livestock productivity and livestock profits.</i> <i>3. Students are able to apply methods for preventing and treating reproductive disorders in livestock based on the latest theory and research.</i> <i>4. Students are able to design effective reproductive health management strategies to improve reproductive success in livestock.</i> <i>5. Students are able to communicate and provide solutions for managing livestock reproductive disorders in a professional and scientific manner.</i> <i>6. Students develop a lifelong learning attitude by keeping abreast of technological developments and innovations in livestock reproductive</i>

	<i>management.</i>
Content	<i>This course discusses various reproductive disorders that occur in livestock, including their causes, risk factors, and impacts on the productivity and efficiency of livestock businesses. Students will learn and recognize the types of reproductive disorders in livestock and analyze effective prevention and treatment methods. Furthermore, students will be trained to design reproductive health management strategies based on the latest research and technology to improve reproductive success and the sustainability of livestock populations. This course also encourages students to continuously develop their knowledge and skills in livestock reproduction through a scientific and professional approach.</i>
Examination forms	<i>Progress Report, Final Report, Mid-Term Exam, Final Exam.</i>
Study and examination requirements	1. Progress Report: 28.5% 2. Final Report: 32.5% 3. Mid-Term Exam: 19% 4. Final Exam: 20%
Reading list	1. Arthur's Veterinary Reproduction and Obstetrics – Noakes, D.E., Parkinson, T.J., & England, G.C.W. (2018). <i>Veterinary Reproduction and Obstetrics (10th Edition)</i>. Saunders Elsevier. 2. Pathways to Pregnancy and Parturition – Senger, P.L. (2012). <i>Pathways to Pregnancy and Parturition (3rd Edition)</i>. Current Conceptions, Inc. 4 3. Reproduction in Farm Animals – Hafez, E.S.E., & Hafez, B. (2000). <i>Reproduction in Farm Animals (7th Edition)</i>. Wiley-Blackwell. 4. Veterinary Reproductive Ultrasonography – England, G. C. W., & Russo, M. (2015). <i>Veterinary Reproductive Ultrasonography</i>. CABI Publishing. 5. Current Therapy in Large Animal Theriogenology – Youngquist, R.S., & Threlfall, W.R. (2006). <i>Current Therapy in Large Animals Theriogenology (2nd Edition)</i>. Saunders Elsevier. 6. Manual of Animal Andrology – Chenoweth, P.J., & Lorton, S.P. (2014). <i>Manual of Animal Andrology</i>. CABI Publishing. 7. Reproductive Technologies in Farm Animals – Tervit, R., & Niemann, H. (2008). <i>Reproductive Technologies in Farm Animals</i>. CABI Publishing. 8. Theriogenology: Diagnosis and Treatment of Animal Reproduction – Hopper, R.M. (2014). <i>Theriogenology: Diagnosis and Treatment of Animal Reproduction</i>. Saunders Elsevier. 9. Bovine Reproduction – Hopper, R.M. (2015). <i>Bovine Reproduction</i>. Wiley-Blackwell. 10. Reproductive Biology and Phylogeny of Birds – Jamieson, B.G.M. (2007). <i>Reproductive Biology and Phylogeny of Birds</i>. Science Publishers. 11. Andrology in Farm Animals – Ritar, A.J., & Chenoweth, P.J. (2019). <i>Andrology in Farm Animals</i>. Springer. 12. Controlled Reproduction in Farm Animals – Hunter, R.H.F. (1995). <i>Controlled Reproduction in Farm Animals</i>. CAB International. 13. Biotechnology in Animal Husbandry – Ranjan, R., & Misra, B. (2012). <i>Biotechnology in Animal Husbandry</i>. Springer. 14. Ultrasonography in Reproductive Biology – Ginther, O.J. (1995). <i>Ultrasonography in Reproductive Biology</i>. Equiservices. 15. Reproductive Pathology of Domestic Mammals – Dennis, S. (2017). <i>Reproductive Pathology of Domestic Mammals</i>. Wiley-Blackwell. 16. Fundamentals of Veterinary Clinical Pathology – Stockham, S.L., & Scott,

	<i>M.A. (2013). Fundamentals of Veterinary Clinical Pathology (2nd Edition). Wiley-Blackwell.</i> <i>17. Reproductive Biotechnology in Livestock – Niemann, H., & Wrenzycki, C. (2018). Reproductive Biotechnology in Livestock. Springer.</i>
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Module Descriptions “Elective Course BAS”

Module designation	<i>PPK 60210 Livestock Environmental Management</i>
Semester(s) in which the module is taught	6
Person responsible for the module	<i>Dr. Lendrawati, S.Pt, MSi.; Dr. Hilda Susanty, S.Pt, M.Si.; and Dr. Yetmaneli, S.Pt, MP.</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Small group discussion, Directed Learning</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 90,65 hours</i> <i>Contact hours : 26,65 hours</i> <i>Private study including examination preparation, specified in hours : 64,00 hours</i>
Credit points	<i>2 SKS/ 3,02 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO-1: Internalizing the university's core values, code of ethics, and scientific ethics based on Pancasila values.</i> <i>PI-1: Able to implement honesty in all academic activities.</i> <i>PI-2: Able to implement discipline in attendance and completion of assigned tasks.</i> <i>PI-3: Able to implement politeness in all academic activities.</i> <i>PI-4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO-3: Able to apply animal husbandry knowledge in accordance with developments in the livestock industry and innovative and current scientific activities.</i> <i>PI-1: Mastery of technical and industrial management skills in the livestock production sector.</i> <i>ILO 4: Able to identify, formulate, implement, and evaluate solutions to problems in the livestock sector.</i> <i>PI-1: Able to identify problems in the livestock sector.</i> <i>PI-2: Able to formulate and describe problems in the livestock sector.</i> <i>PI-3: Able to apply solutions to problems in the livestock sector.</i> <i>PI-4: Able to evaluate the results of implemented solutions in the livestock sector.</i> <i>ILO 5: Possesses leadership and entrepreneurial skills in the livestock sector.</i> <i>PI-2: Able to demonstrate a strong entrepreneurial spirit (creative, innovative, and willing to take risks)</i> <i>ILO-7: Have a lifelong learning attitude and pursue further studies to develop a professional career.</i> <i>PI-2: Demonstrate a lifelong learning attitude</i>

	<i>CLO :</i> <i>1. Students are able to demonstrate an honest, polite, disciplined and responsible attitude towards the tasks given as well as a lifelong learner attitude</i> <i>2. Students are able to master and apply the concept of livestock environmental management which can influence livestock productivity.</i> <i>3. Students are able to identify, formulate, implement, and evaluate solutions to problems regarding livestock environmental management.</i>
Content	<i>This course explains the important role of micro and macro environments in livestock production, microenvironmental measurement techniques in livestock buildings, livestock behavior and heat production recording techniques, heat transfer mechanisms in livestock environments, principles and mechanisms of heat transfer in open and closed system livestock buildings, microenvironmental control in open and closed system livestock buildings, biofilter techniques in livestock environmental control. The learning methods used in this course are Cooperative Learning (CL) and Project Based Learning (PjBL).</i>
Examination forms	<i>Progress Report, Final Report, Mid-Term Exam, Final Exam</i>
Study and examination requirements	<i>1. Progress Report: 28.5%</i> <i>2. Final Report: 32.5%</i> <i>3. Mid-Term Exam: 19%</i> <i>4. Final Exam: 20%</i>
Reading list	<i>1. Animal environment dalam Swenson MJ. 1970. Dukes Physiology Domestic Animals. 8th Ed. Cornell University Press.</i> <i>2. Other textbooks on animal husbandry relevant to the course material.</i> <i>3. Search and research online for materials related to the subject matter of this course.</i>

Module Descriptions “Elective Course BAS”

Module designation	<i>PPK 60211 Animal Observation and Behavior Science</i>
Semester(s) in which the module is taught	6
Person responsible for the module	<i>Dr. Ir. Ferry Lismanto Syaiful, S. Pt, MP.; Dr. Lendrawati, S. Pt, MSi., and Rusdimansyah, S. Pt, MP</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Small group discussion, Directed Learning</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136,01 hours</i> <i>Contact hours : 39,97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours : 96,04 hours</i>
Credit points	<i>3 SKS/ 4,53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO-1: Internalizing the university's core values, code of ethics, and scientific ethics based on Pancasila values.</i> <i>PI-1: Able to implement honesty in all academic activities.</i> <i>PI-2: Able to implement discipline in attendance and completion of assigned tasks.</i> <i>PI-3: Able to implement politeness in all academic activities.</i> <i>PI-4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO-3: Able to apply animal husbandry knowledge in accordance with developments in the livestock industry and innovative and current scientific activities.</i> <i>PI-1: Mastery of technical and industrial management skills in the livestock production sector.</i> <i>ILO 4: Able to identify, formulate, implement, and evaluate solutions to problems in the livestock sector.</i> <i>PI-1: Able to identify problems in the livestock sector.</i> <i>PI-2: Able to formulate and describe problems in the livestock sector.</i> <i>PI-3: Able to apply solutions to problems in the livestock sector.</i> <i>PI-4: Able to evaluate the results of implemented solutions in the livestock sector.</i> <i>ILO-7: Have a lifelong learning attitude and pursue further studies to develop a professional career.</i> <i>PI-2: Demonstrate a lifelong learning attitude</i> <i>CLO :</i> <i>1. Students are able to demonstrate an honest, polite, disciplined and responsible attitude towards the tasks given as well as a lifelong learner</i>

	<i>attitude</i> <i>2. Students are able to explain and understand about judging livestock (cattle, buffalo, goats, sheep and poultry), estimating the weight and body composition of livestock, estimating the production and reproductive capacity of livestock.</i> <i>3. Students are able to explain and understand the ethology and behavior of livestock, livestock domestication, social behavior, offspring-parent behavior, ingestive behavior, and learning.</i> <i>4. Students are able to judge livestock according to their genetic potential and are able to observe livestock behavior in order to apply the principles of livestock welfare on farm, transportation and slaughter.</i>
Content	<i>The Animal Science course covers introduction, livestock judging, estimating livestock weight and body composition, and estimating livestock production and reproductive capacity. The Animal Behavior course covers livestock ethology and behavior, livestock domestication, social behavior, offspring behavior, ingestive behavior, and learning. The learning methods used in this course are Cooperative Learning (CL) and Case-Based Method (CBM) in the form of group discussion assignments, papers, and presentations, as well as cognitive/knowledge assessments: several components include assignments, quizzes, mid-term exams, and final exams.</i>
Examination forms	<i>Individual assignments, Presentations, Case 1, Case 2, Case 3, Case 4, Case 5, Midterm exams, Final exams</i>
Study and examination requirements	<i>1. Individual assignments : 6%</i> <i>2. Presentations : 13%</i> <i>3. Case 1 : 10%</i> <i>4. Case 2 : 10%</i> <i>5. Case 3 : 10%</i> <i>6. Case 4 : 10%</i> <i>7. Case 5 : 10%</i> <i>8. Midterm exams : 18%</i> <i>9. Final exams : 13%</i>
Reading list	<i>1. Animal Science: An Introductory Text oleh Peter J. Chenoweth dan Milton C. Hill.</i> <i>2. Livestock Judging Manual oleh Texas A & M AgriLife Extension Service.</i> <i>3. Livestock Judging Handbook" oleh Oklahoma State University Department of Animal Science.</i> <i>4. Judging Livestock and Poultry" oleh National FFA Organization.</i> <i>5. Estimating the Body Weight of Beef Cattle. oleh M.L. Galyean, R.D. Randel, dan J.P. Fontenot.</i> <i>6. Livestock Measurement Guide. oleh Deutscher Bauernverlag.</i> <i>7. Prediction of Live Weight and Carcass Composition in Farm Animals. oleh J. France dan A. J. A. A. Moloney.</i> <i>8. James Blakely, David H. Bade. The Science of Animal Husbandry (terjemahan) Srigandono, dan Soedarsosno. 1991. Gajah Mada University Press.</i> <i>9. Schmidt. 1985. Beef Cattle Production. 2nd edition. Buttherworth. Sidney. London.</i> <i>10. Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production by Wilson G. Pond, David B. Church, and</i>

	<i>Richard A. Pospischil.</i> <i>11. Sastroamidjojo, S. Suradji. 1990. General Animal Husbandry. CV. Yasaguna. Jakarta.</i> <i>12. Other Textbooks on animal environmental science relevant to the course material.</i> <i>13. Searching and Searching for National and International Journals on the Internet for Material Related to the Topics in this Course</i>
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Module Descriptions “Elective Course BAS”

Module designation	<i>PPK 60213 Waterfowl Science</i>
Semester(s) in which the module is taught	6
Person responsible for the module	<i>Prof. Dr.Ir. Hj.Husmaini, MP.; Prof. Dr. Ir. Tertia Delia Nova, M.Si.; Dr.Ir. Sabrina, MP.; Dr.Ir. Yan Heryandi, MP.; and Dr.Kusnadidi Subekti, S.Pt.,MP.</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Small group discussion, Directed Learning, Cooperative Learning (CL) and Cased Based Method-CBM)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 90.65 hours</i> <i>Contact hours : 26.65 hours (lecture)</i> <i>Private study including examination preparation, specified in hours : 64.00 hours</i>
Credit points	<i>2 SKS/ 3,02 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO-1: Internalizing the university's core values, code of ethics, and scientific ethics based on Pancasila values.</i> <i>PI-1: Able to implement honesty in all academic activities.</i> <i>PI-2: Able to implement discipline in attendance and completion of assigned tasks.</i> <i>PI-3: Able to implement politeness in all academic activities.</i> <i>PI-4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO-3: Able to apply animal husbandry knowledge in accordance with developments in the livestock industry and innovative and current scientific activities.</i> <i>PI-1: Mastery of technical and industrial management skills in the livestock production sector.</i> <i>ILO 4: Able to identify, formulate, implement, and evaluate solutions to problems in the livestock sector.</i> <i>PI-1: Able to identify problems in the livestock sector.</i> <i>PI-2: Able to formulate and describe problems in the livestock sector.</i> <i>PI-3: Able to apply solutions to problems in the livestock sector.</i> <i>PI-4: Able to evaluate the results of implemented solutions in the livestock sector.</i> <i>ILO-7: Have a lifelong learning attitude and pursue further studies to develop a professional career.</i> <i>PI-2: Demonstrate a lifelong learning attitude</i> <i>CLO :</i> <i>1. Demonstrate a responsible attitude in his/her field of expertise Students are able to explain the origins, history and development of ducks in</i>

	<i>Indonesia.</i> <i>2. Students understand the duck maintenance system in Indonesia, especially meat ducks, egg laying ducks and breeding ducks, as well as the housing system.</i> <i>3. Students are able to cultivate ducks starting from ducklings (dod), young ducks and adult ducks as well as the factors that greatly influence growth.</i>
Content	<i>In this course, students learn about the origins and history of waterfowl development in Indonesia, the contribution of waterfowl to meeting the community's need for animal protein, the nomenclature and anatomy of waterfowl, and the various duck breeds. Students understand the duck farming system in Indonesia, especially for meat ducks, layers, and breeding ducks, as well as the housing system. Students are also able to cultivate ducks starting from ducklings (dod), doves, and adults, as well as the factors that significantly influence their growth and production</i>
Examination forms	<i>Individual Assignment, Presentation, Mid-Term Exam, Case Study, Case Study 2, Case Study 3, Case Study 4, Case Study 5, Final Exam</i>
Study and examination requirements	<i>1. Individual Assignment: 6%</i> <i>2. Presentation: 13%</i> <i>3. Mid-Term Exam: 18%</i> <i>4. Case Study 1: 10%</i> <i>5. Case Study 2: 10%</i> <i>6. Case Study 3: 10%</i> <i>7. Case Study 4: 10%</i> <i>8. Case Study 5: 10%</i> <i>9. Final Exam: 13%</i>
Reading list	<i>1. Bell, D and Weaver Card, L. E and M. C Nesheim. 1972. Poultry Production. 11th Ed. Lea and Febiger, Philadelphia</i> <i>2. Leeson, S and J.D. Summers. 1991. Commercial Poultry Nutrition. University Books, Ontario.</i> <i>3. North, M. O., and D. Bell. 1990. Commercial Chicken Production Manual. Fourth Ed. An Avi Book Pub. By Van Nostrand Reinhold New York. . Dukes Physiology Domestic Animals. 8th Ed. Cornell University Press.</i> <i>4. Indonesian Poultry Journal Poultry International Journal</i> <i>5. Other textbooks on waterfowl science relevant to the course material Internet searches and searches for materials related to the subject matter of this course</i>

Module Descriptions “Elective Course BAS”

Module designation	<i>PPK 60216 Dairy Cattle Nutrition Science</i>
Semester(s) in which the module is taught	5
Person responsible for the module	<i>Prof.Dr.Ir.Fauzia Agustin, M.S</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Small group discussion, Directed Learning, Cooperative Learning (CL) and Cased Based Method-CBM)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136,01 hours</i> <i>Contact hours : 39,97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours : 96,04 hours</i>
Credit points	<i>3 SKS/ 4,53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO-1: Internalizing the university's core values, code of ethics, and scientific ethics based on Pancasila values.</i> <i>PI-1: Able to implement honesty in all academic activities.</i> <i>PI-2: Able to implement discipline in attendance and completion of assigned tasks.</i> <i>PI-3: Able to implement politeness in all academic activities.</i> <i>PI-4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO-2: Able to master the basics of general knowledge and basic theories in the field of animal husbandry.</i> <i>PI-3: Master the basic concepts of nutrition and feed industry technology.</i> <i>PI-6. Able to identify problems in the animal husbandry sector.</i> <i>ILO-3: Able to apply animal husbandry knowledge in accordance with developments in the livestock industry and innovative and current scientific activities.</i> <i>PI-2: Master technical and management skills in the field of animal nutrition and feed technology.</i> <i>ILO 4: Able to identify, formulate, implement, and evaluate solutions to problems in the livestock sector.</i> <i>PI-1: Able to identify problems in the livestock sector.</i> <i>PI-2: Able to formulate and describe problems in the livestock sector.</i> <i>PI-3: Able to apply solutions to problems in the livestock sector.</i> <i>ILO-6: Able to communicate verbally and in writing using the latest information media in the field of animal husbandry and integrate it with other scientific knowledge.</i>

	<i>PI-1: Able to present ideas to an audience and provide feedback.</i> <i>PI-2: Able to write reports in accordance with scientific writing standards.</i> <i>ILO-7: Have a lifelong learning attitude and pursue further studies to develop a professional career.</i> <i>PI-1: Able to demonstrate performance as a learner by completing the final assignment.</i> <i>PI-2: Demonstrate a lifelong learning attitude</i> CLO : <i>1. Students are able to explain a) the definition and scope of dairy cattle nutrition science. b) the dynamics of lactating cows.</i> <i>2. a) Students are able to identify feed and its nutritional content; b) Students are able to determine the standard nutrient requirements for dairy cattle and evaluate rations.</i> <i>3. Students: a) Can explain specific aspects of food: crude fiber and crude fat in dairy cattle; b) Can explain the influence of certain nutrients, feed supplements, and feed additives in dairy cattle rations and can explain their role in rumen microbes.</i> <i>4. Students are able to formulate rations based on milk production and milk fat content.</i> <i>5. Able to identify and explain metabolic disorders due to errors in feed management in dairy cattle</i>
Content	<i>In this Dairy Animal Nutrition Science course, students learn the process of implementing a design project, covering: the nutrient requirements and roles of growing, pregnant, and lactating dairy cattle, as well as the factors influencing milk production and quality. It also explains how to formulate rations based on body weight, production volume, and milk fat content in lactating cattle. It also discusses the role of concentrates, forages, and additives in dairy cattle, as well as metabolic disorders in dairy cattle. The teaching method in this course is Project-Based Learning (PjBL).</i>
Examination forms	<i>Assignment 1/Homework, Mind Mapping, Assignment 2 (PjBL), Major Assignment (Project, PjBL), Quiz, Mid-Term Exam, Final Project Report (PjBL), Final Report Presentation, Practical Work</i>
Study and examination requirements	<i>1. Assignment 1/Homework, Mind Mapping: 5%</i> <i>2. Assignment 2 (PjBL): 10%</i> <i>3. Major Assignment (Project, PjBL): 10%</i> <i>4. Quiz: 5% Mid-Term Exam: 15%</i> <i>5. Final Project Report (PjBL): 30%</i> <i>6. Final Report Presentation: 15% Practical Work (10%)</i>
Reading list	<i>1. National Research Council, 1988. Nutrient Requirements of Dairy Science.</i> <i>2. National Research Council, 2001. Nutrient Requirements of Dairy Science.</i> <i>3. Sutardi T, 1982. Dairy Cows and Their Feeding. Larson, 1985. Lactation. Latest journals on dairy livestock research.</i> <i>4. Eustice, 1991. Dairy Cattle Management Guide Bath, D. 1985. Dairy Cattle: Principles, Practice, Problems, Profits.</i> <i>5. Graphet. 1987. Dairy Cattle Production Akers, M. 2002. Lactation and Mammary Gland. McDonald's. 2002. Animal Nutrition</i>

Module Descriptions “Elective Course BAS”

Module designation	<i>PPK 60219 Feed Industry Management</i>
Semester(s) in which the module is taught	6
Person responsible for the module	<i>Dr. Ir. Adrizal, MSi.; Dr. Ir. Montesqrit, S.Pt. M.Si.; Prof. Dr. Ir. Nuraini, MS.; Prof. Dr. Ir. Harnentis, MS.; Prof. Dr. Ir. Khalil, MSc.; Dr. Ir. Yuliaty Shafan Nur, MS.; Yesi Chwenta Sari, S.Pt., M.Si.; Prof. Dr. Ir. Yetti Marlida, MS</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Small group discussion, Directed Learning, Cooperative Learning (CL) and Project-Based Learning (PjBL)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136,01 hours Contact hours : 39,97 hours (lecture) Private study including examination preparation, specified in hours : 96,04 hours</i>
Credit points	<i>3 SKS/ 4,53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO-1: Internalizing the university's core values, code of ethics, and scientific ethics based on Pancasila values.</i> <i>PI-1: Able to implement honesty in all academic activities.</i> <i>PI-2: Able to implement discipline in attendance and completion of assigned tasks.</i> <i>PI-3: Able to implement politeness in all academic activities.</i> <i>PI-4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO-3: Able to apply animal husbandry knowledge in accordance with developments in the livestock industry and innovative and current scientific activities.</i> <i>PI-1: Mastering technical and industrial management skills in the livestock sector</i> <i>ILO 4: Able to identify, formulate, implement, and evaluate solutions to problems in the livestock sector.</i> <i>PI-1: Able to identify problems in the livestock sector.</i> <i>PI-2: Able to formulate and describe problems in the livestock sector.</i> <i>PI-3: Able to apply solutions to problems in the livestock sector.</i> <i>PI-4: Able to assess the results of implemented solutions in the livestock sector</i> <i>ILO-7: Have a lifelong learning attitude and pursue further studies to develop a professional career.</i> <i>PI-2: Demonstrate a lifelong learning attitude</i> <i>CLO :</i> <i>1. Students are able to demonstrate an honest, polite, disciplined and responsible attitude towards the tasks given as well as a lifelong learner</i>

	<i>attitude</i> <i>2. Students are able to explain the meaning of feed industry management and the scope of learning.</i> <i>3. Students are able to identify conditions, formulate problems and find solutions, as well as analyze the potential of the feed industry in Indonesia.</i> <i>4. Students are able to master and apply feed production techniques and management.</i> <i>5. Students are able to identify, formulate, implement, and evaluate solutions in feed marketing.</i> <i>6. Students are able to identify, formulate, implement, and evaluate solutions in the organization and management of the feed industry.</i> <i>7. Students master technical and management skills in financial planning for the feed industry.</i> <i>8. Students master technical and management skills in preparing business plans for the feed industry.</i>
Content	<i>The Feed Industry Management course discusses the basic management principles applied in the feed industry, covering aspects of production, marketing, organization and operational management, and financial analysis. This course aims to provide students with the knowledge and skills to plan and manage the feed industry efficiently and effectively. Topics covered include the potential for national feed industry development, aspects of production, marketing, organization and operational management, and financial aspects. The learning methods used in this course are Cooperative Learning (CL) and Project-Based Learning (PjBL). Project-Based Learning (PjBL) is a learning method that uses activities as a medium, integrating real-life activities to enrich the theories and concepts discussed. Students identify, analyze, assess, explore, formulate, and evaluate to produce various learning outcomes.</i>
Examination forms	<i>Presentation, Project, Midterm Exam, Final Exam</i>
Study and examination requirements	<i>1. Presentation: 10%</i> <i>2. Project: 55%</i> <i>3. Midterm Exam: 18%</i> <i>4. Final Exam: 17%</i>
Reading list	<i>1. Feed Manufacturing Technology, 1976 (Feed Production Council, American Feed Manufacturers Association, Inc)</i> <i>2. Animal Feed Industry (M. Halim Natsir et al., 2017. UB Press)</i> <i>3. Ruminant Feed Technology (Dr. Hamdi Maluyu, S.Pt, M.Si, 2019. Rajawali Press)</i>

Module Descriptions “Elective Course BAS”

Module designation	<i>PPK 62227 Food And Nutrition Of Livestock Products</i>
Semester(s) in which the module is taught	5
Person responsible for the module	<i>Dr. Sri Melia, S.TP., MP</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Small group discussion, Directed Learning, Cooperative Learning (CL) and Project-Based Learning (PjBL)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136,01 hours</i> <i>Contact hours : 39,97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours : 96,04 hours</i>
Credit points	<i>3 SKS/ 4,53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO-1: Internalizing the university's core values, code of ethics, and scientific ethics based on Pancasila values.</i> <i>PI-1: Able to implement honesty in all academic activities.</i> <i>PI-2: Able to implement discipline in attendance and completion of assigned tasks.</i> <i>PI-3: Able to implement politeness in all academic activities.</i> <i>PI-4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO-7: Have a lifelong learning attitude and pursue further studies to develop a professional career.</i> <i>PI-1: Able to demonstrate performance as a learner by completing a final assignment.</i> <i>PI-2: Demonstrate a lifelong learning attitude</i> <i>CLO :</i> <i>1. Students are able to explain the basic introduction to nutritional science, animal food science as a source of energy.</i> <i>2. Students are able to explain, present and evaluate the nutritional content of livestock products, Students are able to explain food and energy, applied nutrition, and food poisoning.</i> <i>3. Students are able to explain the function, metabolism and nutritional adequacy of the body as well as antioxidants.</i>

Content	<i>This course covers a basic introduction to nutritional science, including the science of animal foods as a source of energy needed by the human body. The nutrients contained in meat, eggs, and milk are explained in animal foods. These three are the main products produced by animals. These products contain water, carbohydrates, fats, proteins, vitamins, minerals, and enzymes. It also explains how to measure the energy produced by food for the body's needs, applied nutrition, and food poisoning. Nutritional function, metabolism, and adequate nutrition for the body, along with antioxidants, are discussed</i>
Examination forms	<i>Assignments/Presentations, Major assignments (case method), Quizzes, Mid-term exams, Final exams, Practical work</i>
Study and examination requirements	1. Assignments/Presentations: 9% 2. Major assignments (case method): 50% 3. Quizzes: 5% 4. Mid-term exams: 10% 5. Final exams: 16% 6. Practical work (10%)
Reading list	1. Belitz, H. D., W. Grosch and P. Schieberle. 2009. <i>Food Chemistry</i>. Springer. Berlin 2. Colgate, T.P. 2001. <i>Food Chemistry of its Components</i>. UK 3. Earle R., and Mary E. 2003. <i>Fundamentals of Food Reaction Technology</i>. Antony Rowe Ltd. UK 4. Almatsier, S. 2004. <i>Basic Principles of Nutrition Science</i>. Scholastic. Jakarta 5. Muchtadi, D. 2009. <i>Introduction to Nutrition Science</i>. Alfabeta. Bandung 6. Siorski, A.E and Kolakowska, A. 2002. <i>Chemical and Functional Properties of Food Lipids</i>. CRC Press. Florida 7. Gustone, F.D. 2006. <i>Modifying Lipids for Use in Food</i>. CRC Press. USA 8. Akoh, C.C. and David B. M. 2002. <i>Food Lipids</i>. Marcel Dekker. New York 9. Sungsoo, S, Leon P and Mark D. 1999. <i>Complex Carbohydrates in Foods</i>. Marcel Dekker. New York 10. Biliaderis, C.G. And Marta S.I. 2006. <i>Functional Food Carbohydrates</i>. CRS Press. 11. Apenten R.K.O. 2002. <i>Food Protein Analysis</i>. Marcel Dekker, Inc. New York 12. Ball, G. F. M. 2006. <i>Vitamins in Foods: Analysis, Bioavailability and Stability</i>. CRC Press 13. Preedy, V. R and Watson. 2004. <i>Reviews in Food and Nutrition Toxicity</i>. Taylor and Francis. London 14. Pokorny J., Nedyalka Y., and Michael G. 2001. <i>Antioxidants in Food</i>. SRS Press. Washington

Module Descriptions “Elective Course BAS”

Module designation	<i>PPK 60230 Egg Science And Technology</i>
Semester(s) in which the module is taught	5
Person responsible for the module	<i>Deni Novia, S.TP., MP</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Small group discussion, Directed Learning, Cooperative Learning (CL) and Project-Based Learning (PjBL)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136,01 hours</i> <i>Contact hours : 39,97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours : 96,04 hours</i>
Credit points	<i>3 SKS/ 4,53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO-1: Internalizing the university's core values, code of ethics, and scientific ethics based on Pancasila values.</i> <i>PI-1: Able to implement honesty in all academic activities.</i> <i>PI-2: Able to implement discipline in attendance and completion of assigned tasks.</i> <i>PI-3: Able to implement politeness in all academic activities.</i> <i>PI-4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO-7: Have a lifelong learning attitude and pursue further studies to develop a professional career.</i> <i>PI-1: Able to demonstrate performance as a learner by completing a final assignment.</i> <i>PI-2: Demonstrate a lifelong learning attitude</i> <i>CLO :</i> <i>1. Students are able to explain the scope of egg science and technology, egg quality and maintenance.</i> <i>2. Students are able to explain the composition, physicochemical properties, microorganisms and egg preservation.</i> <i>3. Students are able to explain, present and evaluate egg processing, egg product industry and non-food uses.</i>

Content	<i>This course discusses egg science and technology, including: the scope and prospects of the egg industry, egg structure and quality, egg quality maintenance and microorganisms, egg chemical composition, egg preservation, egg physicochemical properties, egg processing (salted eggs, pickled eggs, boiled eggs, mayonnaise, egg rendang), the egg product industry (frozen egg products, egg powder, pasteurized egg products), and the use of eggs for non-food purposes.</i>
Examination forms	<i>Assignments/Presentations, (presentation assignments, (Mind Map 2%). Major assignments (case method), Quizzes, Mid-term exams, Final exams, Practical work.</i>
Study and examination requirements	1. Assignments/Presentations: 20% (presentation assignments (3% x 6 = 18%) (Mind Map 2%). 2. Major assignments (case method): 38% 3. Quizzes: 2% 4. Mid-term exams: 15% 5. Final exams: 10% 6. Practical work (20%)
Reading list	1. Guerrero, I., and Legarreta. 2010. <i>Handbook of Poultry Science and Technology, Volume 1: Primary Processing</i>. John Wiley and Sons Inc. Canada. 2. Immerseel, F.V., Y. Nys and M. Bain. 2011. <i>Improving the Safety and Quality of Eggs and Eggs Products, Volume 2: Egg Safety and Nutritional Quality</i>. Woodhead Publishing Limited. New Delhi. 3. Thohari, I. 2018. <i>Egg Processing and Preservation Technology</i>., books.google.com, 4. Evanuarini, H, Thohari, I, and Safitri, AR. 2021. <i>Egg Processing Industry</i>., books.google.com, 5. Widarta, IWR. 2017. <i>Egg Technology</i>. Food Science and Technology, Udayana University ..., simdos.unud.ac.id, 6. Koeswara, S. 2009. <i>Egg Processing Technology</i>. E. Food Book. Bogor 7. Mountney, G.J. and Parkust. 1995. <i>Poultry Product Technology</i>. 3rd Ed. Food Product Process. New York, London 8. Muchtadi, D. 2009. <i>Principles of Protein Source Food Technology</i>. Alfabeta Publishers. 9. Mudambi, S.R., S.M. Rao, and M.V. Rajagopal. 2006. <i>Food Science</i>. New Age International (P) Ltd. Publisher. New Delhi. 10. Soekarto, S.T. 2013. <i>Egg Handling and Processing Technology</i>. Alfabeta Publishers. Bandung. 11. Stadelman, J.W. and Owen, J.C. 1995. <i>Egg Science and Technology</i>. 4th Ed. Avi Book Connecticut. 12. Winarno, F.G. and S. Koswara. 2003. <i>Eggs: Composition, Handling, and Processing</i>. M-Bio Press. Bogor. 13. Kusnandar, F (2019). <i>Food Chemistry Macro Components</i>., books.google.com, 14. Sugitha, I.M. and I.W.R. Widarta. 2012. <i>Milk, Meat, and Egg Technology</i>. Arti Press. Denpasar. 15. Suharyanto. 2009. <i>Processing of Animal Food Ingredients</i>. Faculty of Animal Husbandry, University of Bengkulu. http://suharyanto.wordpress.com 16. Rihastuti, RA, & Triatmojo, S (2018). <i>Basic livestock technology</i>., books.google.com 17. Thohari, I, Padaga, MC, & Rahayu, PP (2017). <i>Livestock Product</i>

	<i>Technology., books.google.com,</i> <i>18. Susilo, A, Rosyidi, D, Jaya, F, & Apriliyani, AW (2019). Basic livestock technology.</i>
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Module Descriptions “Elective Course BAS”

Module designation	<i>PPK 60231 Milk Science and Technology</i>
Semester(s) in which the module is taught	6
Person responsible for the module	<i>Dr. Indri Juliyarsi; Ade Sukma, Ph.D.; Aronal Arief Putra, S.Pt. M.Sc., Ph.D</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Small group discussion, Directed Learning, Cooperative Learning (CL) and Project-Based Learning (PjBL)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136,01 hours</i> <i>Contact hours : 39,97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours : 96,04 hours</i>
Credit points	<i>3 SKS/ 4,53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO-1: Internalizing the university's core values, code of ethics, and scientific ethics based on Pancasila values.</i> <i>PI-1: Able to implement honesty in all academic activities.</i> <i>PI-2: Able to implement discipline in attendance and completion of assigned tasks.</i> <i>PI-3: Able to implement politeness in all academic activities.</i> <i>PI-4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO3. Able to apply animal husbandry knowledge in accordance with developments in the livestock industry and innovative and current scientific activities.</i> <i>PI-3: Master technical and management skills in the field of livestock product technology.</i> <i>ILO4. Able to identify, formulate, implement, and evaluate solutions to problems in the livestock sector.</i> <i>PI-1: Able to identify problems in the livestock sector.</i> <i>PI-2: Able to formulate and describe problems in the livestock sector.</i> <i>PI-3: Able to apply solutions to problems in the livestock sector.</i> <i>PI-4: Able to evaluate the results of implemented solutions in the livestock sector.</i> <i>ILO-7: Have a lifelong learning attitude and pursue further studies to develop a professional career.</i> <i>PI-1: Able to demonstrate performance as a learner by completing a final assignment.</i> <i>PI-2: Demonstrate a lifelong learning attitude</i>

	<i>CLO :</i> <i>1. Students are able to explain the basic concepts of milk.</i> <i>2. Students are able to identify the requirements, criteria and factors for obtaining healthy milk.</i> <i>3. Students are able to make processed milk products; fermented milk, condensed milk, butter, pasteurization, and ice cream.</i> <i>4. Students are able to test the products produced in terms of consumer acceptance.</i>
Content	<i>This course covers the basics of milk science and how it is processed into various products. It explains how to obtain good quality milk through milk testing, milk handling, and the microbiology of the product. It also explains the physical and chemical composition of milk, its nutritional value, and the resulting calories. Furthermore, it explains existing dairy products, such as fermented milk, yogurt, pasteurized milk, sterilized milk, sweetened condensed milk, butter, cheese, and ice cream. This course utilizes project-based learning as the learning method.</i>
Examination forms	<i>Assignments/Homework, Major Assignments, Mid-term Exams, Final Project Report, Final Report Presentation, Practicals</i>
Study and examination requirements	<i>1. Assignments/Homework: 14%</i> <i>2. Major Assignments: 6%</i> <i>3. Mid-term Exams: 20%</i> <i>4. Final Project Report: 40%</i> <i>5. Final Report Presentation: 10%</i> <i>6. Practicals (10%)</i>
Reading list	<i>1. Aritonang, S.N. 2009. Milk and Technology. wagati Press, Cirebon</i> <i>2. Sugitha, I.M. and I.W.R. Widarta. 2012. Milk, Meat, and Egg Technology. Arti Press, Denpasar</i> <i>3. Sudarwanto, M. 2012. Inspection of Milk and Its Processed Products. IPB Press, Bogor</i> <i>4. Ako, A. 2012. Tropical Dairy Science. IPB Press. Bogor</i> <i>5. Chandan and Kilara. 2011. Dairy Ingredients for Food Processing. Wiley Backwell</i> <i>6. Koswara, S. 2006. Milk Processing Technology. Food E-book.</i> <i>7. Koswara, S. 2007. Yogurt Making Technology. Food E-book.</i> <i>8. Koswara, S. 2006. Fermented Milk Biotechnology. Food E-book.</i> <i>9. Widodo. 2003. Powdered Milk Processing Technology. Lacticia Press. Yogyakarta.</i>

Module Descriptions “Elective Course BAS”

Module designation	<i>PPK60243 Non-parametric Statistics</i>
Semester(s) in which the module is taught	5
Person responsible for the module	1. Ir. Andri, M.S; 2. Noni Novarista, S.Pt., M.Si; 3. Dr. Fitrini, S.P., M.Econs; 4. Dr.Ir. Dwi Yuzaria, S.E., M.Si; 5. Ida Indrayani, S.Pt., M.Si; 6. Tevina Edwin, S.Pt., M.Si.
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Small group discussion, Directed Learning, Cooperative Learning (CL) and Project-Based Learning (PjBL)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136,01 hours</i> <i>Contact hours : 39,97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours : 96,04 hours</i>
Credit points	<i>3 SKS/ 4,53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1: Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI 1: Able to apply honesty in every academic activity.</i> <i>PI 2: Able to apply discipline in attendance and in completing assigned tasks.</i> <i>PI 3: Able to apply politeness in every academic activity.</i> <i>PI 4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO 2: Master the basic general knowledge and fundamental theories in the field of animal husbandry.</i> <i>PI 1: Master the basic concepts of general knowledge.</i> <i>ILO 7: Possess the attitude of a lifelong learner and pursue further study in developing a professional career.</i> <i>PI 1: Able to demonstrate performance as a lifelong learner by completing the final assignment.</i> <i>CLO :</i> <i>1. Students are able to explain and understand parametric statistics, non-parametric statistics, and the concepts of population, sample, parameters, and statistics.</i> <i>2. Students are able to understand techniques for measuring socio-economic variables, the principles of statistical hypothesis testing, and the differences between parametric and non-parametric statistical tests.</i> <i>3. Students are able to perform one-sample non-parametric statistical tests on socio-economic livestock data using various methods and interpret the results.</i> <i>4. Students are able to perform two-sample non-parametric statistical tests on socio-economic livestock data using various methods and interpret the</i>

	results. 5. Students are able to perform <i>k</i>-sample non-parametric statistical tests on socio-economic livestock data using various methods and interpret the results. 6. Students are able to perform independence tests and calculate correlation coefficients on socio-economic livestock data using various methods and interpret the results.
Content	This course explains the basic principles of non-parametric statistical methods with distribution-free assumptions applied to the socio-economic field of animal husbandry. The statistical tests studied include: one-sample non-parametric tests, two-sample non-parametric tests for paired and independent samples, <i>k</i>-sample non-parametric tests for both related and independent samples, and non-parametric correlation coefficients.
Examination forms	Assignments, Practicum, Midterm Exam, Final Exam
Study and examination requirements	1. Assignments: 30% 2. Practicum: 20% 3. Midterm Exam: 25% 4. Final Exam: 25%
Reading list	1. Corder G.W. and D.I. Foreman, 2014. <i>Nonparametric Statistics</i>. John Wiley & Sons Inc., New Jersey. 2. Deshpande J.F., U.N. Nimbalkar, and I.Dewan, 2018. <i>Nonparametric Statistics: Theory and Methods</i>. World Scientific Publishing Co. Pte. Ltd., Singapore. 3. Siegel S., 1997. <i>Statistik Nonparametrik untuk Ilmu-Ilmu Sosial</i>. diterjemahan oleh Z. Suyuti dan L. Simatupang. PT. Gramedia Pustaka Utama, Jakarta. 4. Djarwanto, 1999. <i>Statistik Nonparametrik</i>. Edisi BPFE Yogyakarta. 5. Saleh, S. 1996. <i>Statistik Nonparametrik</i>. Edisi 2. BPFE Yogyakarta. 6. Setiawan, N. 2005. <i>Bahan Ajar Statistika Nonparametrik untuk Penelitian Sosial Ekonomi Peternakan</i>. Fakultas Peternakan Universitas Padjadjaran. 7. Mashuri, A., 2022. <i>Buku Ajar Statistika Non Parametrik</i>. Inara Publisher, Malang

Module Descriptions “Elective Course BAS”

Module designation	<i>PPK60235 Handling and Packaging of Animal Products.</i>
Semester(s) in which the module is taught	6
Person responsible for the module	<i>Prof. Dr. Indri Juliyarsi, SP, MP; 2. Dr. Sri Melia, S.TP, MP; 3. Ade Sukma, S.Pt, M.P, Ph.D; 4. Afriani Sandra, S.Pt, M.Sc</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Small group discussion, Directed Learning, Cooperative Learning (CL) and Project-Based Learning (PjBL)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 90.65 hours</i> <i>Contact hours : 26.65 hours (lecture)</i> <i>Private study including examination preparation, specified in hours : 64.04 hours</i>
Credit points	<i>2 SKS/ 3,02 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1: Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI 1: Able to apply honesty in every academic activity.</i> <i>PI 2: Able to apply discipline in attendance and in completing assigned tasks.</i> <i>PI 3: Able to apply politeness in every academic activity.</i> <i>PI 4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO3: Able to apply animal husbandry science in accordance with the development of the livestock industry and innovative and up-to-date scientific activities.</i> <i>PI-3: Master technical and management skills in the field of animal product technology.</i> <i>ILO4: Able to identify, formulate, implement, and evaluate solutions to problems in the field of animal husbandry.</i> <i>PI-1: Able to identify problems in the field of animal husbandry.</i> <i>PI-2: Able to formulate and elaborate problems in the field of animal husbandry.</i> <i>PI-3: Able to apply solutions to problems in the field of animal husbandry.</i> <i>PI-4: Able to evaluate the results of the solutions applied in the field of animal husbandry.</i> <i>ILO7: Possess the attitude of a lifelong learner and pursue further study in developing a professional career.</i> <i>PI-1: Able to demonstrate performance as a learner by completing the final assignment.</i> <i>PI-2: Demonstrate the attitude of a lifelong learner.</i> <i>CLO :</i>

	1. Students are able to explain the basic handling in the field of packaging of animal products 2. Students are able to identify appropriate packaging to extend the shelf life of animal products 3. Students are able to explain various types of packaging, namely glass packaging, metal packaging, atmospheric packaging, and environmentally friendly packaging 4. Students are able to design labels and understand regulations related to the packaging of animal products
Content	<i>This course discusses the basic handling in the field of packaging of animal products, identifying appropriate packaging to extend shelf life using various types of packaging such as glass, plastic, metal, atmospheric packaging, and environmentally friendly packaging. In addition, it covers product design and labeling as well as understanding applicable national and international regulations, using Project-Based Learning as the learning method in this course.</i>
Examination forms	<i>Assignments, Practicum, Midterm Exam, Final Exam</i>
Study and examination requirements	1. Assignments/Homework: 14% 2. Major Assignment (Term Project): 6% 3. Midterm Exam: 20% 4. Final Project Report: 40% 5. Final Exam (Final Project Presentation): 10% 6. Practicum (10%) 7. consists of: Practicum Performance: 35% Reports: 65% Individual Reports: 20% Group Reports: 45%
Reading list	1. <i>Food Packaging: Principle and practice</i>, Gordon L Robertson. Markel Dekker. 2007. 2. <i>Teknologi Pengemasan</i>. Syarif dkk. 2007 3. <i>Novel Food Packaging Technique</i>. R. Ahvenainen. 2003. CRC Press 4. <i>Plastic packaging : interactions with food and pharmaceuticals</i>. Otto G Pringer and A.L Baner.2008. Wiley-VCH 2. <i>Active Packaging for Food Applications</i>. Aaron Brody 5. <i>Food Packaging and Shelf Life : A Practical Guide</i> 6. <i>Innovation in Food Packaging</i>. Jung H Han.

Module Descriptions “Elective Course BAS”

Module designation	<i>PTK 60239 Livestock Development Planning.</i>
Semester(s) in which the module is taught	5
Person responsible for the module	<i>Dr. Ir..Amna Suresti, M.Si; Dr. Dwi Yuzaria, SE, M.Si; Dr. Fitriawati, S.Pt, M.Si</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Small group discussion, Directed Learning, Cooperative Learning (CL) and Project-Based Learning (PjBL)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136,01 hours</i> <i>Contact hours : 39,97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours : 96,04 hours</i>
Credit points	<i>3 SKS/ 4,53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1: Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI 1: Able to apply honesty in every academic activity.</i> <i>PI 2: Able to apply discipline in attendance and in completing assigned tasks.</i> <i>PI 3: Able to apply politeness in every academic activity.</i> <i>PI 4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO3: Able to apply animal husbandry science in accordance with the development of the livestock industry and innovative and up-to-date scientific activities.</i> <i>PI-3: Master technical and management skills in the field of animal product technology.</i> <i>ILO4: Able to identify, formulate, implement, and evaluate solutions to problems in the field of animal husbandry.</i> <i>PI-1: Able to identify problems in the field of animal husbandry.</i> <i>PI-2: Able to formulate and elaborate problems in the field of animal husbandry.</i> <i>PI-3: Able to apply solutions to problems in the field of animal husbandry.</i> <i>PI-4: Able to evaluate the results of the solutions applied in the field of animal husbandry.</i> <i>ILO7: Possess the attitude of a lifelong learner and pursue further study in developing a professional career.</i> <i>PI-1: Able to demonstrate performance as a learner by completing the final assignment.</i> <i>PI-2: Demonstrate the attitude of a lifelong learner.</i> <i>CLO :</i>

	1. Students are able to explain the basic handling in the field of packaging of animal products 2. Students are able to identify appropriate packaging to extend the shelf life of animal products 3. Students are able to explain various types of packaging, namely glass packaging, metal packaging, atmospheric packaging, and environmentally friendly packaging 4. Students are able to design labels and understand regulations related to the packaging of animal products
Content	The Livestock Development Planning course aims to provide a comprehensive understanding of the concepts, methodologies, and processes involved in planning livestock development. This course includes the study of the role of livestock in economic and social development, as well as its impact on the environment. In this course, students not only learn theoretical concepts of development planning but are also exposed to real situations and problems in the livestock sector. Each class session introduces real cases related to topics in livestock development planning. The topics discussed include the concept of livestock development planning, planning theory and the position of livestock development planning within the national development planning system, analysis of socio-economic factors affecting livestock development planning, identification of local needs and potentials in livestock development, planning analysis techniques, the planning process in livestock development, livestock development plans, and theories of monitoring and evaluation in development planning.
Examination forms	Assignments/Homework, Major Assignment, Midterm Examination, Final Project Report, Final Examination (Final Project Presentation), Practicum, consists of: Practical Performance, Practicum Reports, Individual Report, Group Report
Study and examination requirements	1. Assignments/Homework: 14% 2. Major Assignment: 6% 3. Midterm Examination: 20% 4. Final Project Report: 40% 5. Final Examination (Final Project Presentation): 10% 6. Practicum (10%) consists of: Practical Performance: 35% 7. Practicum Reports: 65% Individual Report: 20% Group Report: 45%
Reading list	1. Sjafrizal. 2009. <i>Perencanaan Pembangunan Dalam Era Otonomi Daerah</i>. Rajawali press. Jkt. 2. Sjafrizal. 2018. <i>Analisis Ekonomi Regional dan Penerapannya di Indonesia</i>. 2018. PT.Rajagrafindo Persada Depok. 3. Tarigan R., (2005) <i>Perencanaan Pembangunan Wilayah, Edisi Revisi</i>, Penerbit Bumi Aksara, Jakarta. 4. Tjokroamidjojo, B. 1983. <i>Perencanaan Pembangunan</i>. PT Gunung Agung. Jakarta. 5. Chapman, S. A., Goodman, S., Jawitz, J., & Deacon, A. (2016). A strategy for monitoring and evaluating massive open online courses. <i>Evaluation and Program Planning</i>, 57, 55–63.

Module Descriptions “Elective Course BAS”

Module designation	<i>PT 253 Livestock Reproductive Technology and Management.</i>
Semester(s) in which the module is taught	5
Person responsible for the module	<i>1. Dr. Ir. Masrizal, M.S; 2. Dr. Ir. Hendri, M.S; 3. Dr. Ir. Jaswandi, M.S; 4. Syafri Nanda, S.Pt., M.Si; 5. Ananda, S.Si., M.Si.</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Small group discussion, Directed Learning, Cooperative Learning (CL) and Project-Based Learning (PjBL)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136,01 hours Contact hours : 39,97 hours (lecture) Private study including examination preparation, specified in hours : 96,04 hours</i>
Credit points	<i>3 SKS/ 4,53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1: Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI 1: Able to apply honesty in every academic activity.</i> <i>PI 2: Able to apply discipline in attendance and in completing assigned tasks. PI 3: Able to apply politeness in every academic activity.</i> <i>PI 4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO 2: Master the basic general knowledge and fundamental theories in the field of animal husbandry.</i> <i>PI 1: Master the basic concepts of general knowledge.</i> <i>ILO 3: Able to apply animal husbandry science in accordance with the development of the livestock industry and innovative and up-to-date scientific activities.</i> <i>PI 1: Master technical and management skills in the livestock production industry.</i> <i>ILO 4: Able to identify, formulate, provide solutions, and evaluate the solutions given to problems in the field of animal husbandry.</i> <i>PI 1: Able to identify problems in the field of animal husbandry.</i> <i>CLO :</i> <i>1. Students are able to explain the definition and scope of livestock reproductive technology.</i> <i>2. Students are able to explain the definition and scope of livestock reproductive management.</i> <i>3. Students are able to explain various types of reproductive manipulation in livestock.</i> <i>4. Students are able to explain reproductive efficiency in livestock.</i> <i>Students are able to explain various applications of reproductive</i>

	<i>technology in livestock.</i> <i>5. Students are able to explain the basic principles of evaluating the quality of livestock spermatozoa.</i> <i>6. Students are able to explain the basic principles of preparing diluents and diluting livestock spermatozoa.</i> <i>7. Students are able to explain the basic principles of spermatozoa cryopreservation.</i> <i>8. Students are able to explain the basic principles of artificial insemination (AI) techniques in livestock.</i> <i>9. Students are able to explain the system of recording and organizing artificial insemination (AI) technology in livestock.</i> <i>10. Students are able to explain the basic principles of embryo transfer technology and management in livestock.</i> <i>11. Students are able to explain the basic principles of estrus synchronization techniques in livestock.</i> <i>12. Students are able to explain the basic principles of in vitro embryo production technology.</i> <i>13. Students are able to explain the basic principles of molecular biology and genetic engineering in livestock.</i>
Content	<i>The Livestock Reproductive Technology and Management course discusses reproductive technology and management related to the control, regulation, and handling of various factors associated with efforts to improve fertility and reproductive efficiency in livestock.</i>
Examination forms	<i>Progress Report, Final Report, Midterm Examination, Final Examination</i>
Study and examination requirements	<i>1. Progress Report: 29.5%</i> <i>2. Final Report: 32.5%</i> <i>3. Midterm Examination: 20%</i> <i>4. Final Examination: 18%</i>
Reading list	<i>1. Wahjuningsih, S., Susilawati, T., Suyadi, Ihsan, M. N., Busono, W., Isnaini, N., & Yekti, A. P. A. (2019). Teknologi Reproduksi Ternak. Malang, East Java: UB Press.</i> <i>2. Yekti, A. P. A., Susilawati, T., Ihsan, M. N., & Wahjuningsih, S. (2017). Fisiologi Reproduksi Ternak (Dasar Manajemen Reproduksi). Malang, East Java: UB Press.</i> <i>3. Arifiantini, R. I. (2012). Teknik Koleksi dan Evaluasi Semen pada Hewan. Bogor, West Java: IPB Press. Suyadi, & Wahjuningsih, S. (2021). Fisiologi Reproduksi dan Inseminasi Buatan Pada Unggas. Malang, East Java: UB Press.</i> <i>4. Feradis. 2010. Reproduksi Ternak. Alfabeta, Bandung.</i> <i>5. Chedrese, P.J. 2009. Reproductive Endocrinology. Springer, New York USA.</i> <i>6. Senger, P.L. 2005. Pathways to Pregnancy and Parturition. The Mack Printing Group-Science Press, Washington.</i> <i>7. Hafez, E.S.E. 2000. Reproduction in Farm Animals, 7TH ed. Lea Febriger, 600 Washington Square, Philadelphia.</i> <i>8. Partodihardjo, S. 1992. Reproduksi pada Hewan. Mutiara, Bandung.</i>

Module Descriptions “Elective Course BAS”

Module designation	<i>PT250 Computer Applications.</i>
Semester(s) in which the module is taught	5
Person responsible for the module	1. Prof. Dr. Ir. Yose Rizal, M.Sc; 2. Dr. Ir. Adrizal, M.Si; 3. Dr. Ir. Jaswandi, M.S; 4. Dr. Reswati, S.Pt., M.P; 5. Rizqan, S.Pt., M.Pt
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Small group discussion, Directed Learning, Cooperative Learning (CL) and Project-Based Learning (PjBL)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136,01 hours</i> <i>Contact hours : 39,97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours : 96,04 hours</i>
Credit points	<i>2 SKS/ 3,02 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1: Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI 1: Able to apply honesty in every academic activity.</i> <i>PI 2: Able to apply discipline in attendance and in completing assigned tasks.</i> <i>PI 3: Able to apply politeness in every academic activity.</i> <i>PI 4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO 3: Able to apply animal husbandry science in accordance with the development of the livestock industry and innovative and up-to-date scientific activities.</i> <i>PI 1: Master technical and management skills in the livestock production industry.</i> <i>ILO 4: Able to identify, formulate, provide solutions, and evaluate the solutions given to problems in the field of animal husbandry.</i> <i>PI 1: Able to identify problems in the field of animal husbandry.</i> <i>ILO 6: Able to communicate orally and in writing using the latest information media in the field of animal husbandry and integrate it with other fields of knowledge</i> <i>PI 2: Able to write reports in accordance with scientific writing conventions.</i> <i>ILO 7: Possess the attitude of a lifelong learner and pursue further study in developing a professional career.</i> <i>PI 2: Demonstrate the attitude of a lifelong learner.</i> <i>CLO :</i> <i>1. Students are able to explain the definition and history of computers.</i> <i>2. Students are able to explain and implement electronic data processing management using the internet (interconnected network).</i>

	3. Students are able to explain the basic aspects of the main computer hardware system. 4. Students are able to explain the basic aspects of auxiliary computer hardware systems. 5. Students are able to explain the basic aspects of computer system software, specifically computer programming languages. 6. Students are able to explain the basic aspects of computer system software, particularly operating systems. 7. Students are able to explain the basic aspects of human components in computer systems and the impacts of computer usage. 8. Students are able to explain the use of plagiarism detection applications and how to search for references from journal databases. 9. Students are able to use metadata functions in reference managers such as Mendeley or Zotero. 10. Students are able to create presentation materials using slideshow applications (PowerPoint). 11. Students are able to use statistical functions in MS Excel, SPSS, OriginLab, or R Data. 12. Students are able to use algebraic formulas and create images, tables, and charts in documents, OriginLab, or MS Excel.
Content	The Computer Applications course is an elective course worth 2 credits, consisting of 1 credit for lectures and 1 credit for practicum. This course aims to discuss topics related to computer introduction, software, hardware, operating systems, computer languages, the use of computers in data processing, accessing references, plagiarism, presentations, and the utilization of computer systems in the field of animal husbandry (IoT).
Examination forms	Progress Report, Final Report, Midterm Examination, Final Examination,
Study and examination requirements	1. Progress Report: 25% 2. Final Report: 30% 3. Midterm Examination: 20% 4. Final Examination: 25%
Reading list	1. Sujarweni, V. W. (2015). <i>SPSS Untuk Penelitian</i>. Yogyakarta: Pustaka Baru Press. 2. Hartanto, R. (2003). <i>Dasar-dasar Teknik Komputer (1st ed.)</i>. Yogyakarta: Gava Media. 3. Haerudin, H., Sitio, S. L. M., & Septian, F. (2020). <i>Pengantar Aplikasi Komputer</i>. Banten: Unpam Press.

Module Descriptions “Elective Course BAS”

Module designation	<i>PPK 60226 Functional Feed.</i>
Semester(s) in which the module is taught	6
Person responsible for the module	1. Prof. Dr. Ir. Harnentis, MS; 2. Prof. Dr. Ir. Yetti Marlida, MS; 3. Prof. Dr. Ir. Nuraini, MS; 4. Prof. Dr. Ir. Khalil, MSc; 5. Dr. Ir. Montesqrit, SPT, M.Si; 6. Dr. Ir. Yuliaty Shafan Nur, MS; 7. Dr. Ir. Adrizal, MS; 8. Yesi Chwenta Sari, S.Pt., M.Si
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Small group discussion, Directed Learning, Cooperative Learning (CL) and Project-Based Learning (PjBL)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 90.65 hours Contact hours : 26.65 hours (lecture) Private study including examination preparation, specified in hours : 64.00 hours</i>
Credit points	<i>2 SKS/ 3,02 ECTS</i>
Required and recommended prerequisites for joining the module	<i>1. Feed Ingredient and Chemistry Knowledge.</i>
Module objectives/intended learning outcomes	<i>ILO 1: Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI 1: Able to apply honesty in every academic activity.</i> <i>PI 2: Able to apply discipline in attendance and in completing assigned tasks.</i> <i>PI 3: Able to apply politeness in every academic activity.</i> <i>PI 4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO 3: Able to apply animal husbandry science in accordance with the development of the livestock industry and innovative and up-to-date scientific activities.</i> <i>PI 2: Master technical and management skills in the field of nutrition and feed technology.</i> <i>ILO 4: Able to identify, formulate, provide solutions, and evaluate the solutions given to problems in the field of animal husbandry.</i> <i>PI 1: Able to identify problems in the field of animal husbandry.</i> <i>PI-2: Able to formulate and elaborate problems in the field of animal husbandry.</i> <i>PI-3: Able to apply solutions to problems in the field of animal husbandry.</i> <i>PI-4: Able to evaluate the results of the solutions applied in the field of animal husbandry.</i> <i>ILO 6: Able to communicate orally and in writing using the latest information media in the field of animal husbandry and integrate it with other fields of knowledge</i> <i>PI 1: Able to present ideas in front of an audience and provide feedback.</i> <i>ILO 7: Possess the attitude of a lifelong learner and pursue further study in</i>

	<i>developing a professional career.</i> <i>PI 2: Demonstrate the attitude of a lifelong learner.</i> <i>CLO :</i> <i>1. Students are able to demonstrate honesty, politeness, discipline, and responsibility toward assigned tasks, as well as the attitude of a lifelong learner : Students are able to master and apply the concept of functional feed that can influence livestock health and productivity</i> <i>2. Students are able to identify, formulate, implement, and evaluate solutions to problems related to functional feed</i> <i>3. Students are able to apply logical, critical, systematic, innovative, quality-oriented, and measurable thinking in the field of functional feed Sub-CPMK (if applicable)</i> <i>4. Students are able to explain the definition, scope, and classification of functional feed Students are able to explain phytochemical functional feed</i> <i>5. Students are able to explain prebiotic functional feed</i> <i>6. Students are able to explain fatty acid functional feed Students are able to explain antioxidant functional feed</i> <i>7. Students are able to explain fermented product functional feed</i> <i>8. Students are able to explain functional feed formulation Students are able to explain the functional feed production process</i>
Content	<i>This course explains the essential roles of the microenvironment and macroenvironment in livestock production, techniques for measuring the microenvironment in livestock housing, methods for recording animal behavior and heat production, mechanisms of heat transfer in the livestock environment, principles and mechanisms of heat transfer in open and closed livestock housing systems, control of the microenvironment in open and closed housing systems, and the application of biofilter technology for environmental control in livestock production. The course employs Cooperative Learning (CL) and Project-Based Learning (PjBL) as its primary instructional methods.</i>
Examination forms	<i>Presentation, Project, Midterm Examination, Final Examination.</i>
Study and examination requirements	<i>1. Presentation: 10%</i> <i>2. Project: 55%</i> <i>3. Midterm Examination: 18%</i> <i>4. Final Examination: 17%</i>
Reading list	<i>1. Animal environment dalam Swenson MJ. 1970. Dukes Physiology Domestic Animals. 8 th Ed. Cornell University Press.</i>

Module Descriptions “Elective Course BAS”

Module designation	<i>PPK 60229 Sensory Evaluation of Animal-Derived Food Products.</i>
Semester(s) in which the module is taught	6
Person responsible for the module	<i>1. Deni Novia, STP. MP; 2. Afriani Sandra, SPt. MSc; 3. Ade Sukma, SPt. MP. Ph.D; 4. Dr. Ely Vebriayanti, SPt. MP; 5. Rizki Dwi Setiawan, STP. MSi</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Small group discussion, Directed Learning, Cooperative Learning (CL) and Project-Based Learning (PjBL)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 90.65 hours Contact hours : 26.65 hours (lecture) Private study including examination preparation, specified in hours : 64.00 hours</i>
Credit points	<i>2 SKS/ 3,02 ECTS</i>
Required and recommended prerequisites for joining the module	<i>1. Quality and Safety of Animal-Derived Food Products.</i>
Module objectives/intended learning outcomes	<i>ILO 1: Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI 1: Able to apply honesty in every academic activity.</i> <i>PI 2: Able to apply discipline in attendance and in completing assigned tasks. PI 3: Able to apply politeness in every academic activity.</i> <i>PI 4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO-7: Possess the attitude of a lifelong learner and pursue further study in developing a professional career.</i> <i>PI-1: Able to demonstrate performance as a learner by completing the final assignment.</i> <i>PI-2: Demonstrate the attitude of a lifelong learner.</i> <i>CLO :</i> <i>1. Students are able to understand the course contract and syllabus (RPS), as well as the history and importance of sensory evaluation of animal-derived food products.</i> <i>2. Students are able to explain the senses and sensory perception.</i> <i>3. Students are able to explain panels, testing laboratories, and the preparation of sensory testing.</i> <i>4. Students are able to explain, present, and evaluate sensory testing methods, including acceptance tests, sensory intensity tests, descriptive tests, discrimination tests, and scaling methods, as well as their application in research results published in journals.</i> <i>5. Students are able to evaluate and analyze research data using nonparametric statistics. Students are able to explain the estimation of the shelf life of animal-derived products.</i>

Content	<i>This course discusses the sensory evaluation of animal-derived food products, including the scope, usefulness, and relevance of sensory evaluation, namely the senses and sensory perception, panelists, sensory testing laboratories, preparation for testing, and testing methods (acceptance, sensory intensity, descriptive, discrimination, and scaling tests). It also covers the evaluation and analysis of research data using nonparametric statistics (Kruskal–Wallis and Friedman tests) and the estimation of the shelf life of animal-derived products. Case-Based Learning (Case-Based Method/CBM) is used as the learning method, which integrates real cases to enrich the theories and concepts discussed.</i>
Examination forms	<i>Assignments/Presentations, Presentation Assignments, (6 presentations × 3% each), Mind Map, Major Assignment (Case Method), Quiz, Midterm Examination, Final Examination, Practicum, consists of: Practical Performance, Practicum Reports, Individual Report, Group Report</i>
Study and examination requirements	1. Assignments/Presentations: 20% 2. Presentation Assignments: 18% (6 presentations × 3% each) 3. Mind Map: 2% 4. Major Assignment (Case Method): 38% 5. Quiz: 2% 6. Midterm Examination: 15% 7. Final Examination: 10% 8. Practicum (20%) 9. consists of: Practical Performance: 35% 10. Practicum Reports: 65% 11. Individual Report: 20% Group Report: 45%
Reading list	1. Stone, H, Bleibaum, RN, & Thomas, HA (2020). <i>Sensory evaluation practices.</i>, books.google. 2. Munoz, AM (2013). <i>Sensory evaluation in quality control.</i>, books.google.com, 3. O'Mahony, M (2017). <i>Sensory evaluation of food: statistical methods and procedures.</i>, taylorfrancis.com, https://doi.org/10.1201/9780203739884 4. Fiorentini, M, Kinchla, AJ, & Nolden, AA (2020). <i>Role of sensory evaluation in consumer acceptance of plant-based meat analogs and meatextenders: A scoping review.</i> Foods, mdpi.com, https://www.mdpi.com/2304-8158/9/9/1334 5. Stone, H, Bleibaum, RN, & Thomas, HA (2020). <i>Sensory evaluation practices.</i>, books.google.com, https://books.google.com/books?hl=en&lr=&id=U2XRDwAAQBAJ&oi=fnd&pg=PP1&dq=sensory+evaluation+book&ots=q8hCuyHeN6&sig=dK94zRcY5r89HVnL3E-R41I6Rmg 6. Delarue, J, & Lawlor, JB (2022). <i>Rapid sensory profiling techniques: Applications in new product development and consumer research.</i>, books.google.com, https://books.google.com/books?hl=en&lr=&id=JTVxEAAAQBAJ&oi=fnd&pg=PP1&dq=sensory+evaluation+book&ots=qQWjGJ4tBt&sig=sVjXfg5rTyBxwb8hblTYyG_ezxA 7. Soekarto, S.T., Hubbets, M. 2000. <i>Metodologi Penelitian Organoleptik.</i> Pusat Antar Universitas Pangan dan Gizi IPB, Bogor.

	8. Steel, R.G.D. dan J.H. Torrie. 1991. <i>Prinsip dan Prosedur Statistik Suatu Pendekatan Biometrik</i>. Edisi 2 Cetakan 2. Alih Bahasa Bambang,Sumantri. PT.Gramedia Pustaka Utama. Jakarta.
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Module Descriptions “Elective Course BAS”

Module designation	<i>PPK 60233 Sanitation and Hygiene of Animal-Derived Products.</i>
Semester(s) in which the module is taught	6
Person responsible for the module	<i>Aronal Arief Putra, S.Pt., M.Sc., Ph.D; 2. Afriani Sandra, S.Pt., M.Sc; 3. Rizki Dwi Setiawan, S.Pt., M.Sc.</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Small group discussion, Directed Learning, Cooperative Learning (CL) and Project-Based Learning (PjBL)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136,01 hours</i> <i>Contact hours : 39,97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours : 96,04 hours</i>
Credit points	<i>3 SKS/ 4,53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1: Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI 1: Able to apply honesty in every academic activity.</i> <i>PI 2: Able to apply discipline in attendance and in completing assigned tasks.</i> <i>PI 3: Able to apply politeness in every academic activity.</i> <i>PI 4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO-7: Possess the attitude of a lifelong learner and pursue further study in developing a professional career.</i> <i>PI-1: Able to demonstrate performance as a learner by completing the final assignment.</i> <i>PI-2: Demonstrate the attitude of a lifelong learner.</i> <i>CLO :</i> <i>1. Students are able to explain the basic introduction to sanitation and hygiene of animal-derived products, as well as aspects of water sanitation in food processing.</i> <i>2. Students are able to explain food hygiene, personal hygiene and handling of animal-derived food products, and the role of company management in food sanitation.</i> <i>3. Students are able to explain cleaning agents, sanitation methods, cleaning, and sanitation systems for animal-derived food products. Students are able to explain waste disposal and pest control in the animal-derived food industry.</i> <i>4. Students are able to explain and present sanitation practices in the dairy, meat, and egg industries, as well as sanitation in food service establishments.</i>

Content	<i>This course discusses the concept of sanitation and hygiene, aspects of water sanitation in food management, food hygiene, personal hygiene and food handling, cleaning agents, sanitation methods, cleaning and sanitation systems, waste disposal, pest control, sanitation in the dairy, meat, and egg industries, sanitation in food service establishments, and the role of company management in food sanitation. Case-Based Learning (Case-Based Method/CBM) is used as the learning method, which integrates real cases as enrichment of the theories and concepts discussed..</i>
Examination forms	<i>Assignments/Presentations, Presentation Assignments, (6 presentations × 3% each) Mind Map, Major Assignment (Case Method), Midterm Examination, Final Examination, Practicum, consists of: Practical Performance, Practicum Reports, Individual Report, Group Report</i>
Study and examination requirements	1. Assignments/Presentations: 20% 2. Presentation Assignments: 18% (6 presentations × 3% each) 3. Mind Map: 2% Major Assignment (Case Method): 10% Quiz: 10% 4. Midterm Examination: 25% 5. Final Examination: 25% 6. Practicum (10%) 7. consists of: Practical 8. Performance: 35% 9. Practicum Reports: 65% 10. Individual Report: 20% 11. Group Report: 45%
Reading list	1. Marriot. N.G, M.W Schilling and R.B Gravani. 2018. <i>Principles of Food Sanitation. Sixth Edition. Springer. Switzerland</i> 2. Forsythe, S. J., & Hayes, P. R. (1998). <i>Food Hygiene, Microbiology and HACCP. Gaithersburg, Maryland: Aspen Publishers, Inc.</i> 3. National Disease Surveillance Centre. (2004). <i>Preventing Foodborne Disease: A Focus on the Infected Food Handler. Ireland: National Disease Surveillance Centre.</i> 4. Irawan, D. W. P. (2016). <i>Prinsip-Prinsip Hygiene Sanitasi Makanan Minuman di Rumah Sakit. Ponorogo: Forum Ilmiah Kesehatan.</i> 5. Widyastuti, N., & Almira, V. G. (2019). <i>Higiene dan Sanitasi dalam Penyelenggaraan Makanan. Yogyakarta: K-Media.</i> 6. Yulawati, R., Wahyuni, M., Pramaningsih, V., Habibi, M., & Kurniawan, D. (2023). <i>Higiene Sanitasi Makanan dan Minuman. Jawa: Eureka Media Aksara.</i>

Module Descriptions “Elective Course BAS”

Module designation	<i>PTK 036 Development Communication.</i>
Semester(s) in which the module is taught	6
Person responsible for the module	<i>Dr. Ir. Fuad Madarisa, M.Sc; 2. Ir. Amrizal Anas MP; 3. Ediset, S.Pt, M.Si; 4. Riza Andesca Putra, SPt, M.Si; 5. Aditya Alqamal Alianta, S.Pt., M.Sc</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Small group discussion, Directed Learning, Cooperative Learning (CL) and Project-Based Learning (PjBL)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136,01 hours</i> <i>Contact hours : 39,97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours : 96,04 hours</i>
Credit points	<i>3 SKS/ 4,53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1: Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI 1: Able to apply honesty in every academic activity.</i> <i>PI 2: Able to apply discipline in attendance and in completing assigned tasks.</i> <i>PI 3: Able to apply politeness in every academic activity.</i> <i>PI 4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO 3: Able to apply animal science in accordance with developments in the livestock industry and innovative, up-to-date scientific activities.</i> <i>PI 4: Mastering technical skills and management in the field of livestock development and business.</i> <i>ILO 4 : Able to identify, formulate, provide solutions, and evaluate the solutions applied to problems in the field of livestock.</i> <i>PI 2: Able to formulate and elaborate on problems in the field of livestock.</i> <i>ILO 5: Possesses leadership and entrepreneurship skills in the field of animal husbandry.</i> <i>PI 2: Able to demonstrate a resilient entrepreneurial spirit (creative, innovative, and willing to take risks).</i> <i>ILO 6: Able to communicate orally and in writing using current information media in the field of animal husbandry and integrate it with other scientific knowledge.</i> <i>PI 1: Able to present ideas in front of an audience and provide feedback.</i> <i>ILO-7: Possess the attitude of a lifelong learner and pursue further</i>

	<i>study in developing a professional career. PI-1: Able to demonstrate performance as a learner by completing the final assignment. PI-2: Demonstrate the attitude of a lifelong learner.</i>
Content	<i>1. Students are able to explain the concepts of communication, development, and development communication.</i> <i>2. Students are able to understand communication models and the disturbances in each model.</i> <i>3. Students are able to identify the types, roles, and qualifications of facilitators.</i> <i>4. Students are able to understand innovation as a message in development communication.</i> <i>5. Students are able to understand the role of mass media in development.</i> <i>6. Students are able to understand how to develop community participation in development.</i>
Examination forms	<i>Class Participation, Midterm Examination, Assignments, Final Examination</i>
Study and examination requirements	<i>1. Class Participation: 18%</i> <i>2. Midterm Examination: 26%</i> <i>3. Assignments: 28%</i> <i>4. Final Examination: 28%</i>
Reading list	<i>1. Mardikanto, T. (2010). Komunikasi Pembangunan. Collaboration between the Graduate Program of Usemar and PT Telekomunikasi Indonesia.</i> <i>2. DeVito, J. A. (2019). The Interpersonal Communication Book. Instructor, 1(18), 521–532.</i> <i>3. Farrington, J. (1994). Public Sector Agricultural Extension: Is There Life after Structural Adjustment? Natural Resources Perspectives, No. 2. Brighton: Overseas Development Institute.</i> <i>4. Hayami, Y., & Ruttan, V. W. (1971). Agricultural Development: An International Perspective.</i> <i>5. Mardikanto, T. (2009). Sistem Penyuluhan Pertanian. Surakarta: UNS Press.</i> <i>6. McGarry, O., Hannigan, A., De Almeida, M. M., Severoni, S., Puthooppambal, S. J., & MacFarlane, A. (2018). What Strategies to Address Communication Barriers for Refugees and Migrants in Health Care Settings Have Been Implemented and Evaluated Across the WHO European Region. Copenhagen: World Health Organization Regional Office for Europe.</i> <i>7. Surya, A., Madariza, F., & Anas, A. (2009). Ilmu Penyuluhan Pertanian: Bahan Kuliah dan Buku Ajar. Faculty of Animal Science, Universitas Andalas.</i> <i>8. Swanson, B. E. (2008). Global Review of Agricultural Extension and Advisory Services Practice. Urbana-Champaign: University of Illinois at Urbana-Champaign, Research and Extension Division, and Technical Cooperation Department, FAO.</i>

Module Descriptions “Elective Course BAS”

Module designation	<i>PPK60202 Animal Biotechnology</i>
Semester(s) in which the module is taught	5
Person responsible for the module	<i>Dr. Ir. Hendri, MS; 2. Dr. Ir. Masrizal, MS; 3. Dr. Ir. Jaswandi, MS; 4. Ananda, S.Si., M.Si; 5. Syafri Nanda, S.Pt., M.Si.</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Small group discussion, Directed Learning, Cooperative Learning (CL) and Project-Based Learning (PjBL)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136,01 hours</i> <i>Contact hours : 39,97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours : 96,04 hours</i>
Credit points	<i>3 SKS/ 4,53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1: Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI 1: Able to apply honesty in every academic activity.</i> <i>PI 2: Able to apply discipline in attendance and in completing assigned tasks.</i> <i>PI 3: Able to apply politeness in every academic activity.</i> <i>PI 4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO 2: Master the fundamentals of general knowledge and basic theories in animal science.</i> <i>PI 1: Master the basic concepts in animal biotechnology.</i> <i>ILO-7: Possess the attitude of a lifelong learner and pursue further study in developing a professional career.</i> <i>PI-1: Able to demonstrate performance as a learner by completing the final assignment.</i> <i>CLO :</i> <i>1. Students are able to demonstrate a friendly and caring attitude toward animal welfare, while being responsible, independent, and competent in work within the field of Animal Biotechnology.</i> <i>2. Students master knowledge and biotechnology in the field of Animal Reproduction.</i> <i>3. Students are able to apply principles of technological engineering in accordance with technological developments in the field of Animal Biotechnology.</i> <i>4. Students are able to master the concept of solving livestock problems based on scientific knowledge using scientific methods in the field of Animal Biotechnology.</i>

	<i>5. Students are able to apply logical, critical, systematic, innovative, quality-oriented, and measurable thinking in carrying out work in the livestock field according to competency standards in Animal Biotechnology.</i>
Content	<i>This course covers: the definition, benefits, and development of animal biotechnology; artificial insemination; embryo transfer; in vitro fertilization; cryopreservation; embryo micromanipulation (transgenics and cloning); as well as its applications in efforts to improve the quality of livestock breeding stock.</i>
Examination forms	<i>Quiz, Case-Based Method (CBM), Assignment, Midterm Examination, Final Examination</i>
Study and examination requirements	1. Quiz: 5% 2. Case-Based Method (CBM) Assignment: 35% 3. Midterm Examination: 30% 4. Final Examination: 30%
Reading list	1. Toelihere, M. R. (1985). <i>Inseminasi Buatan Pada Ternak</i>. Bandung: Penerbit Angkasa. 2. Manafi, M. (2011). <i>Artificial Insemination in Farm Animal</i>. Malayer, Iran: Malayer University. 3. Seidel, G. E., & Seidel, S. M. (1991). <i>Training Manual for Embryo Transfer in Cattle</i>. Rome: FAO-UN. 4. Supriatna, I. (2013). <i>Transfer Embrio pada Ternak Sapi</i>. Bogor: SEAMEO BIOTROP. 5. Hafez, E. S. E. (2000). <i>Reproduction in Farm Animals</i>. Philadelphia, PA, USA: Lea & Febiger. 6. Nicholl, D. S. T. (2008). <i>An Introduction to Genetic Engineering</i>. New York: Cambridge University Press. 7. Ul-Haq, I. (2005). <i>Biotechnology</i>. Pakistan: Commission on Science and Technology for Sustainable Development in the South (COMSATS).

Module Descriptions “Elective Course BAS”

Module designation	<i>PPK 60203 Principles of Molecular Genetics Analysis</i>
Semester(s) in which the module is taught	6
Person responsible for the module	<i>Prof. Dr. Ir. Firda Arlina, M.Si, IPU; 2. Prof. Dr. Ir. Tinda Afriani, MP; 3. Dr. Ir. Kusnadidi Subekti, M.Si.IPM; 4. Dr. Ir. Rusfidra, SPt, MP, IPM; 5. Adisti Rastosari, S.Pt., M.Sc; 6. Linda Suhartati, S.Pt., M.Si.</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Small group discussion, Directed Learning, Cooperative Learning (CL) and Project-Based Learning (PjBL)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136,01 hours</i> <i>Contact hours : 39,97 hours (lecture)</i> <i>Private study including examination preparation, specified in hours : 96,04 hours</i>
Credit points	<i>3 SKS/ 4,53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1: Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI 1: Able to apply honesty in every academic activity.</i> <i>PI 2: Able to apply discipline in attendance and in completing assigned tasks.</i> <i>PI 3: Able to apply politeness in every academic activity.</i> <i>PI 4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO 2: Master the fundamentals of general knowledge and basic theories in animal science.</i> <i>PI 1: Master the basic concepts in animal biotechnology.</i> <i>ILO-3: Able to apply animal science in accordance with the development of the livestock industry and innovative, up-to-date scientific activities.</i> <i>PI-1: Mastering technical skills and industrial management in the field of livestock production.</i> <i>ILO 4: Able to identify, formulate, provide solutions, and evaluate the solutions given to problems in the field of animal husbandry.</i> <i>PI 2: Able to formulate and elaborate on problems in the field of animal husbandry.</i> <i>ILO 5: Possesses leadership and entrepreneurship skills in the field of animal husbandry.</i> <i>PI 1: Able to demonstrate leadership qualities and respond effectively to issues in the field of animal husbandry.</i> <i>CLO :</i> <i>1. Students are able to demonstrate a friendly and caring attitude</i>

	toward animal welfare, while being responsible, independent, and competent in work within the field of Animal Biotechnology. 2. Students master knowledge and biotechnology in the field of Animal Reproduction. 3. Students are able to apply principles of technological engineering in accordance with technological developments in the field of Animal Biotechnology. 4. Students are able to master the concept of solving livestock problems based on scientific knowledge using scientific methods in the field of Animal Biotechnology. 5. Students are able to apply logical, critical, systematic, innovative, quality-oriented, and measurable thinking in carrying out work in the livestock field according to competency standards in Animal Biotechnology.
Content	This course covers the basic principles of molecular genetics analysis and its applications in animal science. The material includes the structure and function of DNA/RNA, gene regulation, recombinant technology, and the application of molecular techniques (such as PCR, electrophoresis, DNA isolation, and molecular diversity analysis) for genetic identification and selection of livestock. The learning method used in the genetics course is project-based learning. Project-Based Learning (PjBL) is an instructional method that uses projects or activities as a medium for learning.
Examination forms	Individual Assignment, Project-Based (Case-Based Method/CBM), Midterm Examination, Final Examination
Study and examination requirements	1. Individual Assignment: 10% 2. Project-Based (Case-Based Method/CBM): 50% 3. Midterm Examination: 20% 4. Final Examination: 20%
Reading list	1. Brown, T.A. (2016). <i>Genomes</i>. Oxford University Press. 2. Primrose, S.B. & Twyman, R.M. (2013). <i>Principles of Gene Manipulation</i>. Wiley-Blackwell. 3. Sambrook, J. & Russell, D.W. (2001). <i>Molecular Cloning: A Laboratory Manual</i>. CSHL Press. 4. Jurnal dan artikel ilmiah terbaru dalam bidang genetika molekuler peternakan 5. Jamsari. (2007). <i>Bioteknologi Pemula: Basic Principles and Applications of Molecular Analysis</i>. Pekanbaru, Indonesia: UNRI Press. 6. Noor, R. (2015). <i>Livestock Genetics</i>. Jakarta, Indonesia: Penebar Swadaya. 7. Suryo. (2005). <i>Genetics (Undergraduate Level) (11th ed.)</i>. Yogyakarta, Indonesia: Gadjah Mada University Press.

Module Descriptions “Elective Course BAS”

Module designation	<i>PPK60234 Meat Science and Technology.</i>
Semester(s) in which the module is taught	5
Person responsible for the module	1. Aronal Arief Putra, S.Pt., M.Sc., Ph.D; 2. Afriani Sandra, S.Pt., M.Sc; 3. Ade Rakhmadi, S.Pt., MP; 4. Dr. Ely Vebriyanti, S.Pt., MP
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Small group discussion, Directed Learning, Cooperative Learning (CL) and Project-Based Learning (PjBL)</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 136,01 hours Contact hours : 39,97 hours (lecture) Private study including examination preparation, specified in hours : 96,04 hours</i>
Credit points	<i>3 SKS/ 4,53 ECTS</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>ILO 1: Internalize the fundamental values of the university, the code of ethics, and scientific ethics based on the values of Pancasila.</i> <i>PI 1: Able to apply honesty in every academic activity.</i> <i>PI 2: Able to apply discipline in attendance and in completing assigned tasks.</i> <i>PI 3: Able to apply politeness in every academic activity.</i> <i>PI 4: Able to demonstrate full responsibility for assigned tasks.</i> <i>ILO-2: Demonstrate innovative animal husbandry science and technology.</i> <i>PI-1: Able to determine the appropriate meat processing methods to produce high-quality meat products.</i> <i>ILO4: Able to identify, formulate, implement, and evaluate solutions to problems in the field of animal husbandry.</i> <i>PI-1: Able to identify problems in the field of animal husbandry.</i> <i>PI-2: Able to formulate and elaborate problems in the field of animal husbandry.</i> <i>ILO7: Possess the attitude of a lifelong learner and pursue further study in developing a professional career.</i> <i>PI-1: Able to demonstrate performance as a learner by completing the final assignment.</i> <i>PI-2: Demonstrate the attitude of a lifelong learner.</i> <i>CLO :</i> <i>1. are able to explain the basic concept of meat.</i> <i>2. Students are able to explain the characteristics of fresh meat.</i> <i>3. Students are able to explain meat handling treatments before</i>

	<i>cooking.</i> <i>4. Students are able to explain various meat cooking method</i>
Content	<i>This course studies the transformation of muscle into meat, as well as the physical, chemical, microbiological, and sensory properties of meat. It also covers meat preservation and processing techniques, including meat chilling, freezing, heating, irradiation, grinding, marination, curing, drying, fermentation, smoking, and frying, as well as various meat products. The learning methods used in this course are Cooperative Learning (CL) and Case-Based Method (CBM).</i>
Examination forms	<i>Presentasi, UTS , UAS, Praktikum</i>
Study and examination requirements	<i>1. Presentasi : 20%</i> <i>2. UTS : 30%</i> <i>3. UAS : 30%</i> <i>4. Praktikum : 20%</i>
Reading list	<i>1. Lawrie, R.A. 2003. Ilmu Daging. Edisi Ke 5 Terjemahan Aminudin Prakkasi. UI Press Jakarta</i> <i>2. Soeparno. 2014. Ilmu dan Teknologi Daging Universitas Gajah Mada Edisi kelima (UGM-Press)</i> <i>3. Warris, P. D. 2010. Meat Science: An introductory text. CABI, Oxfordshire.</i> <i>4. Barbut, S. 2001. Poultry Products Processing: An Industry Guide. CRC Press, Florida.</i> <i>5. Feiner, G. 2006. Meat Products Handbook: Practical Science and Technology. Woodhead Publishing Limited, Cambridge.</i> <i>6. Hui, Y. H. 2012. Handbook of Meat and Meat Processing, Second Edition. CRC Press, Florida.</i>