

ANIMAL SCIENCE STUDY PROGRAM

FACULTY OF AGRICULTURE
UNIVERSITAS SUMATERA UTARA

2025

MODULE HANDBOOK (REVISION)





LIST OF COURSES

1 st Semester.....	1
USU1101 RELIGIOUS EDUCATION (ISLAM)	2
USU1102 RELIGIOUS EDUCATION (PROTESTANT CHRISTIAN)	5
USU1103 RELIGIOUS EDUCATION (CATHOLIC CHRISTIAN)	8
USU1104 RELIGIOUS EDUCATION (HINDU)	11
USU1105 RELIGIOUS EDUCATION (BUDDHIST).....	14
USU1106 RELIGIOUS EDUCATION (CONFUCIANISM)	17
USU1107 RELIGIOUS EDUCATION (BELIEF IN GOD ALMIGHTY)	19
USU1109 CIVIC EDUCATION.....	19
MAT1101 BASIC MATHEMATICS	21
BIO1101 BASIC BIOLOGY	23
BIO1102 BASIC BIOLOGY PRACTICUM.....	25
KIM1101 BASIC CHEMISTRY	27
PTN1101 BASICS OF ANIMAL SCIENCE	29
PTN1102 INTRODUCTION TO ANIMAL SCIENCE ECONOMICS.....	32
PTN1103 BASICS OF LIVESTOCK MANAGEMENT	35
2 nd Semester.....	38
USU1108 PANCASILA EDUCATION	39
USU1110 ENGLISH.....	42
PTN1201 ANIMAL NUTRITION SCIENCE	45
PTN1202 LIVESTOCK GENETICS.....	48
PTN1203 ANATOMY AND PHYSIOLOGY OF LIVESTOCK	44
PTN1204 BIODIVERSITY	47
PTN1205 CLIMATOLOGY AND LIVESTOCK ENVIRONMENT.....	50
PTN1206 LEGISLATION AND KPP	53
3 rd Semester	56
PTN2101 LIVESTOCK EXTENSION AND COMMUNICATION	57
PTN2102 FEED INGREDIENTS AND RATION FORMULATIONS	56
PTN2103 ANIMAL HEALTH SCIENCES AND VETERINARY SOCIETY	58
PTN2104 ANIMAL BREEDING SCIENCE	61
PTN2105 ANIMAL REPRODUCTION SCIENCE.....	64
PTN2106 FEED PLANT SCIENCE.....	66
PTN2107 VARIOUS LIVESTOCK AND ANIMALS OF HOPE	69
4 th Semester.....	72
PTN2201 POULTRY PRODUCTION	73



PTN2202 DAIRY PRODUCTION	75
PTN2203 PRODUCTION OF SLAUGHTER AND WORKING CATTLE	78
PTN2204 KNOWLEDGE OF LIVESTOCK PRODUCTS.....	81
5 th Semester.....	80
PTN3101 ANIMAL FEED INDUSTRY	81
PTN3102 NUTRITIONAL MICROBIOLOGY	84
PTN3103 LIVESTOCK AND PLANTATION INTEGRATION	85
PTN3104 LIVESTOCK WASTE TREATMENT TECHNOLOGY.....	88
PTN3105 LIVESTOCK RESEARCH METHODOLOGY	89
PTN3106 LIVESTOCK AGRIBUSINESS	91
PTN3107 EXPERIMENTAL DESIGN AND DATA ANALYSIS.....	93
6 th Semester.....	95
PTN3201 ABATOIR AND CUTTING TECHNIQUES	96
PTN3202 CATTLE FATTENING TECHNOLOGY/FEEDLOT	99
PTN3203 MANAGEMENT OF LIVESTOCK GRAZING FIELDS.....	102
PTN3204 NORTH SUMATRA LIVESTOCK GERMPLASM.....	102
PTN3205 ENVIRONMENTAL IMPACT ANALYSIS OF LIVESTOCK.....	105
PTN3206 OBSERVATION AND BEHAVIOR OF LIVESTOCK	107
PTN3207 PIG AND RABBIT PRODUCTION SCIENCE	109
PTN3208 ANIMAL REPRODUCTIVE TECHNOLOGY	112
PTN3209 DESIGN AND BUILD LIVESTOCK CAGES	115
PTN3210 K3 (OCCUPATIONAL HEALTH AND SAFETY).....	116
PTN3211 ROBOTICS MECHANICS OF LIVESTOCK MACHINERY	119
PTN3212 FEED QUALITY CONTROL.....	121
PTN3213 FEED MATERIAL STORAGE TECHNIQUES	123
PTN3214 FEED TOXICOLOGY	125
PTN3215 POULTRY NUTRITION SCIENCE	128
PTN3216 OF DAIRY NUTRITION SCIENCE	130
PTN3217 BEEF CATTLE NUTRITION SCIENCE.....	132
PTN3218 NONRUMINANT NUTRITION SCIENCE.....	134
PTN3219 OF ANIMAL FEED PROCESSING SCIENCE AND TECHNOLOGY	137
PTN3220 OF ANIMAL SCIENCE COMPANY ECONOMICS	139
PTN3221 LIVESTOCK TRADING SYSTEM	138
PTN3222 LIVESTOCK PROJECT PLANNING AND EVALUATION	141
PTN3223 SOCIAL RESEARCH METHODS.....	144
PTN3224 EMPOWERMENT OF LIVESTOCK COMMUNITIES.....	146
PTN3225 LIVESTOCK-BASED REGIONAL DEVELOPMENT.....	149
PTN3226 LIVESTOCK BUSINESS COMMUNICATION	148



PTN3227 LIVESTOCK MARKETING MANAGEMENT	151
PTN3228 DIGITAL INDUSTRY LIVESTOCK BUSINESS	153
PTN3229 MEAT TECHNOLOGY	154
PTN3230 MILK AND EGG TECHNOLOGY	157
PTN3231 HATCHING TECHNOLOGY	159
PTN3232 TECHNOLOGY OF LIVESTOCK PRODUCTS	162
PTN3233 LIVESTOCK PRODUCT PROCESSING INDUSTRY	164
7 th Semester.....	167
PTN4101 FIELDWORK PRACTICE	168
PTN4102 POULTRY INDUSTRY MANAGEMENT	167
PTN4102 DAIRY INDUSTRY MANAGEMENT	170
PTN4104 INDUSTRY MANAGEMENT OF BEEF AND LABOR CATTLE	172
PTN4105 MANAGEMENT OF NON-RUMINANT LIVESTOCK INDUSTRY	173
PTN4106 ENTREPRENEURSHIP	176
8 th Semester.....	177
PTN4297 PROPOSAL SEMINAR.....	178
PTN4298 RESULTS SEMINAR.....	180
PTN4299 THESIS.....	182



1st Semester



USU1101 RELIGIOUS EDUCATION (ISLAM)

Course Name	Islamic Religious Education
Code	USU1101
Semester (s) in which the module is taught	I
Lecture (Persons responsible)	Dr. Sahlia, M. AG.,
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • The class size 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Lectures (2 x 50 minutes) per week or 23.30 hours per semester • Self-study: (2 x 60 minutes) per week or 28 hours per semester • Discussion : (2 x 60 minutes) per week or 28 hours per semester • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credits points	2 credits (equivalent to 3.2 ECTS)
Required and recommended prerequisites for joining the modules for joining the module	-
Course Description	This course discusses the understanding of the nature of humans and the universe. (Kauniyah and Tanziliyah versions). Tanziliyah verses include Aqidah, sharia, morals, and Islamic history. The main emphasis is on the application of these teachings in daily behaviour. 14 face-to-face lectures, structured assignments, Case Methods and project-based learning, practicums, midterm exams, and semester exams.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to initiate alternative solutions to selected religious and social issues through contributions, real roles in society and law-abiding manifestations in social projects. • Able to work together in a team, network, and attract learning for sustainable improvement in the context of implementing solutions to problems through independent, quality and measurable social projects as a form of internalization of the character of BINTANG (The One God in the Frame of Diversity, Innovative with Integrity, Resilience and Wisdom) of the Universitas Sumatera Utara



Content	<ol style="list-style-type: none">1. Conducting a search by exploring and selecting topics that are unsettling in the educational environment, namely: intolerance, bullying, gender equality and disability2. The concept of divinity according to Islam3. Faith and devotion4. The essence of human beings according to Islam5. Religion, religious terms, and religious characteristics6. Islam as a religion of revelation7. Sources of Islamic teachings, Methods of ijtihad8. Midterm Exams9. Human Rights, Democracy and Corruption in Islamic Perspective, Aspects of Islamic Politics10. Ethics, Morals and Morals11. Science and Technology and Art in Islam, History of Islamic Culture,12. Civil Society, Islamic Economy and the welfare of the ummah,13. Religious harmony and interfaith14. Exhibition of Islamic religious education project15. "Retrospective" Reflection16. Final Semester Exam
Examination forms	<ul style="list-style-type: none">• Project-Based Learning (30%)• Case Method (20%)• Quizzes (5%)• Assignments (5%)• Midterm exams (20%)• Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49



<p>Reading list</p>	<p>Main Reading: The Qur'an and Translation, a Guidebook for Islamic Religious Education</p> <p>Additional Reading: Director General of Learning and Student Affairs of the Ministry of Research, Technology and Higher Education, Islamic Religious Education for Higher Education, Jakarta, Director General of Belmawa, 2016.</p> <p>Muhibbin, Zainul, et al, Islamic Religious Education Building Madani Character, Surabaya, ITS Press, 2012.</p> <p>Razaq, Nasruddin, Dinnul Islam, Bandung, Al-Ma,arif, 2005. Iberani, Jamal Syarif et al, Getting to Know Islam, Jakarta: eL-Kahfi, 2003.</p> <p>Imarah, Muhammad, Islam and the Plurality of Differences and Plurality in the Frame of Unity, Jakarta, Gema Insani, 1999.</p> <p>Lubis, Tagor Muda .2015. Islamic Religious Education Textbook for Public Universities.Medan: USU Press.</p> <p>Anshari, E. Saefudin.1991. Science, Philosophy, and Religion. Surabaya: Bina Ilmu. 3. Matondang, Husnel Anwar. 2017. Islam Kaffa Islamic Religious Education for Higher Education. Medan: Perdana Publishing.</p> <p>Wahyuddin, et al., Islamic Religious Education Building Student Character in Higher Education, Surabaya, Litera Jannata Perkasa Publisher, 2019.</p> <p>Abdullah Idi and Toto Suharto, Revitalization of Islamic Education, Yogyakarta: Tiara Wacana, 2006</p> <p>Ali Ibn Ali al-Mas'udi, Abu Hasan, Muruj al-Dzahab wa Ma'ad in al-Jauhar, Penyunting Muhammad Muhyal-Din Abd. Al-Hamid, Jilid-2, Beirut: Dar al-Fikr, 1973, Cet.ke-1.</p> <p>Arief, Armai (editor), History of the Growth and Development of Classical Islamic Education Institutions, Bandung: Angkasa, 2014, Cet.1</p>
<p>Update date</p>	<p>July 2025</p>



USU1102 RELIGIOUS EDUCATION (PROTESTANT CHRISTIAN)

Course Name	Protestant Christian Religious Education
Code	USU1102
Semester	I
Lecture (Persons responsible)	Ance Marintan D. Sitohang, S.P., M. Div., M.Th.,
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (incl. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Lectures (2 x 50 minutes) per week or 23.30 hours per semester • Self-study: (2 x 60 minutes) per week or 28 hours per semester • Discussion : (2 x 60 minutes) per week or 28 hours per semester • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credits points	2 credits (equivalent to 3.2 ECTS)
Required and recommended prerequisites for joining the modules for joining the module	-
Course Description	This course discusses the application of basic Christian faith, responsibility to God through sensitivity to others and the environment
Module objectives/intended learning outcomes	Able to build the values of piety and religiosity in various real contributions in their efforts to build human values, as well as actualize the ability to think contextual in various problems that exist in daily life and based on the values of piety and good religiosity in the context of social projects carried out as a form of internalization of the character of BINTANG (The One God in the Frame of Diversity, Innovative with Integrity, Tangguh and Arif) Universitas Sumatera Utara
Content	<ol style="list-style-type: none"> 1. Conduct searches by exploring and selecting contextual topics 2. The concept of divinity in Christianity based on the Bible 3. The concept of divinity in Christianity is based on the concept of the Triune God 4. The concept of human beings as ethical beings who have attitudes and behaviours in accordance with their essence as human beings 5. Christian Morality and Ethics in the Post-modern



	<p>Era</p> <ol style="list-style-type: none"> 6. Youth Associations and Moral Responsibility 7. Science and Technology and Its Problems and Attitudes of Christian Students 8. Midterm Exams 9. Pluralistic Society and Interreligious Harmony from a Christian Perspective 10. The relationship of the gospel with social service and the church in the midst of the problems of community life 11. The Relationship between Religion and Culture in terms of Christian Ethics 12. Socio-Political Challenges and Responsibilities of Christians 13. Law Enforcement, Human Rights and Democracy and the Role of Christians 14. The Responsibility of Christians as Guardians of God's Creation 15. Protestant Christian Religious Education Project Exhibition 16. Final Semester Exam
Examination forms	<p>Project-Based Learning (30%) Case Method (20%) Quizzes (5%) Assignments (5%) Midterm exams (20%) Final exams (20%)</p>
Learning media	<p>Power point (LCD), whiteboard, e-learning (LMS)</p>
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main readings: Gospel and Translation, Handbook of Protestant Christian Religious Education</p> <p>Additional reading: Hans Kung, 1999, "Etika Global", Pustaka Pelajar, Yogyakarta. Henry C. Thiessen, 1995, "Systematic Theology", Gandum Mas, Malang. Herman Bavinck, 2011, "Dogmatica Reformed 1:</p>



	<p>Prolegomena", Momentum, Surabaya. Herman Bavinck, 2011, "Dogmatics Reformed 2: God and Creation", Momentum, Surabaya. J. Verkuyl, 1992, "Christian Ethics, Race, Nation and State", BPK Gunung Mulia, Jakarta. J. Verkuyl, 2002, "General Christian Ethics", BPK Gunung Mulia, Jakarta. John M. Frame, 2004, "The Doctrine of the Knowledge of God", SAAT Literature, Malang. K. Bertens, 2011, "Ethics", Gramedia, Jakarta. Kenneth Richard Samples, 2015, "Without a Doubt", Literatur SAAT, Malang. Millard J. Erickson, 1999, "Christian Theology", Gandum Mas, Malang.</p>
Last date of update	July, 2025



USU1103 RELIGIOUS EDUCATION (CATHOLIC CHRISTIAN)

Course Name	Catholic Christian Religious Education
Code	USU1103
Semester (s) in which the module is taught	I
Lecture (Persons responsible)	Drs. B.M. Sembiring, M.Pd.K
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none">• Lecture (explanation, discussion)• Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)• Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none">• Lectures (2 x 50 minutes) per week or 23.30 hours per semester• Self-study: (2 x 60 minutes) per week or 28 hours per semester• Discussion : (2 x 60 minutes) per week or 28 hours per semester• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credits points	2 credits (equivalent to 3.2 ECTS)
Required and recommended prerequisites for joining the modules for joining the module	
Course Description	This course discusses the concept of faith in the church, church life, and society in the context of developing the attitude and personal mentality of a Catholic scholar for the benefit of the Indonesian people as an expression of his faith.
Module objectives/intended learning outcomes	Able to build the values of piety and religiosity in various real contributions in their efforts to build human values, as well as actualize the ability to think contextual in various problems that exist in daily life and based on the values of piety and good religiosity in the context of social projects carried out as a form of internalization of the character of BINTANG (The One God in the Frame of Diversity, Innovative with Integrity, Tangguh and Arif) Universitas Sumatera Utara



Content	<ol style="list-style-type: none"> 1. Catholicism and its relevance to church life and society 2. Religious Lectures can help achieve the Church's ideals in community life 3. Three human relationships with themselves, others and God 4. Three basic human abilities 5. Faith and its influence 6. The rationality of religious teachings and human morality (visionary man, not radicalism) 7. Salvation centered on Christ, the Church and the Kingdom of God 8. Midterm Exams 9. Morality and ethics 10. Justice according to scripture 11. Catholic Family 12. The role of science and technology in religion 13. Christian Noble Professional Ethics as a Life Call 14. Definition of corruption forms and countermeasures and able to explain the role of taxes and their functions in national development 15. The essence of the law and its function in the life of the state 16. Final Semester Exam
Examination forms	<p>Project-Based Learning (30%) Case Method (20%) Quizzes (5%) Assignments (5%) Midterm exams (20%) Final exams (20%)</p>
Learning media	<p>Power point (LCD), whiteboard, e-learning (LMS)</p>
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main readings: Gospel and Translation, Catholic Religious Education Handbook</p> <p>Additional reading: APTIK, The Social Teaching of Pope John Paul II (Translation), Pontifical Lateran University, 1989.</p>



	<p>Beauchamp, T.L. & J.F. Childress, Principles of Biomedical Ethics, Exford University Press, 1983.</p> <p>Dister, Nico s., Basic Theology, Canisius, 1989.</p> <p>Greonen, C. Events of Jesus, Canisius, 1989</p> <p>Haring, B., Manipulation Ethical Boundaries of Medical Behavioural and Genetic Manipulation, Slough, St. Paul Publication, 1975.</p> <p>Kiesser, Bernard, Social Morality of Ummah Involvement in Community Life, Kanisius, 2001.</p> <p>KWI, Catholic Faith (Information and Reform Book), Kanisius, 1996.</p>
Last date of update	July, 2025



USU1104 RELIGIOUS EDUCATION (HINDU)

Course Name	Hindu Religious Education
Code	USU1104
Semester (s) in which the module is taught	I
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none">• Lecture (explanation, discussion)• Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)• Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none">• Lectures (2 x 50 minutes) per week or 23.30 hours per semester• Self-study: (2 x 60 minutes) per week or 28 hours per semester• Discussion : (2 x 60 minutes) per week or 28 hours per semester• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent to 3.2 ECTS)
Required and recommended prerequisites for joining the modules for joining the module	-
Course Description	This course discusses Hindu understanding, appreciation, and practice, strengthening faith and belief, the history of Hindu development, the Vedas, the fundamentals of Hindu beliefs, techniques for achieving religious goals, Hindu philosophy, Hindu ethics, Yadnya, Hindu society, and the fundamentals of Hindu leadership.
Module objectives/intended learning outcomes	Able to internalize BINTANG values in developing self-abilities as lifelong learning.
Content	<ol style="list-style-type: none">1. The purpose and function of Hindu religious education as a component of general compulsory courses2. Hindu spiritual values in building shraddha and bhakti (faith and taqwa) to God Almighty, in forming a humanist personality3. Able to be honest, law-abiding, creative, healthy, and adaptive based on Hindu religious values4. Skilled in presenting the results of individual and group studies on a case (case study) related to the contribution of Hinduism in the development of world civilization.



	<ol style="list-style-type: none"> 5. Skilled in presenting the results of individual and group studies on a case (case study) related to the contribution of Hinduism in the development of world civilization. 6. Able to present a model of society that is able to build a humanist, aesthetic, and globally competitive civilization 7. Able to present a model of society that is able to build a humanist, aesthetic, and globally competitive civilization. 8. Midterm exams 9. Understand the purpose and function of Hindu religious education as a component of general compulsory courses 10. Understand the purpose and function of Hindu religious education as a component of general compulsory subjects 11. Mastering Hindu spiritual values in building sraddha and devotion to God Almighty 12. Mastering Hindu spiritual values in building sraddha and devotion to God Almighty 13. Understand the concept of Hindu humans in forming an honest, law-abiding, creative, healthy, and adaptive personality. 14. Understanding the contribution of Hinduism in the development of world civilization 15. Understanding the concept of society based on the teachings of Tri Hita Karana 16. Final semester exams
Examination forms	<p>Project-Based Learning (30%) Case Method (20%) Quizzes (5%) Assignments (5%) Midterm exams (20%) Final exams (20%)</p>
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>



Reading list	<p>Singer, Wayan, 2012. Ajaran Ketuhanan Agama Hindu, Surabaya, Paramita</p> <p>Drafting Team, 1997, Hindu Religious Education for Higher Education, Hanuman Sakti</p> <p>Wiana, 1994, How Hinduism Lives God, Manikgeni.</p> <p>Wiana, 1982, Niti Sastra, Ditjen Hindu dan Budha.</p> <p>Titib, 1996, Vedic Scriptures of the Practical Guidelines for Life, Paramita.</p> <p>Pudja, 1997, Hindu Theology, Mayasari Agung Leo, Sri Wahyuni.2013. "History Learning Planning. Yogyakarta": Waves.</p> <p>Atmodjo, 1977. "A Newly Discovered Pillar Inscription of Sri Kesari Warmadewa at Malet Gede", in 50 Years</p>
Last date of update	July, 2025



USU1105 RELIGIOUS EDUCATION (BUDDHIST)

Course Name	Buddhist Education
Code	USU1105
Semester (s) in which the module is taught	I
Lecture (Persons responsible)	Meng Lie Amran S.Ag., M.Pd.
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none">• Lecture (explanation, discussion)• Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)• Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none">• Lectures (2 x 50 minutes) per week or 23.30 hours per semester• Self-study: (2 x 60 minutes) per week or 28 hours per semester• Discussion : (2 x 60 minutes) per week or 28 hours per semester• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credits points	2 credits (equivalent to 3.2 ECTS)
Required and recommended prerequisites for joining the modules for joining the module	-
Course Description	This course discusses the main teachings of Buddhism and its application in the field of science and technology as well as its correct and appropriate practices in daily life, nations, and countries.
Module objectives/intended learning outcomes	Students have knowledge of Buddhism based on the 9 substance of study in the course, have attitudes and behaviours that are in accordance with the precepts in Buddhism and have the skills to apply it in all aspects of their lives both in the family and in society.



Content	<ol style="list-style-type: none"> 1. Vision and Mission of Buddhist Education in Higher Education 2. The concept of divinity in Buddhism 3. The concept of man in Buddhism 4. Morality 5. Science and technology and art 6. Interfaith harmony from the perspective of Buddhism 7. Buddhist Society 8. Culture and its relationship with religion 9. Socio-political challenges and responsibilities of Buddhists 10. Law enforcement, human rights and democracy and the role of Buddhists
Examination forms	<p>Project-Based Learning (30%) Case Method (20%) Quizzes (5%) Assignments (5%) Midterm exams (20%) Final exams (20%)</p>
Learning media	<p>Power point (LCD), whiteboard, e-learning (LMS)</p>
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main Reading Ministry of Research, Technology and Higher Education. 2016. Buddhist Education for Higher Education. Jakarta: Director General of Belmawa of the Ministry of Research, Technology and Higher Education Mukti, Wijaya Khrisnanda. 2003. Buddhist Dhamma Discourse. Jakarta: Dhamma Development Foundation. Nārada. No year. The Buddha and His Teachings Vol. 2. Translation by Visākā Gunadharma. 1998. Jakarta: Dhammadipa Arāma Foundation. Zimmer, Heinrich. 2003. History of Indian Philosophy. Translation by Agung Prihantoro. Yogyakarta: Pustaka Belajar. Dayal, Har. 1932. The Bodhisattva Doctrine in Buddhist Sanskrit Literature. Delhi:</p>



	<p>Motilal Banarsidass Publishers</p> <p>Wahyono, Mulayadi. 2002. Basic Principles of Buddhism. Jakarta: Ministry of Religious Affairs of the Republic of Indonesian Sangha Theravada Indonesian 2007. Paritta Suci. Jakarta: Sangha Theravada Indonesian Piyadassi Foundation. 2003. Spectrum of Buddhism. Translation by Hetih Rusli et al. Jakarta: Tri Ratna Buddhist Education Foundation.</p> <p>Sangharakshita, Mahāsthavira. 1996. Opening Interdisciplinary Insights. Jakarta: Sangha Agung.</p> <p>Kusaladhammo, Ashin. 2007. Chronology of Buddha's Life. Jakarta: Ehipassiko</p> <p>Harold, C., 1989, Pluralism Challenges for Religions, ed., Jogjakarta: Kanisius.</p>
Last date of update	July, 2025



USU1106 RELIGIOUS EDUCATION (CONFUCIANISM)

Course Name	Confucian Religious Education
Code	USU1106
Semester (s) in which the module is taught	I
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Lectures (2 x 50 minutes) per week or 23.30 hours per semester • Self-study: (2 x 60 minutes) per week or 28 hours per semester • Discussion : (2 x 60 minutes) per week or 28 hours per semester • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent to 3.2 ECTS)
Required and recommended prerequisites for joining the modules for joining the module	-
Course Description	This course discusses the main teachings of Confucianism and its application in the field of science and technology as well as good and correct practices in daily life, nations, and countries.
Module objectives/intended learning outcomes	Able to internalize BINTANG values in developing self-abilities as lifelong learning.
Content	<ol style="list-style-type: none"> 1. Able to explain the general picture and goals to be achieved in the RuConfucian religion. 2. Able to understand the purpose of body and soul, life and life after death that can be achieved by human beings living on the Holy Path, practicing virtue based on religious guidance. 3. Understanding the three basic activities of studying and believing in the religion of Ru - Confucianism 4. Understanding and believing in the essence of life 5. Able to understand the Godhead and believe in God Almighty, understand and uphold the Prophet and Prophethood as well as Shenming in the Ru - Confucian religion. 6. Understand the Philosophical aspects of the Religious of Temples, Religious Holidays, Incense, and how to



	<p>give greetings and greetings.</p> <ol style="list-style-type: none"> 7. Understand the main religious teachings of RuKhonghucu. 8. Midterm exams 9. Understanding the main points of the Moral and Ethical teachings of Confucianism 10. Able to understand the Principles of Confucian Moral Teachings and Ethics 11. Understanding the Application of Ru-Chinese Moral and Ethical Teachings in Life 12. Understanding the Application of Ru-Chinese Moral and Ethical Principles in Life 13. Understand Ru-Chongqing's religious holidays. Knowing the types of incense sticks and their use 14. Understand the basics of the faith of a Ru-Chinese believer. Understanding the eight precepts 15. Understanding Ru-Chinese religious education as a whole leads student to become a Junzi. 16. Final semester exams
Examination forms	<p>Project-Based Learning (30%) Case Method (20%) Quizzes (5%) Assignments (5%) Midterm exams (20%) Final exams (20%)</p>
Learning media	<p>Power point (LCD), whiteboard, e-learning (LMS)</p>
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Learning media	<p>Power point (LCD), whiteboard, e-learning (LMS)</p>
Reading list	<p>Xs. Tjhie Tjay Ing et al., Living Happily in the Sacred Path of Tian, Gate of Virtue Ru, 2010 Yu Dan, 1000 Hearts One Heart, Gate of Virtue Ru 2009.</p>
Last date of update	<p>July, 2025</p>



USU1107 RELIGIOUS EDUCATION (BELIEF IN GOD ALMIGHTY)

Course Name	Education of Belief in God Almighty
Code	USU1107
Semester (s) in which the module is taught	I
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Lectures (2 x 50 minutes) per week or 23.30 hours per semester • Self-study: (2 x 60 minutes) per week or 28 hours per semester • Discussion : (2 x 60 minutes) per week or 28 hours per semester • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent to 3.2 ECTS)
Required and recommended prerequisites for joining the modules for joining the module	-
Course Description	This course discusses the main teachings of Belief in God Almighty and its application in the field of science and technology as well as its correct and appropriate practices in daily life, the nation, and the state.
Module objectives/intended learning outcomes	Able to internalize BINTANG values in developing self-abilities as lifelong learning.
Content	<ol style="list-style-type: none"> 1. Basic Concepts of Belief in God Almighty 2. The Relationship between Religion and Morals in Life. 3. Religious Diversity and Beliefs in Indonesian 4. God in the Perspective of World Religions 5. Man, and Responsibility to God 6. Faith as the Basis of Life. 7. God and Culture. 8. Midterm exams 9. Principles of Faith in Community Life 10. The Relationship of Knowledge and Faith to God 11. God and the Environment 12. The Role of Education in Instilling Divine Values 13. Worship as a Form of Devotion to God 14. Divine Values in Pancasila



	15. Faith-Based Conflict Resolution End-of-semester exams.
Examination forms	Project-Based Learning (30%) Case Method (20%) Quizzes (5%) Assignments (5%) Midterm exams (20%) Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49
Reading list	Harun Nasution. (1986). Philosophy of God. Jakarta: Bulan Bintang. Griffin, D. R. (1989). God and Religion in the Postmodern World: Essays in Postmodern Theology. Albany: State University of New York Press. Harris, S. (2010). The Moral Landscape: How Science Can Determine Human Values. New York: Free Press. Conradie, E. M. (2006). Eco-Theology: The Responsibility of Religion for Nature. Stellenbosch: SUN Press. Yaqin, M. A. (2005). Multicultural-Based Islamic Religious Education. Malang: UIN Malang Press. Root, A. (2017). Faith Formation in a Secular Age: Responding to the Church's Obsession with Youthfulness. Grand Rapids: Baker Academic. Salim, E. (2008). Religion and Ecology. Jakarta: Kompas Studia Islamika. (n.d.). Jurnal Studi Islam. Retrieved from https://journal.uinjkt.ac.id/index.php/studia-islamika Religious Studies. (n.d.). Cambridge University Press. Retrieved from https://www.cambridge.org/core/journals/religious-studies
Last date of update	July, 2025



USU1109 CIVIC EDUCATION

Course Name	Civic Education
Code	USU1109
Semester (s) in which the module is taught	I
Lecture (Persons responsible)	Afrita SH., M.Hum
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Lectures (2 x 50 minutes) per week or 23.30 hours per semester • Self-study: (2 x 60 minutes) per week or 28 hours per semester • Discussion : (2 x 60 minutes) per week or 28 hours per semester • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credits points	2 credits (equivalent to 3.2 ECTS)
Required and recommended prerequisites for joining the modules for joining the module	-
Course Description	After completing this course, students will be able to initiate alternative solutions to selected social issues through contributions, real roles in society and law-abiding manifestations in social projects, be able to work together in teams, network, and attract learning for sustainable improvement in the context of implementing solutions to problems through independent, quality and measurable social projects as a form of internalization of the character of BINTANG (The One Godhead) in the Framework of Diversity, Innovative with Integrity, Resilience and Wisdom) Universitas Sumatera Utara
Module objectives/intended learning outcomes	Able to internalize BINTANG values in developing self-abilities as lifelong learning.
Content	<ol style="list-style-type: none"> 1. The search was conducted by exploring and selecting topics of the Sustainable Development Goals (Sustainable Development Goals) and topics that became unrest in the educational environment, namely: 1. Intolerance, 2. Bullying, 3. Gender Equality and Disability 2. The Essence of Civic Education in Developing the Integrity of Undergraduate or Professional Abilities 3. National Identity (Concept, urgency, historical, sociological and political sources, flag and language



	<p>of Indonesian)</p> <ol style="list-style-type: none"> 4. National Identity (Emblem, National Anthem, Motto, Philosophy of the Indonesiann State) 5. National Integration 6. Constitution in Indonesian 7. Rights and obligations of the state and citizens 8. Midterm Exams 9. Indonesiann Democracy (a concept sourced from Pancasila) 10. Democracy in Indonesian (democracy in the electionof political leaders and state officials) 11. Law enforcement in Indonesian 12. Archipelago Insights as a Conception and Collective View of Indonesiann Nationality as a Context for World Relations 13. National Resilience and National Defense for Indonesian in Building National Collective Commitment 14. Civic Education Project Exhibition 15. Reflection "Retrospective 16. Final Semester Exam
Examination forms	<p>Project-Based Learning (30%) Case Method (20%) Quizzes (5%) Assignments (5%) Midterm exams (20%) Final exams (20%)</p>
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Civic Education for Higher Education, Directorate General of Ristekdikti, Print I, 2016. Citizenship Education in Higher Education, Prof. Dr.H. Kaelan, M.S. Drs. H. Achmad Zubaidi, M.Si, 2007 Basic Law of Geopolitics and Geostrategy in the Framework of the Integrity of the Republic of Indonesian by Prof. DR Ermaya Suradinata, SH.MS, MH, 2005 Civic Education books and other resources.</p>
Last date of update	July, 2025



MAT1101 BASIC MATHEMATICS

Course Name	Basic Mathematics
Code	MAT1101
Semester (s) in which the module is taught	I
Lecture (Persons responsible)	Dr. Mardiningsih, M.Si
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the modules for joining the module	-
Course Description	This course discusses derivatives and the use of derivatives. Integral and integral use. Integration Techniques and Introduction to Differential Equations
Module objectives/intended learning outcomes	Students are able to understand general basic science
Content	<ol style="list-style-type: none"> 1. Mathematical set 2. Real number system 3. Function 4. Function applications 5. Limit function 6. Continuity of function 7. Derivatives/differentials 8. Derivative apps 9. Integral 10. Integral applications
Examination forms	Project-Based Learning (30%) Case Method (20%) Quizzes (5%) Assignments (5%) Midterm exams (20%)



	Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Purcell,J.E, Rigdon, SE Varberg.D “Calculus” 9 th edition, Prentice Hall, New Jersey, 2000 Anton, H, “calculus with Analytic Geometry” 6 th edition, John Wiley & Sons, Inc., Singapore, 1999 James Stewart “Calculus Concepts and contexts” 8th Edition Singapore, 2001 Koko Martono MATHEMATICs FOR BUSINESS AND MANAGEMENT, Revised Edition, Institut Teknologi Bandung 2008 Laurence D. Hoffmann, Gerald L. Bradley “CALCULUS FOR BUSINESS, ECONOMIC AND THE COICIAL AND LIFE SCIENCES, Tenth Editions. The McGraw-Hill Compines Inc, New York 2010
Last date of update	July, 2025



BIO1101 BASIC BIOLOGY

Course Name	Basic Biology
Code	BIO1101
Semester (s) in which the module is taught	I
Lecture (Persons responsible)	Dr. Erni Jumilawaty,S.Si,M.Si.
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process:(3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments:(3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credits	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the modules for joining the module	-
Course Description	After completing this lecture, students will be able to explain the concept of modern biology and its application in supporting the development of applied science by applying scientific values, sustainability and usefulness as well as local potential for the community as a whole.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students are able to explain the basic concepts of biology, including the characteristics of living things, the organization of life, and the basic principles of modern biology. • Students are able to apply the principles of biology to solve basic problems in the fields of health, agriculture, and the environment
Content	<ol style="list-style-type: none"> 1. Scope of Biology and the Origin of Life 2. Chemical Concepts of Life 3. Cell concept, cell organelles, and membrane structure 4. Cell empowerment process 5. The Concept of Photosynthesis 6. Cell division concept in prokaryotes and eukaryotes. 7. Trait inheritance patterns. Gene replication structure 9. The concept of recombinant DNA technology



	<p>Concepts of Diversity, biological functions, and the role of bacteria, protists, and fungi</p> <p>10. Characteristics, structure, and role of plants.</p> <p>11. Characteristics, structure, and role of low to tall plants.</p> <p>12. Concept of Evolution and characteristics of animals</p> <p>13. General Concepts of Animal Biological Systems II:</p> <p>14. Ecological principles based on populations and communities and animal behaviour</p> <p>15. Ecological principles based on ecosystems and conservation biology concepts, application of biological concepts for the benefit of humanity</p>
Examination forms	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80</p> <p>B+ = 75-79</p> <p>B = 70-74</p> <p>C+ = 65-69</p> <p>C = 60-64</p> <p>D = 50-59</p> <p>E ≤ 49</p>
Reading list	<p>Main readings:</p> <p>Campbell NA, Reece JB, Taylor, MR, Simon EJ, Dickey JL. 2009. Biology, Concepts and Connections (6th Edition). San Francisco: Benjamin Cummings.</p> <p>Campbell, N.A., Reece, J.B., Taylor, M.R. Simon, E.J. 2011. Biology, Concepts and Connections (10th Edition). San Francisco: Benjamin Cummings.</p> <p>Jean B. Reece et al. 2014. Biology. 10th ed. Pearson Education. Illinois. USA</p> <p>Supporting reading:</p> <p>Simon, E.J., J.L Dickey, K.A. Hogan, J.B Reece. 2017. Essence of Biology. Erlangga Publisher</p>
Last date of update	July, 2025



BIO1102 BASIC BIOLOGY PRACTICUM

Course Name	Basic Biology Practicum
Code	BIO1102
Semester (s) in which the module is taught	I
Lecture (Persons responsible)	Dr. Erni Jumilawaty,S.Si,M.Si.
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	Structured Assignment: (1x50 minutes) x 14 weeks = 700 minutes = 12 hours Practice Activity: (1x120 minutes) x 14 weeks = 1680 minutes = 28 hours
Credit points	1 credit (equivalent to 1.6 ECTS)
Required and recommended prerequisites for joining the modules for joining the module	-
Course Description	After completing this lecture, students will be able to explain the concept of modern biology and its application in supporting the development of applied science by applying scientific values, sustainability and usefulness as well as local potential for the community as a whole.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students are able to explain the basic concepts of biology, including the characteristics of living things, the organization of life, and the basic principles of modern biology. • Students are able to apply the principles of biology to solve basic problems in the fields of health, agriculture, and the environment
Content	<ol style="list-style-type: none"> 1. Scope of Biology and the Origin of Life 2. Chemical Concepts of Life 3. Cell concept, cell organelles, and membrane structure 4. Cell empowerment process 5. The Concept of Photosynthesis 6. Cell division concept in prokaryotes and eukaryotes. 7. Trait inheritance patterns. Gene replication structure 9. The concept of recombinant DNA technology 10. Concepts of Diversity, biological functions, and the role of bacteria, protists, and fungi



	<p>11. Characteristics, structure, and role of plants.</p> <p>12. Characteristics, structure, and role of low to tall plants.</p> <p>13. Concept of Evolution and characteristics of animals</p> <p>14. General Concepts of Animal Biological Systems II:</p> <p>15. Ecological principles based on populations and communities and animal behaviour</p> <p>16. Ecological principles based on ecosystems and conservation biology concepts, application of biological concepts for the benefit of humanity</p>
Examination forms	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80</p> <p>B+ = 75-79</p> <p>B = 70-74</p> <p>C+ = 65-69</p> <p>C = 60-64</p> <p>D = 50-59</p> <p>E ≤ 49</p>
Reading list	<p>Main readings:</p> <p>Campbell, N.A., Reece, J.B., Taylor, M.R. Simon, E.J. 2006. Biology, Concepts and Connections (5th Edition). San Francisco: Benjamin Cummings.</p> <p>Campbell, N.A., Reece, J.B., Taylor, M.R. Simon, E.J. 2011. Biology, Concepts and Connections (10th Edition). San Francisco: Benjamin Cummings.</p> <p>Jean B. Reece et al. 2014. Biology.10th ed. Pearson Education. Illinois. USA</p> <p>Additional reading:</p> <p>Audesirk,T; Audesirk ,G; dan Byers B.E. 2002. Biology: Life on the Earth, 6 th Ed., Prentice Hall do Brasil, Ltd. Rio de Janeiro.</p> <p>Simon, E.J., J.L Dickey, K.A. Hogan, J.B Reece. 2017. Essence of Biology. Erlangga Publisher</p>
Last date of update	July, 2025



KIM1101 BASIC CHEMISTRY

Course Name	Basic Chemistry
Code	KIM1101
Semester (s) in which the module is taught	1
Lecture (Persons responsible)	Eko Kornelius Step PhD.
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none">• Lecture (explanation, discussion)• Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)• Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours• Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Self-study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the modules for joining the module	-
Course Description	This course discusses elements and compounds, stoichiometry, periodic systems, electron configuration, atoms and molecules, hybridization and resonance, gases and gas laws, liquids and vapor pressure, solutions, types of solutions, colligative properties of solutions, equilibrium in solutions and pH.
Module objectives/intended learning outcomes	Students are able to understand general basic science.
Content	<ol style="list-style-type: none">1. Scope of chemistry and scientific methods2. Atoms, molecules and ions3. Stoichiometry4. Reaction in aqueous solution5. Gas6. Energy in chemical reactions7. Electron structure and periodic list8. Midterm Exams



	<ol style="list-style-type: none">9. Chemical reactions and periodic lists10. Chemical bonds and molecular structure11. Molecular geometry and atomic orbital hybridization12. Acid and Alkali13. Introduction to organic chemistry 114. Introduction to organic chemistry 215. State of matter and forces between molecules16. Final Semester Exam
Examination forms	<ul style="list-style-type: none">• Project-Based Learning (30%)• Case Method (20%)• Quizzes (5%)• Assignments (5%)• Midterm exams (20%)• Final exams (20%)
Learning media	Power point, Screenshot, whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Chang, R., 2005, Basic Chemistry: Core Concepts, Volume 1 & 2, Third Edition, Erlangga Publishers, Jakarta Ebbing, D.D., 2007, General Chemistry, Ninth Edition, Houghton Mifflin Company, Boston, New York Jespersen, N.D., Brady, J.E., and Hyslop, A., 2012, Chemistry: The Molecular Nature of Matter, 6th ed, John Wiley and Sons, Inc. Linus Pauling, 2014, General Chemistry, New York. Petrucci, R.H., Harwood, W.S., Herring, F.G., and Madura, J.D., 2007, Basic Chemistry: Modern Principles and Applications, Volume 1, Ninth Edition, Erlangga Publishers. Salirawati, D., 2013, Who Said Chemistry Is Difficult, https://www.scribd.com , accessed March 2017. Smith, J.G., 2014, Organic Chemistry, Fourth Edition, Mc Graw Hill, Singapore.
Last date of update	July, 2025



PTN1101 BASICS OF ANIMAL SCIENCE

Course Name	Basics of Animal Science
Code	PTN1101
Semester (s) in which the module is taught	I
Lecture (Persons responsible)	Uswatun Hasanah S.Pt., M.Si
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process:(2x50 minutes) x 14 weeks = 1400 minutes = 23 hours • Structured Assignments: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: • (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent to 3.2 ECTS)
Required and recommended prerequisites for joining the modules for joining the module	-
Course Description	The course discusses the basic principles in the field of animal science, covering biological, technical, and managerial aspects in the production of livestock. This course provides an understanding of the physiological and morphological characteristics of livestock, maintenance systems, feed management, and livestock interaction with the environment. In addition, this course also introduces the role of livestock in meeting the needs of animal protein for humans, as well as its relationship with sustainability and animal welfare.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students are able to explain the origin of the formation of the cattle nation • Students are able to explain the various livestock nations that are developed traditionally and commercially • Students are able to explain the interaction between genetics and the environment that affects the appearance of livestock • Students are able to apply the basics of livestock



	maintenance management
Content	<ol style="list-style-type: none"> 1. Introduction (Scope of introductory courses in animal science and livestock domestication) 2. Identification of types of poultry livestock 3. Identification of different types of ruminant livestock 4. Identification of different types of non-ruminant livestock 5. Identify different types of livestock 6. The potential and role of animal science for humans 7. Livestock Industry 8. Midterm Exams 9. Environmental influence on livestock 10. Livestock behaviour 11. Livestock reproduction 12. Identification and estimation of age along with handling and restraint in various types of livestock 13. Body scoring and judging of livestock 14. Sapta livestock business 15. Business prospects in the field of Animal science 16. Final Semester Exam
Examination form	<p>Assignments, Quizzes, Midterm Exams, and Final Exams Project-Based Learning (30%) Case Method (20%) Quizzes (5%) Assignments (5%) Midterm exams (20%) Final exams (20%)</p>
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric: $A \geq 80$ $B+ = 75-79$ $B = 70-74$ $C+ = 65-69$ $C = 60-64$ $D = 50-59$ $E \leq 49$</p>
Reading list	<p>Main readings: Rohmat. 2014. Diktat Lecture on Introduction to Animal science, Faculty of Agriculture Kediri Animal Biology (Ita Wahyu Nursita, et al) Guidelines for Planning the Development of Indonesian Livestock (Suhubdy et al)</p>



	Supporting Reading: Dictionary of Animal science Terms (B AMurtidjo) Basics of Livestock Product Technology (AgusSusilo et al) Management of Forage in Traditional Livestock System (Y.A. Sutaryono)
Last date of update	July, 2025



PTN1102 INTRODUCTION TO ANIMAL SCIENCE ECONOMICS

Course Name	Introduction to Animal Science Economics
Code	PTN1102
Semester	1
Lecture (Persons responsible)	Ir. Armyn Hakim Daulay, M.BA
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: • (2x50 minutes) x 14 weeks = 1400 minutes = 23 hours • Structured Assignments: • (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: • (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent to 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	After completing the Introduction to Animal science Economics course, students of the first semester, Animal science Study Program, Faculty of Agriculture, University of North Sumatra are expected to be able to explain economic problems and goals, the scope of livestock economics, production and economic processes of livestock, supply, consumers, demand, market theory, economic policies and business prospects in the field of livestock
Module objectives/intended learning outcomes	Able to explain logically, critically, systematically and innovatively to economic problems and objectives, the scope of livestock economics, livestock production and economic processes, supply, consumers, demand, market theory, economic policies and business prospects in the livestock sector.



Content	<ol style="list-style-type: none"> 1. Definition and History of Economics 2. Scope of Animal science economics 3. Production and production process in the field of Animal science 4. Offers 5. Consumption 6. Demand 7. Market theory 8. Midterm Exams 9. Market theory (advanced) 10. Prosperity level 11. Prosperity behaviour 12. Economic policy 13. Economic policy (continued) 14. Money 15. Banking 16. Final Semester Exam
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80</p> <p>B+ = 75-79</p> <p>B = 70-74</p> <p>C+ = 65-69</p> <p>C = 60-64</p> <p>D = 50-59</p> <p>E ≤ 49</p>
Reading list	<p>Main readings:</p> <p>Dillon, J. L., & Hardaker, J. B. (1980). <i>Farm Management Research for Small Farmer Development</i>. Rome: Food and Agriculture Organization of the United Nations.</p> <p>Ellis, F. (1993). <i>Peasant Economics: Farm Households and Agrarian Development</i> (2nd ed.). Cambridge: Cambridge University Press.</p> <p>Hadi, P. U., & Ilham, N. (2002). <i>Problems and Prospects for Livestock Business Development in Indonesian</i>. Jakarta: AgroMedia Pustaka.</p> <p>Soekartawi. (2002). <i>Production Economics Theory with the Subject of Cobb-Douglas Function</i></p>



	<p><i>Analysis</i>. Jakarta: Raja Grafindo Persada.</p> <p>Additional reading:</p> <p>Anderson, J. R., & Feder, G. (2007). <i>Agricultural Extension</i>. In Handbook of Agricultural Economics (Vol. 3, pp. 2343–2378). Elsevier.</p> <p>Pretty, J. (2008). Agricultural Sustainability: Concepts, Principles, and Evidence. <i>Philosophical Transactions of the Royal Society B: Biological Sciences</i>, 363(1491), 447–465.</p> <p>Delgado, C. L., Rosegrant, M. W., Steinfeld, H., Ehui, S., & Courbois, C. (1999). Livestock to 2020: The Next Food Revolution. <i>Outlook on Agriculture</i>, 30(1), 27–39.</p>
Last date of update	July, 2025



PTN1103 BASICS OF LIVESTOCK MANAGEMENT

Course Name	Basics of Farm Management
Code	PTN1103
Semester (s) in which the module is taught	1
Lecture (Persons responsible)	Kennie Cendekia Desnamrina, S.Pt., M.Pt.
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none">• Lecture (explanation, discussion)• Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)• Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none">• Lectures (2 x 50 minutes) per week or 23.30 hours per semester• Self-study: (2 x 60 minutes) per week or 28 hours per semester• Discussion : (2 x 60 minutes) per week or 28 hours per semester• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent to 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	The Basic Course of Livestock Management learns about the basics of management in the field of Livestock such as management developments, elements, management functions and supporting aspects of management in Livestock in general.
Module objectives/intended learning outcomes	Able to explain management as a science/art in practice, leadership and leadership within the scope of livestock
Content	<ol style="list-style-type: none">1. Definition, characteristics and development of management as well as system approach and contingency approach2. Management elements, areas of management and management functions3. Leaders, managers and leadership4. Decision making dan responsibility5. Coordination, communication, motivation, centralization and decentralization6. Planner, planning, plan, principles, objectives, conditions and types7. Planner, planning, plan, principles, objectives,



	<p>conditions and types</p> <ol style="list-style-type: none"> 8. Midterm exams 9. Meaning of organization, principles, elements and processes 10. Meaning of organization, principles, elements and processes (continued) 11. Human Resources, Sourcing, Procurement, Selection and Maintenance 12. Assessment, development and dismissal as well as relationships with management functions and areas 13. Meaning of movement functions, duties and responsibilities and rights and responsibilities of managers and employees 14. Meaning of movement functions, duties and responsibilities and rights and responsibilities of managers and employees (continued) 15. Meaning of control, monitoring, inspection, evaluation and reporting 16. Final semester exams
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Amirullah, et al. 2004. Introduction to Management. Yogyakarta: Graha Ilmu</p> <p>Assauri, Sofjan. 2011. Marketing Management. Jakarta: PT. King Grafindo Persada.</p> <p>Buchari, Alma, 1992. Marketing Management and Service Marketing. Bandung: Alfabeta.</p> <p>Bowo Arief, 2008. Organizing. Faculty of Economics, Mercu Buana University: Jakarta</p> <p>Harold Koontz, Cyrll O'Donnell, Heinz Weihrich. 1990, Management Edition 8 Translation. Jakarta. Publisher: Erlangga.</p>



	<p>Kotler, Phillip, 1989. Marketing Management Marketing Analysis and Control, Volume I. Jakarta: Erlangga.</p> <p>Mursid, M. 2010. Marketing Management. Jakarta: Bumi Aksara</p> <p>Sukanto Reksohadiprodjo. 1997, Introduction to Management. Jakarta. Publisher: Karunika Universitas Terbuka</p> <p>Wiludjeng, Sri. 2007. Introduction to Management. Yogyakarta: Garaha Ilmu</p> <p>Wahyu, Fitri. 2012. Journal: Work Motivation Theory and Leadership Theory. Yogyakarta: UNY.</p>
Last date of update	July, 2025



2nd Semester



USU1108 PANCASILA EDUCATION

Course Name	Pancasila Education
Code	USU1108
Semester (s) in which the module is taught	II
Lecture (Persons responsible)	Afrita, SH., M.Hum
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2x50 minutes) x 14 weeks = 1400 minutes = 23 hours • Structured Assignments: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent to 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses the basics and goals of Pancasila Education, Pancasila in the context of the history of the struggle of the Indonesiann nation, Pancasila as a philosophical system, Pancasila as political ethics and national ideology, Pancasila in the context of the constitution of the Republic of Indonesian, and Pancasila as a paradigm of society, nation, and state life
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to apply the values of Pancasila and citizenship • Able to understand general basic science • Able to build a globally minded character in the scientific and cross-disciplinary field



Content	<ol style="list-style-type: none"> 1. . Nature of Pancasila education 2. The purpose of Pancasila education 3. The Concept and Urgency of Pancasila in the Recent History of the Indonesiann Nation 4. Arguments about the dynamics and challenges of Pancasila in the study of the history of the IndonesiannNation 5. The concept of the State and the basic urgency of the Pancasila state as the basis of the state 6. The relationship between Pancasila and the Preamble to the 1945 Constitution of the Republic of Indonesian 7. The Concept and Urgency of Pancasila as an Ideological System 8. Midterm exams 9. Challenges of Pancasila as an Ideological and Essence System and the Urgency of Pancasila as an Ideological System 10. The concept of urgency of Pancasila as a Philosophical System 11. Dynamics and Challenges of Pancasila as a Philosophical System 12. The concept of urgency of Pancasila as an ethical system 13. Dynamics and Challenges of Pancasila as an Ethical System 14. Pancasila as the basic value of the development of religious science 15. Pancasila as the basis for the value of science development for nation development 16. Final semester exams
Examination form	<p>Project-Based Learning (30%) Case Method (20%) Quizzes (5%) Assignments (5%) Midterm exams (20%) Final exams (20%)</p>
Learning media	<p>Power point (LCD), whiteboard, e-learning (LMS)</p>
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>



Reading list	<p>Directorate General of Learning and Student Affairs, Ministry of Research, Technology and Higher Education, 2016, Textbook of General Compulsory Courses of Pancasila Education, Jakarta: Directorate General of Learning and Student Affairs, Ministry of Research, Technology and Higher Education, Cet. First</p> <p>Putra, Z., Wajdi, H.F. 2021. Pancasila and Citizenship Education Textbook Guide to Lectures in Higher Education. Ahli media Book.</p> <p>Suharta. 2019. Pancasila. Lakeisha Publishers.</p> <p>Wahono, S., Suajiyono, Malik, D.K. Pancasila Education for Higher Education. Academics</p>
Last date of update	July, 2025



USU1110 ENGLISH

Course Name	Indonesiann Language
Code	USU1110
Semester (s) in which the module is taught	II
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2x50 minutes) x 14 weeks = 1400 minutes = 23 hours • Structured Assignments: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent to 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses language as a means of oral and written communication, grammar (structure and effectiveness), spelling composition, diction, reasoning, paragraphs, and scientific writing
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to apply communication theory in the application of information technology and publications in the field of animal science both orally and in writing, in academic and non-academic situations. • Able to develop global insight for character and self-potential in accordance with scientific and cross-disciplinary fields



Content	<ol style="list-style-type: none"> 1. Students are able to apply Indonesian language development. 2. Students are able to analyse the functions and positions of the Indonesian language. 3. Students are able to evaluate the basics of Indonesian spelling. 4. Students are able to analyse foreign words and language absorption 5. Students are able to analyse diction in Indonesian. 6. Students are able to analyse language symptoms 7. Students are able to apply diction in Indonesian. 8. Midterm Exams 9. Students are able to identify effective language 10. Students are able to analyse the characteristics of standard and non-standard languages. 11. Students are able to analyse paragraphs. 12. Students are able to analyse the language of letters 13. Students are able to apply the essay text. 14. Students are able to analyse scientific works. 15. Students are able to apply spoken language and rhetoric 16. Final semester exams
Examination form	<p>Project-Based Learning (30%) Case Method (20%) Quizzes (5%) Assignments (5%) Midterm exams (20%) Final exams (20%)</p>
Learning media	<p>Power point (LCD), whiteboard, e-learning (LMS)</p>
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Eko Susilo, Madyo.1995. Guidelines for Writing Scientific Papers. Semarang. Dahara Prize Mone. 2003. General Guidelines for Enhanced Indonesian Spelling. Yogyakarta. Library Centre. Director General of Learning and Student Affairs, Ministry of Research, Technology and Higher Education, Indonesian for Higher Education, Jakarta, Director General of</p>



	<p>Belmawa, 2016. Great Dictionary of Indonesian (online or offline), Ministry of Education and Culture of the Republic of Indonesian.</p> <p>Hasan Alwi et al. Standard Grammar of Indonesian. Third Edition., Balai Pustaka.</p> <p>General Guidelines for Indonesian Spelling (PUEBI).</p> <p>Kuntarto, M. Niknik. 2007. Careful in Language, Careful in Thinking. Media Discourse Partners. Jakarta.</p> <p>Hariwijaya, M. 2006. Technical Guidelines for Writing Scientific Papers. Citra Pustaka. Yogyakarta.</p> <p>Rivai, Mien A. Editorial and Publishing Writing Style Hold. Gajah Mada Press. Yogyakarta.</p> <p>UNY Press, 2005, Reconstruction of Writing Learningin Higher Education. Diktat. Yogyakarta State University</p>
Last date of update	July, 2025



PTN1201 ANIMAL NUTRITION SCIENCE

Course Name	Animal Nutrition Science
Code	PTN1201
Semester (s) in which the module is taught	II
Lecture (Persons responsible)	Dr. Ir. Ma'ruf Tafsin, M.Si.,
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none">• Lecture (explanation, discussion)• Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)• Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours• Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Self-study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credits points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	<ul style="list-style-type: none">• Students are able to explain with logical, critical, systematic thinking innovatively knowledge and technology of livestock nutrition• Students are able to develop science and technology in the field of livestock nutrition with concern for the community and the environment• Able to apply knowledge of livestock nutrition in carrying out livestock business improvement that pays attention to aspects of livestock welfare



<p>Module objectives/intended learning outcomes</p>	<ul style="list-style-type: none"> • Able to explain nutrients and their use in ruminant and non-ruminant livestock • Able to explain the process of digestion, absorption, and metabolism of nutrients for livestock • Able to analyse various evaluations of nutrient utilization for livestock, nutrient deficiencies, and their interactions • Able to implement the latest scientific developments in livestock nutrition science
<p>Content</p>	<ol style="list-style-type: none"> 1. The role of livestock nutrition science in 2. supporting knowledge in the field of Animal science Composition and function of nutrients for livestock 3. Nutritional composition of feed 4. Comparison of the anatomy and physiology of livestock digestion with nutrition 5. Digestion and absorption processes 6. Nutrient metabolism 7. Evaluation of feed digestibility 8. Midterm Exams 9. Feed and bioenergetic values 10. Feed energy evaluation 11. Feed protein evaluation 12. Nutritional balance 13. Nutritional needs based on the physiological status of livestock 14. Recent developments in nutrition science 15. Recent developments in nutrition science (continued) 16. Final Semester Exam
<p>Examination form</p>	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
<p>Learning media</p>	<p>Power point (LCD), whiteboard, e-learning (LMS)</p>
<p>Study and examination requirements</p>	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>



Reading list	<p>Noor, R.R. 2008. Livestock Genetics. Independent Spreader. Jakarta</p> <p>Anonymous, 2014. Basic Practicum Guide to Livestock Genetics Qualitative Traits and Quantitative Traits in Livestock. UHO. Kendari.</p> <p>Elya Nusantari. 2015. Genetics Learning Genetics Easily & Comprehensively: (Equipped with Research Results Data on Difficulties in Understanding Genetics Concepts and Research in Genetics Learning). Deepublish Yogyakarta</p> <p>Gardner, 1991. Principles Of Genetics Eighth Edition. New York: John Wiley & Sons</p> <p>Siswandi in Subekti. 2011. External Genetic Characteristics of Native Chickens in Sungai Pagu District, South Solok Regency. Andalas University. Field.</p>
Last date of update	July, 2025



PTN1202 LIVESTOCK GENETICS

Course Name	Livestock Genetics
Code	PTN1202
Semester (s) in which the module is taught	II
Lecture (Persons responsible)	Dian Tria Fatmila, S.Pt., M.Si.
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	<ul style="list-style-type: none"> • Students are able to explain with logical, critical, systematic thinking innovatively knowledge and technology of livestock genetics • Students are able to develop science and technology in the field of livestock genetics with concern for society and the environment • Able to apply genetic knowledge in carrying out livestock business improvements that pay attention to aspects of livestock welfare
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to explain logically about the definition, usefulness of genetics, genetic material, trait variation, trait inheritance principles, gene interactions, gene chains, chromosome maps, sex determination, theory of probability, population genetics and genetic engineering. • Able to explain the latest innovations related to the development of livestock genetics in accordance with applicable regulations



Content	<ol style="list-style-type: none"> 1. Introduction (terms, uses, history of genetics, and role of livestock genetics) 2. Inheritance traits and chromosome theory 3. Genetics and protein synthesis materials 4. Mendelian genetics 5. Gene interaction and hereditary trait change Hardy-Weinberg probability theory 6. Lethal genes and double alleles 7. Stringed gene 8. Selection criteria and implementation of selection in dairy cattle 9. Genitalia 10. Genetic engineering and applied genetics
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main readings:</p> <p>Noor, R.R. 2008. Livestock Genetics. Independent Spreader. Jakarta</p> <p>Supporting Reading:</p> <p>Anonymous, 2014. Basic Practicum Guide to Livestock Genetics Qualitative Traits and Quantitative Traits in Livestock. UHO. Kendari.</p> <p>Elya Nusantari. 2015. Genetics Learning Genetics Easily & Comprehensively: (Equipped with Research Results Data on Difficulties in Understanding Genetics Concepts and Research in Genetics Learning). Deepublish Yogyakarta</p> <p>Gardner, 1991. Principles Of Genetics Eighth Edition. New York: John Wiley & Sons</p> <p>Siswandi in Subekti. 2011. External Genetic Characteristics of Native Chickens in Sungai Pagu District, South Solok Regency. Andalas University. Field.</p>
Last date of update	July, 2025



PTN1203 ANATOMY AND PHYSIOLOGY OF LIVESTOCK

Course Name	Anatomy and Physiology of Livestock
Code	PTN1203
Semester (s) in which the module is taught	II
Lecture (Persons responsible)	Ir. Tati Vidiana Sari, S.Pt., MP. IPM
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	After taking the Animal Anatomy and Physiology course, students in the second semester of the Animal science Study Program, Faculty of Agriculture, Universitas Sumatera Utara can explain the anatomy and physiology of all systems in the body of poultry, non-ruminants and ruminants.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to apply logical and critical thinking about the anatomical and physiological systems of the whole system in the body of poultry, non-ruminants and ruminants • Able to explain the identification of anatomical and physiological system problems from all systems in the body of poultry, non-ruminants and ruminants



<p>Content</p>	<ol style="list-style-type: none"> 1. Anatomy and physiology of livestock digestive organs 2. Protein, carbohydrate, and fat metabolism 3. Anatomy and physiology of blood 4. Anatomy of the organs of respiration 5. Neural networks, nerve impulses, and types of reflexes 6. Muscle tissue anatomy, muscle types, and muscle contraction 7. Anatomy of urinary organs, mechanism of kidney action and acid-base balance 8. Mid-term exam 9. Anatomy of endocrine gland organs and hormones 10. Anatomy and developmental process of genital organs, spermatogenesis, oogenesis, and reproductive cycle 11. Anatomy of the mammary gland, and mechanisms of lactation 12. Lactation and reproductive organs 13. Anatomy of thermoregulatory organs and regulatory systems 14. Growth physiology of monogastric and poly gastric livestock, and growth abnormalities 15. Anatomy of sensory organs and sensory sensor mechanisms 16. Final exam
<p>Examination form</p>	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
<p>Learning media</p>	<p>Power point (LCD), whiteboard, e-learning (LMS)</p>
<p>Study and examination requirements</p>	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
<p>Reading list</p>	<p>Frandsen, R. D. 1992. Anatomy and Physiology of Livestock. Gadjah Mada University Press. Yogyakarta.</p> <p>Senger, P. L. 2012. Pathways to Pregnancy & Parturition 3rd ed. Washington: Current</p>



	Conceptions, Inc. Yekti, A. P. A., T. Susilawati, M. N. Ihsan, S. Wahjuningsih. 2017. Fisiologi Reproduksi Ternak: Dasar Manajemen Reproduksi. Malang: UB Press
Last date of update	July, 2025



PTN1204 BIODIVERSITAS

Course Name	Biokimia
Code	PTN1204
Semester (s) in which the module is taught	II
Lecture (Persons responsible)	Prof. Dr. Ir. Yunilas, MP.
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none">• Lecture (explanation, discussion)• Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)• Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours• Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Self-study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course studies the chemical and molecular processes that occur in the bodies of farm animals, as well as how these processes affect the health, growth, reproduction, and production of livestock. This course provides an understanding of the structure, function, and metabolism of key biomolecules, such as carbohydrates, proteins, fats, enzymes, and hormones, which are relevant to animal physiology. In addition, this course also covers the influence of nutrition and feed on metabolism, as well as the role of biochemistry in improving livestock production efficiency.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to explain logically and critically about biochemical aspects, types and how enzymes work, metabolism of food substances and the process of formation of macronutrients and micronutrients in the body of livestock• Able to analyse biochemical relationships in various aspects of science within the scope of monodisciplinary and/or interdisciplinary



Content	<ol style="list-style-type: none">1. Introduction (basic concepts of biochemistry, and applications of biochemistry in the field of animal science)2. Overview of metabolism, catabolism, and anabolism3. Cells (types, structure, functions)4. Overview of carbohydrates, proteins, and fatty acids5. Carbohydrate metabolism6. Fatty acid metabolism7. Protein Metabolism8. Nucleic acid metabolism9. Bioenergetics10. Vitamins and coenzymes11. Enzymes (classification, structure, properties, roles, mechanisms, activities, and influencing factors)12. Hormones (classification, properties, structure, mechanisms, and hormone synthesis)13. Mineral and water metabolism14. Detoxification in metabolic regulation processes(liver, kidneys, and body fluids)
Examination form	<ul style="list-style-type: none">• Project-Based Learning (30%)• Case Method (20%)• Quizzes (5%)• Assignments (5%)• Midterm exams (20%)• Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main readings: Nelson, D. L. 2021. Lehninger Principle of Biochemistry 8 th ed. New York: W. H. Freeman Poedjiadi, A. and F. M. T. Supriyanti. 2005. Fundamentals of Biochemistry (Revised Edition). Depok: Indonesian University Press Rodwell, V., D. Bender, K. Botham, P. Kennelly, and P. A. Weil. 2018. Harper's Illustrated Biochemistry 31 st ed. New York: McGraw-Hill Voelt, D. and J. G. Voelt. 2010. Biochemistry 4 th ed. Hokoben: John Wiley & Sons



	<p>Ishchak, no. I., E. K. Salimi, Dan D. No. Batutihe. 2017. Biokimia Dasar. Bottom: UNGA Press</p> <p>Boleng, D. T. and S. Ramdiah. Introduction to biochemistry. Samarinda: Mulawarman University Press</p> <p>Putri, D. S. 2018. General Biochemistry for Agriculture Students. Sleman: Deepublish</p> <p>Wahjuni, S. 2013. Biochemical Metabolism. Bali: Udayana Univeristy Press</p> <p>Stryer L (1995) Biochemistry, 4th ed. New York: WH Freeman</p> <p>Boyer, R. 1999. Concept of Biochemistry. BrooksCole Publishing</p> <p>Lehninger AL, Nelson DL & Cox MM (1993) Principles of Biochemistry 2nd ed. New York: Worth</p> <p>Isa, R. M. 2020. Basic Biochemistry: Food Digestion and Absorption. Aceh: Syiah Kuala University Press</p> <p>Wirahadikusumah, M. 1989. Biochemistry: Proteins, Enzymes, and Nucleic Acids. Bandung: ITB Press</p> <p>Sunnel, B. 2017. Basic of Medical Biochemistry: Simplified with Concept Based Topics and Sub-Topics) 1st Ed. Putlibowli: Paras Medical Publishers</p> <p>Sheeler, P. 1983. Cell Biology: Structure, Biochemistry and Function. Hokoben: John Wiley & Sons</p> <p>Supporting Reading:</p> <p>Yunilas, T. H. Wahyuni, N. Ginting, and I. S. Siburian. 2019. Application of Microbes in Animal Feed. Medan: Anugerah Pangeran Jaya Press</p> <p>Bachruddin, Z. 2017. Fermentation Technology in the Livestock Industry. Yogyakarta: Gadjah Mada University Press</p> <p>Practicum handbook</p> <p>National and international journals</p>
Last date of update	July, 2025



PTN1205 CLIMATOLOGY AND LIVESTOCK ENVIRONMENT

Course Name	Climatology and Livestock Environment
Code	PTN1205
Semester (s) in which the module is taught	II
Lecture (Persons responsible)	Peni Patriani, S.Pt., MP
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none">• Lecture (explanation, discussion)• Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)• Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (2x50 minutes) x 14 weeks = 1400 minutes = 23 hours• Structured Assignments: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours• Self-study: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent to 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses the relationship between climatic conditions, the physical environment, and the production performance of livestock. In addition, this course also emphasizes environmental management strategies to improve animal welfare, production efficiency, and sustainability of livestock businesses in various climatic conditions.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to explain logically and critically about bioclimate, temperature zones, thermoregulation, environmental influences, environmental adaptation and manipulation on livestock productivity• Able to identify problems related to livestock environmental conditions that affect livestock productivity



Content	<ol style="list-style-type: none"> 1. Position of agroclimatology courses in animal production science 2. Weather elements, understanding and benefits of agroclimatology for animal production 3. Impact of the Earth's atmosphere and can distinguish the symptoms and physical changes in each layer of the atmosphere to animal production 4. Rules of air temperature, soil temperature, and solar radiation intensity for animal production 5. Garden tools and weather gauges 6. The concept of solar radiation - 1 7. Concept of solar radiation – 2 8. Mid-term exam 9. Air humidity, principles and profiles of air and cloud humidity 10. Air pressure and wind 11. Hydrological cycle 12. Rainfall 13. Climate classification, development, and basis of classification 14. Global climate 15. Microclimate 16. Final exam
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main readings:</p> <p>Ayoade, J. O. (1983). <i>Introduction to Climatology for the Tropics</i>. London: Longman.</p> <p>Curtis, S. E. (1983). <i>Environmental Management in Animal Agriculture</i>. Ames: Iowa State University Press.</p> <p>Hahn, G. L., & Mader, T. L. (1997). Heat Waves and</p>



	<p>Their Impacts on Livestock Production. In R. J. Collier & J. L. Collier (Eds.), <i>Environmental Physiology of Livestock</i> (pp. 235–260). Ames: Wiley-Blackwell.</p> <p>Mount, L. E. (1979). <i>Adaptation to Thermal Environment: Man, and His Productive Animals</i>. London: Edward Arnold.</p> <p>Additional reading:</p> <p>Bohmanova, J., Misztal, I., & Cole, J. B. (2007). Temperature-Humidity Indices as Indicators of Milk Production Losses Due to Heat Stress. <i>Journal of Dairy Science</i>, 90(4), 1947–1956.</p> <p>Gaughan, J. B., Mader, T. L., Holt, S. M., & Lisle, A. (2008). A New Heat Load Index for Feedlot Cattle. <i>Journal of Animal Science</i>, 86(1), 226–234.</p> <p>Ravagnolo, O., & Misztal, I. (2000). Genetic Component of Heat Stress in Dairy Cattle, Parameter Estimation. <i>Journal of Dairy Science</i>, 83(9), 2126–2130.</p>
Last date of update	July, 2025



PTN1206 LEGISLATION AND KPP

Course Name	Legislation and KPP
Code	PTN1206
Semester	2
Lecture (Persons responsible)	Kennie Cendekia Desnamrina, S.Pt, M.Pt.
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none">• Lecture (explanation, discussion)• Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)• Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	Learning Process: (2x50 minutes) x 14 weeks = 1400 minutes = 23 hours Structured Assignments: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours Self-study: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent to 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course explains the vision, mission, targets, policies, programs and activities of livestock development as well as related laws and regulations in the implementation of its activities, both upstream, on-farm/livestock business, downstream and supporting subsystems
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Students are able to apply logical, critical and systematic thinking regarding regulations and legislation in livestock development activities• Students are able to explain about livestock laws and regulations in realizing the vision, mission, targets, policies, programs and activities of livestock development, both upstream, on-farm/livestock business, downstream and supporting subsystems



Content	<ol style="list-style-type: none"> 1. General provisions, animal science, animal health, etc. and general explanation 2. General provisions of the Animal science Act 3. Objectives of Animal science, Animal science Business Forms, People's Farms, Animal science Companies, Land Control and Balance for Animal science and Breeding Procedures livestock area, livestock industry, livestock trade and livestock raw materials, livestock profit sharing and livestock rental as well as efforts to advance livestock 5. Animal Health Regulations 6. Agricultural problems and agricultural development and their final goals 7. Development Policy Direction and Agricultural Development Programs 8. Midterm Exams 9. Problems and Objectives of Livestock Development Policy in North Sumatra Province 10. policy directions and programs for livestock development in North Sumatra 11. Decree of the Minister of Agriculture No.4004/Kpts/OT.210/6/2001 concerning Guidelines for Licensing and Registration of Livestock Business 12. Guidelines for making feed (Decree of the Minister of Agriculture No.240/Kpts/OT.210/4/200) 13. feed supervision guidelines (Decree of the Minister of Agriculture No.241/Kpts/OT.210/4/200) 14. Decree of the Minister of Agriculture No.4004/Kpts/OT.210/6/2002 concerning Guidelines for Licensing and Registration of Livestock Business 15. Animal Quarantine Regulations 16. Final Semester Exam
Examination form	<p>Project-Based Learning (30%) Case Method (20%) Quizzes (5%) Assignments (5%) Midterm exams (20%) Final exams (20%)</p>
Learning Media	<p>Power point (LCD), whiteboard, e-learning (LMS)</p>
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74</p>



	C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49
Reading list	Decree of the Minister of Agriculture No.4004/Kpts/OT.210/6/2001 concerning Guidelines for Licensing and Registration of Livestock Business Guidelines on how to make good feed/ CPPB (Decree of the Minister of Agriculture No.240/Kpts/OT.210/4/200) Law No. 16/2003 on animal quarantine measures RI Law Number 41 of 2014 concerning livestock and animal health
Last date of update	July, 2025



3rd Semester



PTN2101 LIVESTOCK EXTENSION AND COMMUNICATION

Course Name	Livestock Extension and Communication
Code	PTN2101
Semester (s) in which the module is taught	III
Lecture (Persons responsible)	Ir. R. Edhy Mirwandhono M.Si.
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	<p>Courses that study the concepts, principles, and communication techniques used in counselling to farmers to improve knowledge, skills, and attitudes in the livestock business. This course also includes community participation-based counselling strategies, extension program management, and effective communication media in conveying livestock information. The main focus is on developing students' ability to become competent</p> <ul style="list-style-type: none"> • facilitators in encouraging the adoption of technology and innovation in the livestock sector in a sustainable manner.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students are able to explain the functions and objectives of counselling and communication related to the implementation of livestock science and technology in the community • Students are able to explain good communication procedures related to livestock counselling • Students are able to carry out counselling activities to find solutions to problems that exist in the community related to the field of animal science • Students are able to explain technology that can be



	<p>applied in the implementation of livestock extension</p> <ul style="list-style-type: none"> • Students are able to explain the regulations in the institution of livestock extension • Students are able to communicate effectively both verbally and in writing in conveying views and opinions related to animal science
Content	<ol style="list-style-type: none"> 1. Introduction to counselling 2. Philosophy and principles of counselling 3. Introduction of work areas and extension targets 4. Learning theories and principles of adult education 5. Adoptive, diffusion and innovation processes 6. Elements of livestock extension 7. Extension methods and techniques 8. Preparation of programs and evaluation of counselling 9. The linkage of counselling and communication 10. Introduction to communication 11. Participatory communication systems 12. Group communication 13. Members and leaders in the group 14. Mass communication
Examination forms	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quiz (5%) • Assignment (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point, Screen, whiteboard, e-learning (LMS)
Reading list	<p>W. van to you. 1999. Agricultural Extension. Kanisius: Yogyakarta</p> <p>Totok Mardikanto. 2009. Agricultural Extension System. UNS Press: Solo</p> <p>Mohammad Ikbah Bahua. 2016. Agricultural Extension Performance. DeePublish: Yogyakarta</p> <ul style="list-style-type: none"> • Leeuwis C., Ben A.V.D. 2009. Communication for Rural Initiation. Canisius: Yogyakarta
Last date of update	<ul style="list-style-type: none"> • July, 2025



PTN2102 FEED INGREDIENTS AND RATION FORMULATIONS

Course Name	Feed Ingredients and Ration Formulation
Code	PTN2102
Semester (s) in which the module is taught	III
Lecture (Persons responsible)	Dr. Ir. Ma'ruf Tafsin, M.Si.,
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study:(3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	The course discusses the selection, processing, and preparation of feed ingredients used to formulate livestock rations. This course provides an understanding of various types of feed ingredients, their nutritional content, and proper ration formulation techniques for various types of livestock, both ruminant livestock (such as cows, goats) and non-ruminant livestock (such as chickens, pigs). The main focus of this course is on the basic principles of balanced feed formulation by taking into account the nutritional needs of livestock and the availability of economical and efficient feed ingredients.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students are able to explain with logical, critical, systematic thinking innovatively knowledge and technology of livestock nutrition • Students are able to develop science and technology in the field of livestock nutrition with concern for the community and the environment • Able to apply knowledge of livestock nutrition in carrying out livestock business improvement that pays attention to aspects of livestock welfare



Content	<ol style="list-style-type: none"> 1. An overview of the role of feed ingredients and ration formulation courses in supporting knowledge in the field of Animal science 2. Classification of feed ingredients 3. Testing the quality of feed ingredients 4. Plant-based feed ingredients 5. Animal feed ingredients 6. Additional feed ingredients 7. Livestock nutritional needs and ration formulations 8. Anti-nutrients in feed 9. Ration formulation method (trial and error) 10. Ration formulation method (person square) 11. Computer applications in ration formulation 12. Computer applications in ration formulation (advanced) 13. Case study on non-ruminant ration formulation 14. Case study on ruminant ration formulation
Examination forms	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quiz (5%) • Assignment (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point, Screen, whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Yunilas, T. H. Wahyuni, N. Ginting, and I. S. Siburian. 2019. Application of Microbes in Animal Feed. Medan: Anugerah Pangeran Jaya Press</p> <p>Bachruddin, Z. 2017. Fermentation Technology in the Livestock Industry. Yogyakarta: Gadjah Mada University Press</p> <p>Practicum handbook National and international journals</p>
Last date of update	July, 2025



PTN2103 ANIMAL HEALTH SCIENCES AND VETERINARY SOCIETY

Course Name	Animal Health Sciences and Veterinary Society
Code	PTN2103
Semester (s) in which the module is taught	III
Lecturer (Person responsible)	Dian Tria Fatmila S.Pt., M.Si.
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	<p>Courses that discuss various aspects related to livestock health and the role of the veterinary profession in society. This course covers the basic principles in the prevention, diagnosis, and treatment of diseases in livestock, as well as the importance of maintaining animal health to support sustainable livestock production. In addition, this course also teaches about the role of veterinary medical personnel in society, including in aspects of public health, zoonotic disease control, and animal health policy.</p>
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students are able to explain about the various diseases that infect livestock along with how to prevent and control them as well as problems and activities related to veterinary public health • Students are able to explain the concept, legal basis, function, purpose of various problems and activities related to veterinary public health and analyse various supervision, identification and inspection of meat, egg and milk food ingredients that are considered to cause public health problems • Students are able to master the disease control management system in livestock and the sanitation system as an effort to prevent diseases in livestock and



	<p>efforts to prevent its transmission to humans</p> <ul style="list-style-type: none"> • Students are able to explain about various types of livestock diseases and how to deal with them based on the applicable legal basis and prioritize aspects of animal welfare and their relationship with veterinary public health • Students are able to communicate effectively in efforts to overcome veterinary community health problems
Content	<ol style="list-style-type: none"> 1. Introduction (scope, and roles) 2. Introduction (term in livestock health and legal basis) 3. Viral diseases (definition, types, symptoms, control efforts) 4. Bacterial diseases (definition, types, symptoms, control efforts) 5. Parasitic diseases (definition, types, symptoms, control efforts) 6. Health disorders in ruminant and non-ruminant livestock (digestive system and skin health) 7. Health disorders in advanced ruminant and non-ruminant livestock (respiratory and reproductive systems) 8. Health disorders in poultry (digestive, respiratory, and reproductive systems) 9. Disease control management (prevention and control) 10. Advanced disease control management (prevention and control) 11. Efforts to prevent diseases in livestock (sanitation of cages and the environment) 12. Efforts to prevent disease in livestock (quarantine) 13. Disease prevention and livestock health control programs on the ranch (influencing factors and control management) 14. Disease prevention and livestock health control programs in the pen (influencing factors and control management)
Examination forms	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignment (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point, Screen, whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric: A ≥ 80 B+ = 75-79</p>



	<p>B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main: Sainsbury, D. 1998. Animal Health: Health, Disease and Welfare of Farm Livestock. Hoboken: Wiley-Blackwell Williams, J. 2009. The Complete Textbook of Animal Health and Welfare 1st ed. Philadelphia:Saunders Thrusfield, M. and R. Christley. 2018. Veterinary Epidemiology 4th ed. Hoboken: Wiley-Blackwell Sergeant, E., and N. Perkins. 2015. Epidemiology for Field Veterinarians: An Introduction. Wallingford: CABI Publishing Scanes, C. G., AND S. R. Toukhsati. 2017. Animals and Human Society. Amsterdam: Elsevier</p> <p>Supporter: Practicum handbook Keswani. 2022. Indonesian Veterinary Emergency Preparedness Foot and Mouth Disease Series. Directorate General of Livestock and Animal Health of the Ministry of Agriculture. Jakarta ASEAN Biosecurity Management Manual for Commercial Poultry Farming. IACCB. 2017. Commercial Cattle Breeding Manual. Australia IACCB. 2017. Best Practice Guide for the Transport of Cattle in Indonesian. Australia Farm Biosecurity. 2013. National Biosecurity Manual for Beef Cattle Feedlots. Animal Health. Australia Sub-Directorate of Animal Disease Observation. 2014. Manual of Mammalian Animal Diseases. Directorate General of Livestock and Animal Health of the Ministry of Agriculture. Jakarta Regulations and Legislation on Kesmavet 1. National and international journals</p>
Last date of update	July, 2025



PTN2104 ANIMAL BREEDING SCIENCE

Course Name	Animal Breeding Science
Code	PTN2104
Semester (s) in which the module is taught	III
Lecturer (Person responsible)	Fuad Hasan, S.Pt., M.Si.
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	A course that studies the theory and practice of livestock breeding with the aim of improving the quality and productivity of livestock. This course discusses the basics of genetics, trait inheritance, and breeding techniques used to improve livestock characteristics, both in terms of growth, production (such as milk, meat, eggs), genetic quality, and disease resistance. In addition, this course also teaches breeding strategies that can be applied to various types of livestock (ruminants and non-ruminants) to achieve more efficient and sustainable selection goals.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students are able to explain the concept of various selections and applications of genetics in improving the appearance of livestock • Students are able to analyse various methods and apply them in livestock breeding • Students are able to use information technology/software in livestock breeding applications • Students are able to apply the latest developments in breeding applications for livestock



Content	<ol style="list-style-type: none"> 1. Introduction (scope and overview of livestock breeding science and mini project planning) 2. Qualitative traits (non-additive gene action and the role of qualitative traits) 3. Quantitative properties (quantitative properties, normal distribution, population diversity, regression and correlation) 4. Genetic parameters: Heritability 5. Advanced genetic parameters I: repeatability 6. Advanced genetic parameters II: genetic correlation 7. Mating system: outcrossing and in crossing 8. Advanced mating systems: hybrid vigour and heterosis effects, deep crossing coefficients, and kinship relationships 9. Selection effectiveness 10. Selection criteria and implementation of selection in livestock 11. Technological developments in the field of livestock breeding
Examination forms	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quiz (5%) • Assignment (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point, Screen, whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Kurnianto, E. 2009. Pemuliaan Ternak. Yogyakarta: Graha Ilmu</p> <p>Warwick, E. J. 1990. Pemuliaan Ternak. Yogyakarta: Gadjah Mada University Press</p> <p>Nurgiartiningsih, V. M. A. 2017. Pengantar Parameter Genetik. Malang: UB Press</p> <p>Budiarto, A., L. Hakim, S. Maylinda, G. Ciptadi, V. M. A. Nurgiartiningsih, dan A. Furqon. 2022. Manajemen Pemuliaan Ternak. Malang: MNC Publishing</p> <p>Spangler, M. L. 2022. Animal Breeding and Genetics 2nd ed. United States: Kindle</p>



	<p>Adebambo, O. 2010. Fundamental of Animal Breeding and Genetics. New York: VDM Verlag Dr. Müller</p> <p>Clark, A. J. 1998. Animal Breeding: Technology for the 21st Century. United Kingdom: Harwood Academic</p> <p>Afriani, T., E. Purwanti, J. Hellyward, M. Mundana, dan A. Rastosari, 2021. Ilmu Dasar Pemuliaan Ternak Ruminansia. Padang: Andalas University Press</p> <p>Daryono, B. S. dan A. B. I. Perdamaian, 2019. Karakterisasi dan Keragaman Genetik Adam Lokal Indonesian. Sleman: UGM Press</p> <p>Gunawan, A. C. Sumantri, dan R. Juniarti, 2022. Gen Dan Keragaman Genetik Ternak. Bogor: IPB Press</p> <p>Brah, G. S. 2016. Animal Breeding: Principles and Applications. New Delhi: Kayani Publishers</p>
Last date of update	July, 2025



PTN2105 ANIMAL REPRODUCTION SCIENCE

Course Name	Animal Reproduction Science
Code	PTN2105
Semester (s) in which the module is taught	III
Lecturer (Person responsible)	Prof. Dr. Ir. Sayed Umar, MS.
Language	Indonesian or English
Relationship to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	<p>Courses that study biological, physiological, and technical aspects in the reproductive process in farm animals. This course discusses various factors that affect the fertility and reproductive success of livestock, including the anatomy and physiology of the reproductive system, the estruses cycle, modern reproductive techniques, and efficient reproductive management to improve livestock productivity. The main focus of this course is on the application of reproductive science in livestock business, with the aim of increasing the growth rate, production efficiency, and sustainability of livestock business.</p>
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students are able to explain about the reproductive system, the reproductive process and efforts to improve reproductive efficiency and solve problems in the field of reproduction • Students are able to apply about the reproductive system, the reproductive process and efforts to improve reproductive efficiency • Students are able to apply about the reproductive system, the reproductive process and efforts to improve reproductive efficiency



Content	<ol style="list-style-type: none">1. Physiology of male reproductive organs2. Physiology of female cattle reproductive organs3. Male livestock reproductive hormones4. Female cattle reproductive hormones5. Gamete cell formation (spermatogenesis and oogenesis)6. Spermatozoa transport and fertilization7. Cell division and implantation8. Embryogenesis (ruminants)9. Embryogenesis (poultry)10. Partus and lactation11. Post-partum (up to weaning)12. Reproductive efficiency in livestock13. Reproductive disorders in livestock14. Management of reproductive disorders in livestock
Examination form	<ul style="list-style-type: none">• Project-Based Learning (30%)• Case Method (20%)• Quiz (5%)• Assignment (5%)• Midterm exams (20%) Final exams (20%)
Learning media	Power point, Screen, whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49
Reading list	Senger, P. L. 2012. Pathways to Pregnancy & Parturition 3 rd ed. Washington: Current Conceptions, Inc Hafez ESE, Hafez B. 2000. Reproduction in Farm Animals seventh edition. USA: Lippincott Williams & Wilkins Yekti, A. P. A., T. Susilawati, M. N. Ihsan, S. Wahjuningsih. 2017. Fisiologi Reproduksi Ternak: Dasar Manajemen Reproduksi. Malang: UB Press Susilawati T. 2011. Spermatology. Malang: UB Press Trisunuwati, P., D. Zwart, A. Kloosterman, R. de Jong. 2017. Animal Health and Disease Prevention. Malang: UB Press <ol style="list-style-type: none">1. Suyadi dan S. Wahjuningsih. 2021. Fisiologi Reproduksi dan Inseminasi Buatan pada Unggas. Malang: UB Press
Last date of update	July, 2025



PTN2106 FEED PLANT SCIENCE

Course Name	Feed Plant Science
Code	PTN2106
Semester (s) in which the module is taught	III
Lecture (Persons responsible)	Dr. Ir Nevy Diana Hanafi SPt., M.Si. IPM
Language	Indonesian or English
Relationship to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course includes knowledge about the characteristics of feed crops, factors that affect their growth, and how to manage feed crops to support the success of livestock production. Students will learn efficient feed crop cultivation techniques, selection of superior varieties, and natural resource management to meet the needs of quality animal feed.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to identify related morphology, adaptation of production potential and problems that often occur in HMT • Able to explain the evaluations that must be carried out related to the determinants of forage production and production management including Gramineae and Leguminosae, agricultural waste



Content	<ol style="list-style-type: none"> 1. Introduction to Feed Plant Science 2. Types of Feed Plants 3. Characteristics of Feed Plants 4. Feed Plant Cultivation 5. Feed crop cultivation techniques (land cultivation, variety selection, treatment, and pest control). 6. Increasing feed crop yields through agricultural technology and land management. 7. Selection of Feed Crops for Livestock 8. Management of Feed Crops in Animal science 9. The system of management of feed crops, crop rotation, and the use of feed crops throughout the year. 10. Management of storage and maintenance of feed quality. 11. Additional Feed and Feed Plant Processing 12. Processing feed ingredients to improve quality and digestibility, such as silage, hay, and fermented feed. 13. Innovation in Feed Crops 14. Recent research and development of more efficient and nutritious feed crops, including the use of biotechnology in feed crop breeding
Examination forms	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignment (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point, Screen, whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Andriyani, S., & Hidayati, N. (2018). <i>Animal Feed Processing Technology and Its Utilization</i>. Publisher Andi.</p> <p>Harahap, M., & Syamsuddin, R. (2019). <i>Animal Feed Crops and Their Management</i>. Feed Crops Research Institute.</p> <p>Haryadi, A., & Ibrahim, A. (2021). <i>Cultivation of Animal Feed Crops to Support Food and Feed Security</i>.</p>



	<p>Faculty of Agriculture, University X.</p> <p>Nurfadillah, I., & Soedarman, N. (2017). <i>Selection of Feed Crops Based on Nutritional Content for Ruminant Livestock</i>. Journal of Animal science, 6(2), 90-104.</p> <p>Rudiansyah, S. (2018). <i>Management of Animal Feed Resources in Indonesian</i>. Gajah Mada University Press.</p> <p>Simanjuntak, R., & Ginting, J. (2019). <i>Animal Feed: Production and Management</i>. PT PustakaMandiri.</p> <p>Zulkarnain, E. (2016). <i>Basics of Animal Feed Crops and Feed Farming Practices</i>. PT Gramedia Pustaka Utama.</p>
Last date of update	July, 2025



PTN2107 VARIOUS LIVESTOCK AND ANIMALS OF HOPE

Course Name	Various Livestock and Animals of Hope
Code	PTN2107
Semester (s) in which the module is taught	III
Lecturer (Person responsible)	Ir. Achmad Sadeli S.Pt., M.Sc., IPM., ASEAN.Eng
Language	Indonesian or English
Relationship to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2x50 minutes) x 14 weeks = 1400 minutes = 23 hours • Structured Assignments: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-Study: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent to 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	The course discusses various types of livestock and animals that have the potential to be cultivated and developed in the livestock sector. Students will learn about the characteristics, potential, maintenance, management, nutrition, and business opportunities of these various types of livestock and animals. The main objective of this course is to provide an in-depth understanding of the diversity of livestock and animal species that can be developed to support a sustainable livestock industry.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students are able to explain the management of the maintenance of various types of livestock and animals of hope • Students are able to develop a variety of livestock and animal hope businesses simply



Content	<ol style="list-style-type: none">1. Introduction (scope of courses, and differences in terms and roles of various livestock and expected animals)2. Rabbits (nations, maintenance management, and rabbit anatomy and digestive system)3. Advanced rabbits (feed management, production systems, cage systems, and business analysis)4. Honeybee (nations, maintenance management, and anatomy and digestive system of honeybees)5. Advanced honeybees (feed management, reproductive system, cage system, and business analysis)6. Crickets (types, maintenance management, and anatomy and digestive system of crickets)7. Advanced crickets (feed management, reproductive system, cage system, and business analysis)8. Quail (types, maintenance management, and anatomy and digestive system of quails)9. Advanced quails (feed management, reproductive systems, cage systems, and business analysis)10. Deer (types of deer, maintenance management, and deer anatomy and digestive system)11. Advanced deer (feed management, reproductive system, developmental system, cage system, and deer business analysis)12. Worms (types, maintenance management, and worm anatomy, and effort analysis)13. Maggot (types, maintenance management, cage systems, life cycle, and business analysis)14. Recent advances in various livestock and animals of hope (development technology and types of various livestock and animals that can be developed in the future)
Examination forms	<ul style="list-style-type: none">• Project-Based Learning (30%)• Case Method (20%)• Quizzes (5%)• Assignment (5%)• Midterm exams (20%)• Final exams (20%)
Learning media	Power point, Screen, whiteboard, e-learning (LMS)
Reading list	Miscellaneous Livestock. Surabaya: PustakaMedia Andaruisworo, S. 2015. Agribusiness of Miscellaneous Livestock. Surabaya: Jenggala Pustaka Utama Lambey, L. J., J. L. P. Saerang, and J. Keintjem, 2022. Various Livestock and Animals of Hope. Bandung: Patra Media Grafindo



	Djulardi, A., H. Muis, and S. A. Latif, 2006. Nutrition of Various Animals and Animals of Hope. Padang: Unand Press
Last date of update	July, 2025



4th Semester



PTN2201 POULTRY PRODUCTION

Course Name	Poultry Production
Code	PTN2201
Semester (s) in which the module is taught	IV
Lecturer (Person responsible)	Dr. Ade Trisna, S.Pt., M.M
Language	Indonesian or English
Relationship to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none">• Lecture (explanation, discussion)• Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)• Participants 30-50 students per class
Workload (incl. Contact hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours• Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course includes an understanding of the types of poultry raised, maintenance techniques, feeding, reproductive management, and poultry health management. The main focus of this course is to provide practical knowledge of efficient, sustainable, and profitable poultry production in the context of modern farming.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Students are able to explain the problem factors related to poultry productivity including types of poultry, anatomy and physiology of the digestive tract and maintenance management• Students are able to explain about the maintenance of poultry based on the purpose of their maintenance, including ration preparation, cage planning and disease prevention programs• Students are able to make a poultry business design based on the integration of livestock with plantations• Students are able to prepare poultry rations based on agricultural and plantation waste



Content	<ol style="list-style-type: none"> 1. Scope and role of poultry production science to increase poultry productivity 2. Introduction of poultry breeds and their domestication process 3. Poultry classification standards 4. Anatomy and physiology of poultry livestock 5. Interaction of poultry with their environment and their relationship with the performance and productivity of poultry 6. Behaviour and basics of poultry breeding 7. Basis for feeding poultry 8. Principles of cages in poultry farming 9. Diseases and prevention programs in poultry
Examination forms	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quiz (5%) • Assignment (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point, Screen, whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main Reading: Muharlien, Edhy Sudjarwo, Adelina Harmiati, Heni Setyo P. 2017. Poultry Production Science. UB Press:Malang</p> <p>Supporting Reading: Tri Yuwanta. 2004. Poultry Farming Basics. Publisher: Kanisius Yogyakarta</p> <p>Muharlien, Edhy Sudjarwo, Adelina Harmiati, Heni Setyo P. 2017. Poultry Production Science. UB Press: Malang</p> <p>Edhy Sudjarwo, Muharlien, Adelina Ari Hamiyanti, Heni Setyo Prayogi, Dyah Lestari Yulianti. 2019. Poultry Production Management. UB Press Malang</p> <p>Vol. 18 No. 3 Th. 2008. Centre for Animal science Research and Development. Bogor</p>
Last date of update	July, 2025



PTN2202 DAIRY PRODUCTION

Course Name	Dairy Production
Code	PTN2202
Semester (s) in which the module is taught	IV
Lecturer (Person responsible)	Dr. Usman Budi, S.Pt., M.Si
Language	Indonesian or English
Relationship to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (incl. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	<ul style="list-style-type: none"> • -
Course Description	<p>This course covers various maintenance techniques, management, and technology applied in the milk production business. Students will learn about optimal dairy farming, including proper feeding, reproductive management, livestock health management, and milk processing to produce quality dairy products. This course also teaches about economic and sustainability aspects in dairy farming businesses, as well as challenges and opportunities in the dairy industry.</p>
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students are able to explain the factors of problems related to dairy productivity including dairy farmers, anatomy and physiology of mammary glands, milk biosynthesis, secretion of milk components, maintenance and feed of dairy cattle • Students were able to explain the evaluation related to environmental conditions on dairy productivity • Students are able to make a dairy business design based on the integration of livestock with plantations • Students are able to make dairy feed with waste from agriculture, plantations and fisheries



Content	<ol style="list-style-type: none"> 1. Introduction (scope and roles) 2. Dairy nations (sub-tropical, tropical, and crossbreddairy cows) 3. Advanced dairy nations (dairy buffaloes, dairygoats, and dairy sheep) 4. Anatomy, histology, and physiology (mammaryglands, blood circulation, and nervous system) 5. Advanced anatomy, histology, and physiology (development, synthesis and secretion of mammaryglands) 6. Biosynthesis of milk (fat, protein, and lactose) 7. Secretion of milk components (water, vitamins, andminerals) 8. Management of dairy cattle maintenance (care ofcalves, heifers, and lactation livestock) 9. Dairy feed (principles of feed management,utilization, and nutrient requirements) 10. Advanced dairy feed (ration preparation and feeding management) 11. Dairy barn (system, layout, size and construction ofbarn) 12. Maintenance management (milking techniques andprograms, types and ways of working milking machines, and milking procedures) 13. Factors affecting milk production and composition(genetic, feed, environmental) 14. Development and planning of dairy farmingbusiness
Examination forms	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quiz (5%) • Assignment (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point, Screen, whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80</p> <p>B+ = 75-79</p> <p>B = 70-74</p> <p>C+ = 65-69</p> <p>C = 60-64</p> <p>D = 50-59</p> <p>E ≤ 49</p>
Reading list	<p>Brand, A. J. P., T. M. Noordhuizen, and G. A. Main.1992. Herd Health and Production Management in Dairy Practice. Netherland: Wageningen Press</p> <p>Hadiwiyoto, S. 1994. Milk Quality Test Techniquesand Processed Results. Yogyakarta: Liberty Publishers.</p> <p>Amal, M. I. 2022. Tropical Dairy FarmingManagement. Makassar: Unhas Press</p>



	<p>Murti, T. W. and S. Yasin. 2014. Management Science and Dairy Industry. Bandung: Pustaka RekaCipta</p> <p>Holstein Foundation. 2012. Judging Dairy Cow.USA. Holstein Foundation Inc.</p> <p>Gallego, and N. Thomsen. 1994. Principal Description of Body Condition Score in HolsteinCows. J. Dairy Sci. Vol. 77: 2695-2703</p> <p>Handbook of Good Dairy Husbandry Practices.National Dairy Development Board</p> <p>Sudarisman. 2007. Congenital Transmission of Infectious Bovine Rhinotracheitis (IBR) Disease inCows and Buffalo in Indonesian. Wartazoa. Vol. 17(1): 29-37</p>
Last date of update	July 2025



PTN2203 PRODUCTION OF SLAUGHTER AND WORKING LIVESTOCK

Course Name	Production of Slaughter and Working Livestock
Code	PTN2203
Semester (s) in which the module is taught	IV
Lecturer (Person responsible)	Ir. Achmad Sadeli S.Pt., M.Sc., IPM., ASEAN.Eng
Language	Indonesian or English
Relationship to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (incl. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course covers efficient slaughter livestock rearing techniques for meat production, as well as the management of working livestock for transportation, agriculture, and industrial purposes. The main focus of this course is to provide an understanding of livestock maintenance management, feeding, reproductive management, health management, and economic aspects in the slaughter and working livestock business.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students are able to identify the classification of slaughter and working cattle, slaughter and working cattle nations, and the digestive system of slaughter and working cattle • Students are able to explain the factors that affect slaughter and work livestock so that they can produce optimally, growth, reproductive performance, cage system, care, production performance, carcass and non-carcass, meat quality in a sustainable manner • Students are able to manage the cultivation of slaughter and work livestock in a sustainable manner based on integration and the application of slaughter and work livestock waste treatment • Students are able to cultivate slaughter and work cattle and make simple business analyses



Content	<ol style="list-style-type: none"> 1. Introduction (definition and classification of slaughter and working livestock) 2. Slaughter and labour cattle nations (cows, buffaloes, horses, and rabbits) 3. Advanced slaughter cattle nations (goats, sheep, horses, and pigs) 4. Digestive system in slaughter and working cattle (definition, mechanism, function, differences in the digestive system in ruminant, non-ruminant, and pseudo ruminant cattle) 5. Livestock response to feed (influencing factors, needs, feed efficiency) 6. Balance of physiological systems and livestock response to weather 7. Slaughter and work cattle growth (definition, concept, process, and factors) 8. Reproductive performance in slaughter and working cattle 9. Cage system 10. Care in slaughter and working cattle 11. Production performance of slaughter and working cattle 12. Carcass and non-carcass (definition, parts, and percentage of carcass) 13. Meat quality (physical and chemical) 14. Sustainability and analysis of slaughter and labour livestock business
Examination forms	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quiz (5%) • Assignment (5%) • Midterm exams (20%) Final exams (20%)
Learning media	Power point, Screen, whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Hafid, H., Junaedi, C. Hetharia, A. Makmur, and Ramaiyulis et al. 2023. Slaughter Livestock (Theory and Practice). Bandung: Widina Media Utama</p> <p>Cheeke, P. R. 1987. Rabbit Feeding and Nutrition.</p>



	<p>Cambridge: Academic Press Kuswati and T. Susilawati. 2016. Beef Cattle Industry. Malang: UB Press Skelley, W. C. 2015. Beef Cattle Management – with Information on Selection, Care, Breeding and Fattening of Beef Cows and Bulls. UK: Cooper Press Thohari, I., Mustakim, M. C. Padaga, P. P. Rahayu. 2017. Livestock Product Technology. Malang: UB Press</p>
Last date of update	July, 2025



PTN2204 KNOWLEDGE OF LIVESTOCK PRODUCTS

Course Name	Knowledge of Livestock Products
Code	PTN2204
Semester (s) in which the module is taught	IV
Lecturer (Person responsible)	Galih Ari Wirawan Siregar, S.Pt.,M.Si
Language	Indonesian or English
Relationship to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (incl. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2x50 minutes) x 14 weeks = 1400 minutes = 23 hours • Structured Assignments: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-Study: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent to 3.2 ECTS)
Required and recommended prerequisites for joining the module	• -
Course Description	A course that studies various products and products that can be obtained from livestock, be it the main product such as meat, milk, eggs, or by-products such as leather, fur, and livestock manure. This course aims to provide knowledge to students about the nature, quality, processing process, and management of livestock products to ensure safe, quality, and industry standards. In addition, this course also discusses the use of livestock products in various industries, including food, cosmetics, pharmaceuticals, and other industrial raw materials.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students are able to explain the basics of livestock product technology which includes composition, physical properties and chemical properties as well as measuring the quality of livestock products and their accompanying • Students explain the basics of the processes needed in the process of handling, preserving and processing livestock/their products • Students are able to apply the basics of handling, preserving and processing livestock/their products • Students are able to develop the best and latest techniques in livestock product science



Content	<ol style="list-style-type: none"> 1. Introduction 2. Basics of meat technology 3. Basics of meat technology (Advanced) 4. Basics of meat technology (Advanced) 5. Basics of dairy technology 6. Basics of dairy technology (Advanced) 7. Basics of dairy technology (Advanced) 8. Basics of egg technology 9. Basics of egg technology (Advanced) 10. Basics of livestock follow-up technology 11. Basics of Livestock Derivative Technology (Advanced) 12. Basics of Livestock Derivative Technology (Advanced) 13. Basics of Processing Livestock Products and Their Followers 14. Basics of Processing Livestock Products and Their Participation (Continued)
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quiz (5%) • Assignment (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point, Screen, whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Soeparno. 2016. Meat Science and Technology 2nd Edition, Gajah Mada University Press</p> <p>Imam Thohari. 2018. Egg Preservation and Processing Technology. UB Press: Malang</p> <p>Tridjoko Wisnu Murti. 2021. Food, Nutrition and Milk Technology. UGM Press: Yogyakarta</p> <p>Soewarno T. Soekarto. 2008. Handling and Processing of Livestock Products. Universitas Open Press: South Tangerang</p>
Last date of update	July, 2025



5th Semester



PTN3101 ANIMAL FEED INDUSTRY

Course Name	Animal Feed Industry
Code	PTN3101
Semester	V
Lecture (Persons responsible)	Prof. Dr. Ir. Yunilas, M.P.
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2x50 minutes) x 14 weeks = 1400 minutes = 23 hours • Structured Assignments: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-Study: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent to 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course covers various aspects of the animal feed industry, including feed raw materials, feed processing technology, feed quality, and distribution and marketing management of animal feed products. In addition, this course also teaches about current issues related to sustainability, cost efficiency, and the fulfilment of balanced nutrition for livestock. Students will learn how to develop quality animal feed to support optimal growth, production, and health of livestock.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to apply a variety of best techniques and methods in process technology in the Animal Feed Industry • Able to apply various process technology methods in the animal feed industry • Able to explain the latest developments in technology applications in the Animal Feed Industry
Content	<ol style="list-style-type: none"> 1. Definition and scope of the animal feed industry. 2. The role of the feed industry in supporting the success of livestock businesses and food security. 3. Types of animal feed used for various types of livestock. 4. Animal feed processing technology, such as mixing, cooking, extrusion, pelletizing, and drying.



	<ol style="list-style-type: none"> 5. The influence of the processing process on feed quality, palatability, and digestibility by livestock. 6. The latest innovations in animal feed technology, such as the use of fermented feed and probiotic-based feed. 7. Tools and software used in animal feed formulation. 8. Mid Semester Exam 9. Animal Feed Quality and Standards 10. Animal feed quality criteria that must be met to ensure feed safety and effectiveness. 11. Feed quality testing (analysis of nutrition, anti-nutrient content, and toxicity). 12. National and international standards in the animal feed industry. 13. The production process of animal feed is on an industrial scale, starting from the procurement of raw materials, production, to distribution. 14. Warehouse management and feed distribution to ensure a sustainable and efficient supply. 15. Quality management and production control to avoid contamination and product damage. 16. Final Semester Exam
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>FAO. (2019). <i>Feed and food safety: Guidelines for the manufacture of animal feeds</i>. Food and Agriculture Organization of the United Nations.</p> <p>Kellems, R. O., & Church, D. C. (2013). <i>Livestock and poultry feeding and nutrition</i>. Academic Press.</p> <p>Mahan, D. C., & Church, D. C. (2016). <i>Animal nutrition science</i> (4th ed.). Prentice-Hall.</p> <p>Sarker, M. R., & Roy, R. S. (2020). <i>Nutritional value and feed processing technologies</i>. Springer.</p>



	Van Soest, P. J. (2017). <i>Nutritional ecology of the ruminant</i> (2nd ed.). Cornell University Press. Yoon, I. (2020). <i>Feed additives in animal nutrition: Application and safety</i> . Elsevier.
Update date	July 2025



PTN3102 NUTRITIONAL MICROBIOLOGY

Course Name	Nutritional Microbiology
Code	PTN3102
Semester (s) in which the module is taught	V
Lecturer (Person responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (incl. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	A course that studies the role of microorganisms in the digestion and metabolism of animal feed, as well as the interaction between microorganisms and nutrients consumed by livestock. This course focuses on livestock digestive microflora, such as rumen microbes in ruminants (cows, goats, sheep) and gastrointestinal microorganisms in non-ruminant livestock (poultry, pigs).
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to explain the concepts of probiotics and prebiotics, microbial interactions, and rumen ecosystems aimed at improving the appearance of livestock • Able to analyse the best methods in the selection of beneficial microbial strains, and various measurements of livestock nutrient utilization performance • Able to apply various microbial isolation methods and their use in livestock feed • Able to explain the latest developments in the application of microbiology in improving the appearance of livestock
Content	<ol style="list-style-type: none"> 1. Definition and scope of microbiology in livestock nutrition. 2. The role of microorganisms in feed digestion and livestock metabolism. 3. Types of microorganisms found in the digestive tract



	<p>of cattle.</p> <ol style="list-style-type: none"> 4. Digestive Microflora in Ruminants 5. Structure and function of the rumen in cows, goats, and sheep. 6. The role of rumen microbes in the fermentation of high-fibre feed (coarse fibre). 7. Types of rumen microbes: bacteria, protozoa, and fungi, as well as their function in rumen digestion. 8. Factors affecting the composition of rumen microflora (pH, temperature, type of feed, etc.). 9. Digestive Microflora in Non-Ruminants 10. Fermentation of Feed by Microbes 11. Microorganisms and Nutrient Synthesis 12. Effect of Feed on Digestive Microbiota 13. Feed Additives and Digestive Microbiota 14. and Innovations in Livestock Nutrition Microbiology 15. Recent innovations in livestock nutrition microbiology, such as the use of genetically engineered microorganisms. 16. Challenges and opportunities in livestock nutrition microbiology research for the sustainability of the livestock industry.
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Bergman, E. N. (2006). <i>Energy contributions of volatile fatty acids from the gastrointestinal tract in various species</i>. <i>Physiological Reviews</i>, 86(1), 165– 230. https://doi.org/10.1152/physrev.00004.2005</p> <p>Bryant, M. P., & Small, D. M. (2019). <i>The role of rumen microbes in animal nutrition</i>. Wiley- Blackwell.</p> <p>Hungate, R. E. (2013). <i>The rumen microbiome: Structure and function</i>. Springer.</p> <p>Kamra, D. N., & Chaudhary, L. C. (2017). <i>Microbial ecology of the rumen: Microorganisms and their interactions in the rumen</i>. CRC Press.</p> <p>McAllister, T. A., & Newbold, C. J. (2018). <i>Probiotics</i></p>



	<i>and prebiotics in animal nutrition</i> . Elsevier Science.
Update date	July 2025



PTN3103 LIVESTOCK AND PLANTATION INTEGRATION

Course Name	Livestock and Plantation Integration
Code	PTN3103
Semester	V
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses the livestock system implemented on agricultural land, especially oil palm plantations, rubber, cocoa, sugarcane, and so on.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students are able to explain the problem factors related to animal productivity based on the integration of animals with plantations, agriculture, and forestry, which include the impact of animals in plantation ecosystems and the handling of animal waste for plantations. • Students are able to explain the factors needed in integrated animal cultivation from upstream to downstream with the principle of zero waste. • Students are able to create a beef cattle farm business plan based on the integration of animals with the plantation. • Students are able to make animal feed from agricultural, plantation, and fishery waste. • Students are able to explain regulations related to the integration of animals and plantations. • Students are able to apply insights related to agriculture, plantations, and forestry that affect animal productivity.
Content	<ol style="list-style-type: none"> 1. Introduction (definition, scope and urgency) 2. Definition and history of animal integration on



	<p>plantations</p> <ol style="list-style-type: none"> 3. Potential and impact of animals in plantation ecosystems 4. Management of animal integration in plantation ecosystems 5. Plantation support capacity for animal development 6. Animal carrying capacity in plantation systems 7. Animal support capacity in advanced plantation systems 8. Midterm Exam 9. Special feed in plantation ecosystems 10. Specific feeds in plantation ecosystems 11. Farm-based animal industry 12. Advanced plantation-based animal industry 13. Socio-economic analysis of animal and plantation integration 14. Socio-economic analysis of sustainable animal and plantation integration 15. Handling animal waste for plantations 16. Final Semester Exam
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Mana, R. V. 2016. Integrated Farming System: A Strategy for Sustainable Farm Production & Livelihood Security. Wilmington: Scitus Academics</p> <p>Guntoro, S. 2008. Making Animal Feed from Plantation Waste. Jakarta: Agro Media Pustaka</p> <p>Istiqomah and D. E. Kusumawati. 2022. Waste-Free Based Integrated Agriculture. Pamekasan: Duta Media Publishing</p> <p>Singh, J., W. Hasan, R. Nigam, P. Tiwari and S. R. Jakhar. 2018. Integrated Farming System: The Future of Agriculture. United States: Weser Books</p> <p>Pazia, R., Antonius, and L. S. Sucitra. 2022. Potential of Agricultural and Plantation Waste as Ruminant Animal Feed. Central Java: Media Sketch.</p>



	Lichfouse, E., M. Navarrete, P. Debaeke, V. Souchere, and C. Alberola. 2009. SustainableAgriculture. New York: Springer Publishing
Update date	July 2025



PTN3104 LIVESTOCK WASTE TREATMENT TECHNOLOGY

Course Name	Livestock Waste Treatment Technology
Code	PTN3104
Semester	V
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credits	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses the types of livestock waste and agricultural/plantation waste that can be used
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students are able to identify types of livestock waste and agricultural/plantation waste that can be used • Students are able to explain the basics of sustainable livestock waste treatment • Students are able to apply the latest technology in livestock waste management • Students are able to manage livestock; agriculture and plantation wastes so that they can create a sustainable integrated agricultural system with the principle of zero waste • Students are able to develop and understand techniques in the treatment of livestock waste • Students are able to explain about livestock waste management so that it does not pollute the environment and can also process livestock waste into resources that can directly or indirectly increase the efficiency of livestock production.
Content	<ol style="list-style-type: none"> 1. Livestock waste control 2. Livestock waste control (Continued) 3. Nature and characteristics of livestock waste 4. Nature and characteristics of livestock waste



	<p>(Continued)</p> <ol style="list-style-type: none"> 5. Waste impact 6. Air quality and contamination from livestock 7. Air quality and contamination from livestock 8. Waste 9. Liquid waste treatment 10. Solid material division 11. Solid waste treatment 12. Solid waste treatment (Advanced) 13. Biogas 14. Fertilizer manufacturing
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Sutaryo, Purnomoadi A. 2019. Livestock Waste Treatment. UT Press: Tangerang</p> <p>Safe Yemen. 2020. Technology for Handling, Processing Livestock Waste and Livestock By-Products. Unsyiah Press: Aceh</p> <p>Triatmojo S., Erwanto Y., Fitriyanto N.A. 2021. Handling of Animal science Industry Waste. UGM Press: Yogyakarta</p> <p>Hardono A, Widyasmara L. 2023. Waste Handling and Livestock Derivatives. Lakeisha:Klaten</p>
Update date	July 2025



PTN3105 LIVESTOCK RESEARCH METHODOLOGY

Course Name	Livestock Research Methodology
Code	PTN3105
Semester	V
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none">• Lecture (explanation, discussion)• Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)• Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (2x50 minutes) x 14 weeks = 1400 minutes = 23 hours• Structured Assignments: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours• Self-Study: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent to 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses applying case studies for the preparation of research plans in accordance with the requirements and procedures in conducting research dissemination
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Students are able to apply the concept of thinking and coherence in the application of scientific methods• Students are able to develop a research framework that meets the requirements of scientific methods• Students are able to apply case studies for the preparation of research plans in accordance with the requirements and procedures in disseminating research on a national/global scale
Content	<ol style="list-style-type: none">1. Introduction and scope2. Topic and background of research methodology3. Problem formulation4. Research design5. Data management6. Advanced data management7. Interpretation of results8. Advanced result interpretation9. Discussion techniques10. Drawing conclusions11. Preparation of reports



	12. Presentation techniques 13. Presentation practice 14. Survey research
Examination form	<ul style="list-style-type: none">• Project-Based Learning (30%)• Case Method (20%)• Quizzes (5%)• Assignments (5%)• Midterm exams (20%)• Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Reading list	<ol style="list-style-type: none">1. Mustakim, G. Harimansyah, M. T. Qodratillah, A. G. Ruskhan, Sriyanto, S. S. T. W. Sasangka, S. Zahra, S. R. H. Sitanggang, D. Amalia, A. Solihah, and A. D. Darnis. 2016. General Guidelines for Indonesiann Spelling, Fourth Edition. Jakarta: Language Development and Development Agency2. Mukherjee, S. P. 2020. A Guide to Research Methodology (An Overview of Research Problems, Assignments, and Methods). New York City: CRC Press3. Kothari, C. R. 2004. Research Methodology: Methods and Techniques. New Delhi: New Age International4. Asra, A. and S. Sutomo. 2006. Introduction to Statistics I. Depok: Raja Grafindo Persada5. Kesumawati, N., A. L. Reta, N.Sari. 2018. Introduction to Research Statistics. Depok: King Grafindo Persada
Update date	July 2025



PTN3106 LIVESTOCK AGRIBUSINESS

Course Name	Livestock Agribusiness
Code	PTN3106
Semester	V
Lecture (Persons responsible)	Ir. R. Edhy Mirwandhono, M.Si. MP. IPM. ASEAN, Eng.
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2x50 minutes) x 14 weeks = 1400 minutes = 23 hours • Structured Assignments: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-Study: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent to 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses the field of livestock agribusiness, namely the concept of leadership and teamwork, communication, self-motivation and innovation in completing work in the field of livestock agribusiness
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students are able to apply the concept of leadership and teamwork, communicate, motivate themselves and innovate in completing work in the field of livestock agribusiness • Students are able to identify, formulate, and find solutions to problems related to the field of livestock business agribusiness Students are able to carry out surveys in solving problems related to the scope of livestock business • Students are able to plan, evaluate and manage livestock businesses with agribusiness principles • Students are able to explain coherent and up-to-date knowledge in the implementation of livestock agribusiness activities • Students were able to explain the results of the analysis of business management cases of various livestock commodities



Content	<ol style="list-style-type: none"> 1. Introduction (overview of livestock agribusiness in Indonesian) 2. Livestock agribusiness environment 3. Business venture planning 4. Management functions in livestock agribusiness 5. Product and product control of livestock agribusiness 6. Strategy in business competition 7. Business competitiveness booster 8. Corporate strategy 9. Business ethics and sustainability strategy 10. Culture, leadership and company 11. Production management 12. Financial management 13. Marketing management 14. Formulation of livestock agribusiness development strategy
Examination form	<p>Project-Based Learning (30%) Case Method (20%) Quizzes (5%) Assignments (5%) Midterm exams (20%) Final exams (20%)</p>
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>David D.V.F., Ella. W.V.F., George J.S. 2014. Agribusiness: Principles of Management. Delmar, Cengage Learning, Clifton Park USA (e-book)</p> <p>Arthur A.T., Margaret A.P., John E.G., Strickland A.J., 2016. Crafting and Executing Strategy: The Quest for Competitive Advantage: Concepts and Cases. Twentieth edition. McGraw Hill Education, New York USA.</p> <p>Gitosudarmo, I. dan A. Mulyono, 1999. Prinsip Dasar Manajemen. BPFE, Yogyakarta.</p> <p>Gumbira E. S., Intan H, 2001. Manajemen Agribisnis. Penerbit Ghalia Indonesian, Jakarta.</p>
Update date	July 2025



PTN3107 EXPERIMENTAL DESIGN AND DATA ANALYSIS

Course Name	Experimental Design and Data Analysis
Code	PTN3107
Semester	V
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credits	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	<p>The Livestock Data Design and Data Analysis course is designed to provide an understanding of how to design the right experiment in the context of livestock and how to analyse the data generated from the experiment. This course covers statistical techniques used in livestock research, including how to design valid experiments, collect appropriate data, and analyse and interpret data using statistical tools. Students will learn various methods in experimental design such as complete random design, factorial design, and hypothesis testing that are often used in livestock research. This course also teaches skills in using statistical software to process experimental data and make valid and applicable conclusions in the field of animal science.</p>
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to apply the concepts of deductive and inductive thinking in research • Able to design experimental research by assessing the shortcomings and advantages of a data analysis method/technique • Able to apply various data analysis techniques in design and skilled in the application of technology/software for experimental data analysis



Content	<ol style="list-style-type: none"> 1. Introduction to Livestock Data Experiment and Analysis Design 2. Completely Randomized Design (CRD). 3. Randomized Block Design (RBD) experimental design. 4. Factorial experimental design: application and analysis of multiple variables in livestock research. 5. Experimental Data Collection and Processing 6. Introduction to descriptive statistics: mean, median, mode, standard deviation, and variance. 7. Test the normality and homogeneity of the data as a condition for further analysis. 8. T-test and F-test in hypothesis test to compare data groups 9. Design Experiments with Multiple Variables 10. Variance Analysis (ANOVA) in Experimental Design 11. Data Analysis with Statistical Software 12. Hypothesis Testing in Livestock Research 13. Application of Experimental Design in Livestock Research 14. Sustainability and Ethics in Experimental Design
Examination form	<p>Project-Based Learning (30%) Case Method (20%) Quizzes (5%) Assignments (5%) Midterm exams (20%) Final exams (20%)</p>
Learning media	<p>Power point (LCD), whiteboard, e-learning (LMS)</p>
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: $A \geq 80$ $B+ = 75-79$ $B = 70-74$ $C+ = 65-69$ $C = 60-64$ $D = 50-59$ $E \leq 49$</p>
Reading list	<p>Montgomery, D. C. (2017). Design and analysis of experiments (9th ed.). John Wiley & Sons. Neter, J., Wasserman, W., & Kutner, M. H. (1996). Applied linear statistical models (4th ed.). Irwin. Snedecor, G. W., & Cochran, W. G. (1989). Statistical methods (8th ed.). Iowa State University Press. Steel, R. G. D., & Torrie, J. H. (1980). Principles and procedures of statistics: A biometrical approach (2nd ed.). McGraw-Hill. Wilkinson, L. (2009). Statistical methods in the</p>



	biological sciences. Pearson.
Update date	July 2025



6th Semester



PTN3201 ABATOIR AND CUTTING TECHNIQUES

Course Name	Abatoir and Cutting Techniques
Code	PTN3201
Semester	VI
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none">• Lecture (explanation, discussion)• Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)• Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours• Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course explains good cattle slaughtering techniques and their supporting aspects
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Students are able to explain the design, spatial layout and completeness of the abattoir and cutting techniques and are able to evaluate the resulting carcass• Students are able to apply good livestock slaughtering techniques as well as assess the quality of carcasses of cows, goats/sheep, pigs and poultry• Students are able to apply cattle, goats/sheep, pigs and poultry slaughtering techniques well• Students are able to explain the rules of animal slaughter, rules and abattoir planning



Content	<ol style="list-style-type: none">1. Introduction (definition, scope, and objectives)2. Explanation of RPH, RPA, and RPB (definition, differences, complementary buildings)3. RPH (requirements for location, plan, facilities, functions, and equipment)4. RPA (requirements for location, plan, facilities, functions, and equipment)5. RPB (requirements for location, plan, facilities, functions, and equipment)6. Slaughter techniques in cows (slaughter process, carcass assessment, and carcass parts recognition)7. Cutting techniques on goats/sheep (slaughter process, carcass assessment, and carcass part recognition)8. Slaughter techniques in pigs (slaughter process, carcass assessment, and carcass parts recognition)9. Slaughter techniques for poultry/chickens (slaughter process, carcass assessment, and carcass part recognition)10. Animal slaughter rules (regulations related to the classification of animal slaughtering places and businesses)11. Rules for slaughtering poultry (related regulations, terms in RPA, and classification of chicken slaughterhouses)12. Pork slaughter rules (regulations related to the pig slaughtering process, RPB Required and recommended prerequisites for joining the modules, and pork circulation)13. Simple building and operational design (parts, functions, requirements, spatial planning and costs, and operational costs)14. The slaughter livestock trading system ranges from farmers to retail.
Examination form	<ul style="list-style-type: none">• Project-Based Learning (30%)• Case Method (20%)• Quizzes (5%)• Assignments (5%)• Midterm exams (20%)• Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)



<p>Study and examination requirements</p>	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49</p>
<p>Reading list</p>	<p>Lestari, P. T. B. A.1994. Indonesian Ruminant Animal Slaughterhouse. Jakarta: Bina Aneka Lestari</p> <p>Veterinary Public Health, 1993. Guidelines forKesmavet Development. Jakarta, Directorate of Animal Health Development, Directorate General ofAnimal science, Ministry of Agriculture.</p> <p>Nuhriawangsa, A. M. P. 2006. Abattoir and Cutting Techniques. Textbooks. Faculty of Agriculture. UNS Surakarta.</p> <p>Gurunathan, K., R. Thomas. and Y. P. Gadekar. 2022. Abattoir Practices and Animal Products Technology. Delhi: Brillion Publishing.</p> <p>Team of the Directorate of Veterinary Public Health.2022. Pig Slaughterhouse Guidebook. Jakarta: Directorate of Veterinary Public Health</p>
<p>Update date</p>	<p>July 2025</p>



PTN3202 CATTLE FATTENING TECHNOLOGY/FEEDLOT

Course Name	Livestock/Feedlot Fattening Technology
Code	PTN3202
Semester	VI
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none">• Lecture (explanation, discussion)• Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)• Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours• Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course explains the fattening process (feedlot) in large and small ruminant livestock
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Students were able to explain the fattening process (feedlot) in large and small ruminant livestock• Students are able to apply livestock fattening technology to large and small ruminant livestock• Students are able to manage the feedlot process that is integrated with other agroecosystems• Students are able to apply feed selection, location selection, fattening system, feed management, health management, business analysis in the livestock fattening business system



Content	<ol style="list-style-type: none"> 1. Introduction (definition, scope, types of fattening, and overview of the feedlot industry) 2. Feedlot (location, facilities, standard) 3. Advanced feedlots (business administration, business planning, and operational costs) 4. Livestock nations (differences in livestock traits and behaviour) 5. Feed selection and selection of livestock 6. Import and quarantine 7. Animal welfare 8. Livestock environment (climate, weather, treatment)
	<ol style="list-style-type: none"> 9. Feed management (basic ration formulation, feeding strategy, and needs standards) 10. Health management (appropriate treatment) 11. Cage management (requirements, layout, construction, facilities, and standards) 12. Maintenance management (large and small livestock) 13. Post-harvest (terms, standards, and quality) 14. Feedlot waste management (biogas and fertilizer)
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>White, B. J. 2015. Feedlot Processing and Arrival Cattle Management, An Issue of Veterinary Clinics of North America: Food Animal Practices 1st ed. Philadelphia: Elsevier Health Science</p> <p>Berg, R. T. and R. M. Butterfield. 1976. New Concept of Cattle Growth. Sidney: Sidney University Press</p> <p>Syafrial, E. Susilawati, and Bustami. 2007. Management of Beef Cattle Fattening Management. Agricultural Technology Assessment Centre. Jambi</p>



	<p>Field, T. 2017. Beef Production and Management Decisions (What's New in Trades & Technology 6th ed. London: Pearson</p> <p>FAD PReP. 2011. Beef Feedlot Industry Manual. Centre for Food Security and Public Health. IowaState</p> <p>Hyder, K. 2008. Beef Feedlot Management Guide. Inma Agribusiness Program – USAID. Iraq</p> <p>South Dakota State University. 2013. Livestock Judging Manual Design for 4-H Seniors and Experienced Judges 2nd ed. Department of Animal & Range Sciences. United States</p>
Update date	July 2025



PTN3203 MANAGEMENT OF LIVESTOCK GRAZING FIELDS

Course Name	Management of Livestock Grazing Fields
Code	PTN3203
Semester	6
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none">• Lecture (explanation, discussion)• Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)• Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours• Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	After completing the Grazing Farm Management course, students are expected to be able to explain various aspects related to the environment to the creation of grazing pastures, types of plants and aspects of fulfilling the quality, quantity and continuity of feed to the needs of grazed livestock so that a plan can be prepared.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Students are able to evaluate grazing fields in the community independently based on techniques and methods in grazing field management• Students are able to apply grazing field management techniques to the use of the area around the plantation• Students are able to apply methods and technology in the management of grazing fields to increase the provision of animal feed• Students are able to apply the best techniques in grazing field management activities



Content	<ol style="list-style-type: none">1. Introduction (definition of pastures, difference in grazing system)2. Environmental interactions with grazing crops (influence of climate, temperature, and light)3. Soil and soil fertility interactions with pastures plants (soil type, nutrients, and soil fertilization/fertility impacts)4. Types of sub-tropical and tropical grasses for pastures5. Types of legumes6. Nutrient content of forage for animal feed (grass and legumes)7. Nutritive value (components, digestible value, influencing factors, nutritive value index, and feed efficiency)8. Plant interactions (grasses, legumes, and weeds)9. Pastures supplies (fences, shades, water sources, and feed supplements)10. Pastures making (location determination, seed management, tillage, seed production, and planting)11. Pasture management (development system, stocking rate, carrying capacity, and botanical composition)12. Pastures evaluation (various evaluation techniques)13. Pastures productivity (quality measurement and assessment)14. Additional feed in the pastures (forage, concentrates, and minerals)
Examination form	<ul style="list-style-type: none">• Project-Based Learning (30%)• Case Method (20%)• Quizzes (5%)• Assignments (5%)• Midterm exams (20%)• Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Pazla, R., Elihasridas, and L. S. Sucitra. 2023. Introduction to Cow and Buffalo Nutrition Science. Indramayu: Adanu Abimata Subagiyo, I. and Kusmartono. 2017. Padangan Culture. Malang: UB Press



	<p>Ora, F. H. 2015. Tropical grazing fields. Yogyakarta: Deepublish</p> <p>Jelantik, I. G. N., T. T. Nikolaus, and C. L. Penu. 2019. Utilizing Natural Pastures to Increase Population and Productivity of Cattle in Dryland Areas. Ponorogo: Myria Publisher</p>
Update date	July 2025



PTN3204 NORTH SUMATRA LIVESTOCK GERMPLASM

Course Name	North Sumatra Livestock Germplasm
Code	PTN3204
Semester	VI
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2x50 minutes) x 14 weeks = 1400 minutes = 23 hours • Structured Assignments: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-Study: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent to 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	<p>North Sumatra Livestock Germplasm is a course that studies the genetic diversity of livestock in the North Sumatra region, including efforts to preserve and manage germplasm (genetic resources) of local livestock. This course examines the potential and role of germplasm in supporting the sustainability of the livestock industry, as well as conservation efforts and the use of local livestock that are adaptive to environmental conditions and existing production systems. The main focus is on livestock that have high economic value, resistance to disease, and the ability to adapt to different environmental conditions. In addition, this course also discusses the importance of breeding and genetic management to improve the quality and productivity of livestock in the North Sumatra region.</p>
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students were able to explain the variety and benefits of genetic resources endemic to North Sumatra livestock • Able to identify the concept of adaptation and genetic diversity of local livestock as well as various conservation and development techniques for local livestock
Content	<ol style="list-style-type: none"> 1. Definition and concept of germplasm in the context of animal science.



	<ol style="list-style-type: none"> 2. Identification and characteristics of local livestock in North Sumatra (cows, goats, chickens, and others). 3. The genetic advantages of local livestock in terms of resistance to diseases and adaptation to tropical climates. 4. A case study on local superior livestock that has existed in North Sumatra. 5. In situ and ex situ conservation techniques. 6. Programs for the preservation of germplasm from local livestock by the government and non-governmental organizations. 7. Sustainable management and maintenance strategies for local livestock populations. 8. Germplasm Management for Increased Livestock Productivity 9. Genetic management to avoid declining genetic diversity and disease. 10. Local livestock production and maintenance system that is in accordance with the characteristics of the North Sumatra region. 11. The role of local livestock in the livestock economy, food security, and the welfare of local communities. 12. Challenges in local livestock management and how to overcome them. 13. Conservation of Livestock Genetic Resources 14. The Role of Livestock Germplasm in Food Security 15. Utilization of Livestock Germplasm to Improve Farmers' Welfare 16. Government Policies and Programs related to Livestock Germplasm
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64</p>



	D = 50-59 E ≤ 49
Reading list	<p>Arief, M. R., & Wijaya, A. (2016). <i>Germplasm of local livestock in Indonesian: Potential and conservation</i>. Livestock Research Institute.</p> <p>Agricultural Quarantine Agency. (2019). <i>Breeding and conservation of germplasm in Indonesian</i>. Jakarta: Ministry of Agriculture of the Republic of Indonesian.</p> <p>Daryono, S., & Santosa, R. (2018). <i>Genetic diversity of livestock in North Sumatra: Perspectives and challenges</i>. Journal of Animal science, 44(2), 123-134.</p> <p>FAO. (2018). <i>The state of the world's animal genetic resources for food and agriculture</i>. Food and Agriculture Organization of the United Nations.</p> <p>Hamzah, S., & Siti, N. (2020). <i>Conservation of germplasm of local livestock in North Sumatra in the context of food security</i>. Agribusiness Journal, 19(3), 210-224.</p> <p>Sihombing, A. (2017). <i>Genetic resources of local livestock in North Sumatra</i>. Animal science Media, 13(4), 45-56.</p> <p>Sumadi, Y. (2021). <i>Management of local livestock germplasm in sustainable livestock development</i>. Jakarta: University of Indonesian Press.</p> <p>Wibowo, D. (2019). <i>Conservation strategy of germplasm of local livestock in environmentally friendly agricultural systems</i>. Animal science Bulletin, 40(5), 80-92.</p>
Update date	July 2025



PTN3205 ENVIRONMENTAL IMPACT ANALYSIS OF LIVESTOCK

Course Name	Livestock Environmental Impact Analysis
Code	PTN3205
Semester	VI
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none">• Lecture (explanation, discussion)• Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)• Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours• Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	After taking the Livestock Environmental Impact Analysis course, students can apply aspects of livestock waste treatment in improving livestock production efficiency.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Students are able to explain the definition, process, and benefits of AMDAL for the livestock industry, the flow/procedure for implementing AMDAL, identification, forecasting and evaluation of impacts, the process and procedures for assessing AMDAL documents, procedures for establishing livestock farms that must pay attention to the analysis of environmental impacts• Students are able to evaluate AMDAL activities in the community within the scope of the livestock sector• Students are able to explain procedures related to the rules in establishing a farm that must pay attention to the analysis of environmental impacts• Students are able to explain the safety system in the treatment of livestock waste



Content	<ol style="list-style-type: none"> 1. Introduction 2. Farming environmental impact systems, components and characteristics 3. Potential of natural resources and their influence on livestock 4. Potential of natural resources and their influence on livestock (Continued) 5. Environmental ethics in the world of livestock 6. Law No. 41 of 2014 and Law No. 32 of 2009 7. Implementation of AMDAL, Identifying, forecasting and evaluation of impacts 8. Procedure for setting up a farm 9. Environmental impact analysis 10. Environmental impact analysis (Advanced) 11. AMDAL document assessment process 12. Evaluate AMDAL activities 13. Evaluating AMDAL activities (Advanced) 14. Safety system in livestock waste treatment
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>F G Suratmo. 2021. <i>Analysis of Environmental Impacts</i>. UGM Press, Yogyakarta</p> <p>C Fandeli. 2023. <i>Analysis of Environmental Impacts in the Development of Various Sectors</i>. UGM Press, Yogyakarta</p> <p>EKM Endoh, FNS Orog, AA Sajow. 2023. <i>Amdal for Livestock Business, Management of Amdal and Environmental Colors</i>. Unsrat Press, Manado</p> <p>Indasah. 2020. <i>Environmental Impact Analysis (EIA)</i>. Deepublish, Jakarta</p>
Update date	July 2025



PTN3206 OBSERVATION AND BEHAVIOR OF LIVESTOCK

Course Name	Observation and Behaviour of Livestock
Code	PTN3206
Semester	VI
Lecture (Persons responsible)	Prof. Dr. Ir. Sayed Umar, MS
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses livestock behaviour
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students are able to analyse livestock behaviour • Students are able to apply the best methods in observing livestock behaviour
Content	<ol style="list-style-type: none"> 1. Introduction (definition, benefits, concept, and function of judging) 2. Introduction to livestock types 3. Morphology and body constitution of livestock 4. Livestock health assessment 5. Estimation of livestock age 6. Production boost in livestock 7. Estimating reproduction in livestock 8. Behaviour management of dairy cattle 9. Behaviour management of beef cattle 10. Behaviour management of goats and sheep 11. Poultry behaviour management 12. Behaviour management of pigs, rabbits, and horses 13. Abnormal behaviour in livestock and how to deal with it (<i>handling</i>) 14. Livestock temperament and handling
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%)



	<ul style="list-style-type: none"> • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Tomaszewska, M.W, I. K. Utama, I. G. Putu, T. D. Chaniago. 1991. Reproduksi, Tingkah Laku dan Produksi Ternak di Indonesia. Jakarta: Gramedia Pustaka Utama</p> <p>Blakely, J. and D. H. Bade. The Science of Animal Husbandry (terjemahan) Srigandono, dan Soedarsosno. 1991. Yogyakarta: Gajah Mada University Press.</p> <p>Kilgour, R. 1984. Livestock Behaviour: A Practical Guide 1st ed. Boca Raton: CRC Press</p> <p>Eskesbo, I and S. Gunnarsson. 2018. Farm Animal Behaviour: Characteristics for Assessment of Health and Welfare 2nd ed. USA: CABI Publishing</p> <p>Jensen, P. 2002. The Ethology of Domestic Animals: An Introductory Text. USA: CABI Publishing.</p> <p>Moss, R. 1992. Livestock Health and Welfare (Longman Veterinary Health) 1st ed. Hokoben: Wiley-Blackwell</p> <p>Price, E. O. 2002. Animal Domestication and Behaviour. USA: CABI Publishing.</p> <p>Yamin, M., I. Rahayu, dan R. Afnan. 2014. Tingkah Laku dan Kesejahteraan Ternak. Bogor: IPB Press, Bogor.</p> <p>Kapa, S. R. 2010. Body Condition Score (BCS) System: Ideal Managemental Tool for Optimal Performance of Farm and Pet Animals. United Kingdom: LAP LAMBERT Academic Publishing</p>
Update date	July 2025



PTN3207 PIG AND RABBIT PRODUCTION SCIENCE

Course Name	Pig and Rabbit Production Science
Code	PTN3207
Semester	VI
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none">• Lecture (explanation, discussion)• Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)• Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours• Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	After taking the Pig and Rabbit Production Science course, students can explain the management of maintenance in pigs and rabbits based on their maintenance objectives which include ration preparation, cage planning, and disease prevention programs
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Students are able to identify, formulate, and find solutions to problems related to pig and rabbit farming• Students are able to prepare pig and rabbit rations according to the needs of livestock and the physiological status of pigs and rabbits



Content	<ol style="list-style-type: none"> 1. Introduction to pig production (objectives, prospects, principles of utilization, domestication, and breed) 2. Pig growth (phases of growth and development, and strategies for improving pig growth) 3. Seedling selection management (selection and selection methods) 4. Habitat and environmental management (conditions, types, influencing factors, construction, facilities, and temperature) 5. Feed management (digestive mechanisms, nutritional needs, rations, and feeding methods) 6. Health management (types of diseases, symptoms, prevention, countermeasures) 7. Post-harvest 8. Introduction to rabbit production (purpose, prospects, principle of utilization, domestication and breed) 9. Seedling selection management (selection and selection methods) 10. Habitat and environmental management (conditions, types, influencing factors, construction, facilities, and temperature) 11. Feed management (digestive mechanisms, nutritional needs, feed preparation, and feeding methods) 12. Health management (types of diseases, symptoms, prevention, countermeasures) 13. Post-harvest 14. Waste management (pigs and rabbits)
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Reading list	Smith D. G. and M. P. Schenk. 2022. A DissectionGuide & Atlas to the Rabbit 2 nd ed. United States:Morton Publishing



	<p>Banday, M. T., H. P. Shrivastava, and an H. Hamadani. 2014. Rabbit Production and Management. Delhi: New India Publishing Agency</p> <p>Chiba, L. I. 2022. Sustainable Swine Nutrition 2nded. Hoboken: Wiley-Blackwell</p> <p>Ardana, I. B. and H. Putra. 2022. Pigs: Reproduction, Production and Disease Management. Bali: Udayana University Press</p> <p>Jackson, P. G. G. dan P. D. Cockcroft. 2007. Handbook of Pig Medicine. UK: Elsevier Health Sciences</p>
Update date	July 2025



PTN3208 ANIMAL REPRODUCTIVE TECHNOLOGY

Course Name	Animal Reproductive Technology
Code	PTN3208
Semester	VI
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none">• Lecture (explanation, discussion)• Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)• Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours• Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	After completing the Livestock Reproductive Science course, students are expected to be able to explain technology in the livestock reproductive system, breeding process, and efforts to improve reproductive efficiency in livestock
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Students are able to explain logically and critically related to the physiological conditions of male and female reproduction, the types and objectives of mating technology and the types and objectives of estrus manipulation in livestock• Students were able to identify signs of estrus in female cattle and libido in males• Students are able to evaluate the success of the IB program and advanced reproduction technology (assisted reproduction technology)• Students are able to process cement and inseminate various types of livestock



Content	<ol style="list-style-type: none"> 1. Sperm collection and evaluation (macroscopic and microscopic) 2. Fresh sperm processing and dilution 3. Frozen sperm processing and storage 4. Sperm sexing 5. Sperm sexing technology 2 6. Estrus manipulation and synchronization 7. Development of IB and TE in Indonesian 8. Insemination in Poultry 9. Insemination in Ruminants 10. Cryopreservation and Embryo Manipulation 11. Embryo Transfer 12. Technology of Pregnancy Testing in Livestock 13. Livestock birthing technology 14. Evaluation of IB and TE Success
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Gordon I. 2003. Laboratory production of cattle embryos 2nd ed. Wallingford: CABI Publishing</p> <p>Susilawati T., Suyadi, N. Ihsan, S. Wahjuningsih, N. Isnaini, A. Rachmawati, A. P. A. Yekti, dan P. Utami. 2021. Manajemen Reproduksi dan Inseminasi Buatan. Malang: UB Press</p> <p>Wahjuningsih, S., T. Susilawati, Suyadi, M. N. Ihsan, W. Busono, N. Isnaini, A. P. A Yekti. 2019. Teknologi Reproduksi Ternak. Malang: UB Press</p> <p>Gordon I. 2005. Reproductive Technologies in Farm Animals First Edition. USA: Oxford University Press</p> <p>Hafez ESE, Hafez B. 2000. Reproduction in Farm Animals seventh edition. USA: Lippincott Williams & Wilkins</p> <p>Manual book peralatan teknologi reproduksi (CASA, USG, flow cytometry, etc)</p>



	<p>Sandi. 2000. Ilmu Kemajiran pada Ternak. Surabaya: Airlangga University Press</p> <p>Mattoon, J. S. and T. G. Nyland. 2014. Small Animal Diagnostic Ultrasound 3rd ed. United States: Saunders</p> <p>Mastroianni, L. and J. D. Biggers. 1981. Fertilization and Embryonic Development In Vitro. New York: Springer Publishing</p> <p>Seidel Jr. G. E. and S. M. Seidel. 1991. Training manual for embryo transfer in cattle. USA: Colorado State University</p> <p>Mitchell, J. R. and G. A. Doak. 2023. The Artificial Insemination and Embryo Transfer of Dairy and Beef Cattle (Including Information Pertaining to Goats, Sheep, Horses, Swine, and Other: Animals): A Handbook and Laboratory Manual 9th ed. London: Pearson College</p> <p>Sharafi, M., S. M. Borghei-Rad, M. Hezavehei. A. Shahverdi, and J. D. Benson. 2022. Cryopreservation of Semen in Domestic Animals: A Review of Current Challenges, Applications, and Prospective Strategies. <i>Animals</i>: Vol 12(23): 3271</p> <p>Buarden and Fuquay, 1997. Ilmu reproduksi. Jakarta: Akademi Pressindo</p>
Update date	July 2025



PTN3209 DESIGN AND BUILD LIVESTOCK CAGES

Course Name	Design And Build Livestock Cages
Code	PTN3209
Semester	VI
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none">• Lecture (explanation, discussion)• Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)• Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours• Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course covers functional, ergonomic, and efficient aspects of cages to support the health, productivity, and welfare of livestock. The main focus includes planning the structure of the cage, arranging the layout, managing the cage environment (ventilation, lighting, temperature, and humidity), to the selection of the right building materials. Students also learn the principles of sustainability and efficiency in building environmentally friendly and cost-effective cages.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to apply cage construction techniques within the scope of livestock• Able to explain logically and critically related to the design of livestock cage construction including goals, suggestions and infrastructure that are adjusted to the type and physiological status of livestock



Content	<ol style="list-style-type: none"> 1. Introduction to Cage Design 2. The basic principles of functional and efficient cage planning. 3. The influence of the cage environment on the health and productivity of livestock. 4. Factors that must be met in the cage (air circulation, temperature, humidity, lighting, cleanliness, and comfort). 5. The concept of animal welfare in the design of cages. 6. Structure and Layout of the Cage 7. Modern technology in cage building materials, such as thermal insulation materials and automation systems. 8. Cage Environmental Technology 9. Cages for Different Types of Livestock 10. Cost and Sustainability Analysis 11. The application of sustainability concepts in the design of the enclosure, including emission reduction and the use of renewable energy. 12. Security and Risk Management 13. Risk mitigation measures and regular maintenance of the cage. 14. Simulation of the design of the cage
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Albright, L. D. (2017). <i>Environment control for animals and plants</i>. American Society of Agricultural and Biological Engineers.</p> <p>Bond, T. E., & Kelly, C. F. (2019). <i>Farm structures in tropical climates</i>. Elsevier.</p> <p>CIGR. (2016). <i>Animal housing and welfare guidelines</i>. International Commission of Agricultural and</p>



	<p>Biosystems Engineering.</p> <p>Curtis, S. E. (2018). <i>Environmental management in animal agriculture</i>. Iowa State University Press.</p> <p>Fiere, L. J., & Roberston, J. M. (2020). <i>Livestock housing design and construction</i>. Springer.</p> <p>Hellickson, M. A., & Walker, J. N. (2015). <i>Ventilation of agricultural structures</i>. Springer.</p> <p>Howard, H. (2019). <i>Agricultural building and construction</i>. Wiley.</p> <p>Turner, J. S., & Luyet, B. J. (2020). <i>Sustainable animal production and housing</i>. Academic Press.</p>
Update date	July 2025



PTN3210 K3 (OCCUPATIONAL HEALTH AND SAFETY)

Course Name	K3 (Occupational Health and Safety)
Code	PTN3210
Semester	VI
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course explains the basic concepts of occupational safety and health engineering, the factors that cause accidents and occupational health, and hazardous materials in occupational safety and health
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students are able to explain the basic concepts of occupational safety and health engineering, the factors that cause accidents and occupational health, and hazardous materials in occupational safety and health • Students are able to evaluate K3 activities in the industry and livestock management system • Students are able to explain laws and regulations in occupational accidents and health, occupational safety and health, occupational safety in the field of fire, mechanical equipment and the application of the livestock industry • Students are able to apply the basic concepts of occupational safety and health engineering in a multidisciplinary and/or interdisciplinary scope



Content	<ol style="list-style-type: none"> 1. Introduction (definition, scope, roles, and importance) 2. Basic concept of OSH (definition, techniques, and factors causing work accidents) 3. Goals and benefits of OSH management 4. K3 regulations in livestock 5. Aspects to be considered in K3 (work environment, tools and materials, and work methods) 6. Types of hazards in OSH 3 7. OSH threats to industry and livestock systems 8. Application of the OSH management system to the industry and livestock system (conditions, criteria, and provisions) 9. Procedures for implementing OSH management (preparation, development, and implementation stages) 10. Documents in K3 management (manuals, procedures, work instructions, records, process documentation, document control, and record control) 11. Risk management system (risk identification, risk assessment, and establishment of controls) 12. Human resource management system (leadership, responsibilities and authority, documentation, resources, management commitment, and competency management) 13. Communication management system 14. Operations management system (disaster management, emergency plan, emergency equipment, P3K equipment, emergency exit, and practical training)
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<ol style="list-style-type: none"> 1. Ashok, K. Mishra, S. Kumbhakar, G. Lien. 2023.



	<p>Managing Risk in Agriculture: A Development Perspective. Wallingford: CABI Publishing</p> <ol style="list-style-type: none">Jian, W. and A. Rehman. 2016. Risk Management in Agriculture: Theories and Methods. USA: Science Publishing GroupIrzal, M. K. 2016. Occupational Health & Safety Basics Book. Jakarta: KencanaWidyastuti, N., S. Wibowo, and I. K. Wardani. 2020. Occupational Safety and Health. Brass: Pen StrokeRahayu, M., L. M. Yustiana, and W Juliani. 2020. Design and Implementation of Occupational Safety and Health (K3) at PTPN 8 Ciater Plantation - West Java. Journal of Community Service. Vol. 3(1)
Update date	July 2025



PTN3211 ROBOTICS MECHANICS OF LIVESTOCK MACHINERY

Course Name	Robotics Mechanics of Animal science Machinery
Code	PTN3211
Semester	VI
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course aims to prepare students to understand and apply mechanics, robotics, and automation in the development of modern livestock machinery, supporting efficiency, sustainability, and livestock welfare in the era of smart agriculture-based technology
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to apply mechanical techniques of robot manufacturing within the scope of livestock • Able to explain logically and critically related to the goals, benefits and types of robot mechanics related to the field of livestock in increasing the effectiveness and efficiency of livestock activities
Content	<ol style="list-style-type: none"> 1. Introduction to Mechanics and Robotics in Animal science 2. Principles of Applied Mechanics 3. Fundamentals of Robotics 4. Automation in the Livestock Industry 5. Farm Machine Design 6. Robotics and Automation Programming 7. Sensor Technology and IoT (Internet of Things) 8. Sustainability in Livestock Mechanization 9. Economic Analysis of Livestock Mechanization 10. Ethics and Safety in the Use of Machines and Robots



Examination form	<ul style="list-style-type: none">• Project-Based Learning (30%)• Case Method (20%)• Quizzes (5%)• Assignments (5%)• Midterm exams (20%)• Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Alciatore, D. G., & Histan, M. B. (2020). <i>Introduction to mechatronics and measurementsystems</i> (6th ed.). McGraw-Hill Education. Craig, J. J. (2021). <i>Introduction to robotics: Mechanics and control</i> (4th ed.). Pearson. Groover, M. P. (2019). <i>Automation, production systems, and computer-integrated manufacturing</i> (5th ed.). Pearson. Mittal, A., & Nagrath, I. J. (2021). <i>Robotics and control</i> . Tata McGraw-Hill. Piperno, S., & Ellis, R. (2020). <i>Farm robotics: The future of agriculture</i> . Springer. Saminathan, K., & Divya, S. (2019). <i>Farm automation and mechanization: Technological innovations for sustainability</i> . Elsevier. Singh, S. (2018). <i>Mechanization and automation in livestock production</i> . CRC Press. Zhang, Q., & Srivastava, A. K. (2020). <i>Precision agriculture technology for crop farming</i> . CRC Press.
Update date	July 2025



PTN3212 FEED QUALITY CONTROL

Course Name	Feed Quality Control
Code	PTN3212
Semester	6
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	After completing the Feed Quality Control course, students are expected to be able to explain the properties of feed ingredients, storage, preservation, and processing techniques for animal feed.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to explain feed quality control regulations in Indonesian • Able to implement standard operating procedures within the scope of feed quality • Able to conduct feed quality tests • Able to implement the latest developments in terms of feed quality standards in Indonesian/globally
Content	<ol style="list-style-type: none"> 1. Introduction to Feed Quality Control 2. Characteristics and Quality of Feed Raw Materials 3. Feed Quality Standards 4. Nutrient Analysis in Feed 5. Physical and Chemical Testing of Feed 6. Contamination and Hazards in Feed 7. Feed Sampling Techniques 8. Quality Assurance and Quality Control System 9. Warehouse Management and Feed Storage 10. Feed Processing Technology that Supports Quality



	<p>11. Evaluation of Feed Quality in the Field 12. Labelling and Information on Feed Products 13. Feed Quality Audit and Inspection 14. Sustainability and Innovation in Feed Quality Control</p>
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric: $A \geq 80$ $B+ = 75-79$ $B = 70-74$ $C+ = 65-69$ $C = 60-64$ $D = 50-59$ $E \leq 49$</p>
Reading list	<p>Aviagen Group. (2020). <i>Feed Quality Assurance and Safety Guidelines</i>. Aviagen.</p> <p>Cheeke, P. R. (2018). <i>Applied animal nutrition: Feeds and feeding</i> (4th ed.). Pearson.</p> <p>FAO. (2019). <i>Feed safety: Guidelines for safe feed manufacturing</i>. Food and Agriculture Organization.</p> <p>Hassan, A. A. (2021). <i>Feed quality and safety in animal production</i>. Elsevier.</p> <p>Kellems, R. O., & Church, D. C. (2013). <i>Livestockfeeds and feeding</i> (6th ed.). Pearson.</p> <p>NRC (National Research Council). (2016). <i>Nutrient requirements of domestic animals</i>. National Academy Press.</p> <p>Pomeroy, R., & Browning, D. (2017). <i>Practical guide to animal feed sampling and analysis</i>. Wiley.</p> <p>Van Soest, P. J. (2017). <i>Nutritional ecology of the ruminant</i> (2nd ed.). Cornell University Press.</p> <p>Wilkinson, J. M. (2020). <i>Animal feed science and technology: Principles and practices</i>. Springer.</p> <p>Yoon, I. (2018). <i>Feed additives in livestock nutrition: Safety and applications</i>. Academic Press.</p>
Update date	July 2025



PTN3213 FEED MATERIAL STORAGE TECHNIQUES

Course Name	Feed Material Storage Techniques
Code	PTN3213
Semester	VI
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none">• Lecture (explanation, discussion)• Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)• Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours• Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	Feed Material Storage Engineering is a course that discusses the principles and techniques of storing animal feed ingredients to maintain their quality, safety, and nutritional value. This course covers topics such as the characteristics of feed ingredients, proper storage methods, damage risk management, modern technology in feed storage, and sustainability issues in feed material management. In addition, students will learn about environmental factors, microorganisms, and chemical reactions that affect the quality of feed ingredients during storage, as well as how to manage storage warehouses to minimize losses.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to explain the factors that affect the decline in feed quality due to storage• Able to analyse various changes in feed quality due to storage• Able to apply a variety of storage techniques for feed ingredients• Able to apply the latest scientific developments in feed material storage techniques
Content	<ol style="list-style-type: none">1. Introduction to Feed Material Storage Techniques2. Characteristics of Feed Ingredients3. Environmental Factors in Storage4. Feed Material Storage Method5. Feed Material Storage Technology



	<ol style="list-style-type: none"> 6. Storage Warehouse Management 7. Microorganisms and Storage of Feed Ingredients 8. Physical and Biological Damage to Feed Ingredients 9. Chemical Reactions During Storage 10. Storage of Fermented Feed 11. Storage of Concentrated Feed and Agro-industrial Waste 12. Feed Safety During Storage 13. Sustainability in Feed Material Storage 14. Feed Material Storage Economy
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Moore, K. J., & Jung, H. J. G. (2020). Foragequality, evaluation, and utilization. American Society of Agronomy.</p> <p>Owen, E., & Jayasuriya, M. C. N. (2021). Feeding and feed storage for sustainable livestock production. CAB International.</p> <p>Pimentel, D., & Pimentel, M. (2016). Food, energy, and society: Storage practices. CRC Press.</p> <p>Rankin, M. B., & Jacob, J. P. (2018). Feed storage systems and management. University of Florida Press.</p> <p>Singh, R. P., & Heldman, D. R. (2019). Introduction to food engineering and feed storage. Academic Press.</p> <p>Thomas, M., & van der Poel, A. F. B. (2020). Physical quality of pelleted animal feed during storage. Springer.</p> <p>Wilkinson, J. M. (2015). Silage and haylage: Principles and practices. Chalcombe Publications.</p>
Update date	July 2025



PTN3214 FEED TOXICOLOGY

Course Name	Feed Toxicology
Code	PTN3214
Semester	VI
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none">• Lecture (explanation, discussion)• Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)• Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours• Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	Feed Toxicology is a course that discusses the negative effects of toxic substances or toxic substances in animal feed, whether derived from natural raw materials or contamination during the production, storage, or distribution process. This course provides students with an understanding of the types of toxic compounds, toxicity mechanisms, toxic effects on livestock, and strategies to identify, prevent, and manage the risk of toxicity in feed. The focus is also on feed safety standards and regulations governing the management of hazardous materials in the feed industry.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to explain the various toxins in feed and their impact on livestock/humans• Able to detect early signs or symptoms of poisoning in livestock• Able to apply processing technology to reduce the effect of feed poisoning on livestock• Able to apply the latest scientific developments in the field of feed toxicology



Content	<ol style="list-style-type: none">1. Introduction to Feed Toxicology2. Sources of Toxic Substances in Feed3. Toxicologist Mycotoxin4. Toxic Effects of Poisonous Plants5. Heavy Metal Toxicology6. Toxicology of Pesticides in Feed7. Microbiological Contamination in Feed8. Mechanism of Toxicity in the Cattle Body9. Feed Toxicology Analysis Methods10. Toxic Effects on the Digestive System and Metabolism of Cattle11. Toxic Effects on the Reproductive System and Immunology of Cattle12. Feed Toxicology Prevention Strategies13. Feed Safety Regulations and Standards14. Case Studies and Current Issues in Feed Toxicology
Examination form	<ul style="list-style-type: none">• Project-Based Learning (30%)• Case Method (20%)• Quizzes (5%)• Assignments (5%)• Midterm exams (20%)• Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<ol style="list-style-type: none">1. Duarte, S. C., Pena, A., & Lino, C. M. (2016). Aflatoxins: Risk management in food and feed. Springer.2. Fink-Gremmels, J. (2008). Toxicology of mycotoxins in farm animals. Cambridge University Press.3. Hamilton, P. B. (2010). Mycotoxins and their effects on poultry health and performance. Academic Press.4. Haschek, W. M., Rousseaux, C. G., & Wallig, M. A. (2017). Fundamentals of toxicologic pathology (3rd ed.). Elsevier.5. Kan, C. A., & Meijer, G. A. L. (2007). The risk of contamination of food with toxic substances present in animal feed. Journal of Animal Science.6. Kumar, V., & Gupta, J. (2020). Toxic plants and other natural toxicants in animal agriculture. CRC Press.



	<ol style="list-style-type: none">7. Mallmann, C. A., & Dilkin, P. (2015). Mycotoxins in feedstuffs: A practical guide. Wiley-Blackwell.8. Roberts, M. C. (2013). Pesticides in animal feed: Toxicity and safety. Springer.9. Shermer, C. L. (2019). Feed safety and quality assurance. CRC Press.10. van der Fels-Klerx, H. J. (2019). Risk management of feed contaminants. Elsevier.
Update date	July 2025



PTN3215 POULTRY NUTRITION SCIENCE

Course Name	Poultry Nutrition Science
Code	PTN3215
Semester	VI
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none">• Lecture (explanation, discussion)• Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)• Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours• Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	After taking the Poultry Nutrition Science course, students can understand the important aspects in the application of nutrition science in the preparation of poultry rations
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to explain the basic benchmark of nutritional needs of various poultry livestock• Able to make an analysis of variability of nutritional needs and deficiencies in poultry• Able to prepare rations that suit the needs/status of poultry• Able to apply the latest scientific developments in poultry nutrition
Content	<ol style="list-style-type: none">1. Introduction to Poultry Nutrition Science2. Poultry Digestive System3. Energy Needs in Poultry4. Proteins and Amino Acids5. Vitamins and Minerals6. Water and Fluid Requirements7. Poultry Feed Raw Materials8. Poultry Ration Formulation9. The Effect of Nutrition on Growth and Productivity10. Feed Additives in Poultry Nutrition



	<p>11. Nutrition for Broiler and Laying Poultry 12. Feeding Management 13. Feed Efficiency and Cost 14. Sustainability Issues in Poultry Nutrition</p>
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Leeson, S., & Summers, J. D. (2005). Commercial poultry nutrition (3rd ed.). Nottingham University Press.</p> <p>McDonald, P., Edwards, R. A., & Greenhalgh, J. F. D. (2011). Animal nutrition. Pearson Education.</p> <p>NRC. (1994). Nutrient requirements of poultry (9th ed.). National Academies Press.</p> <p>Pond, W. G., Church, D. C., & Pond, K. R. (2018). Basic animal nutrition and feeding (5th ed.). John Wiley & Sons.</p> <p>Sibbald, I. R. (2019). Metabolizable energy evaluation of poultry diets. Butterworth-Heinemann.</p> <p>Sell, J. L. (2014). Poultry nutrition and feeding practices. Academic Press.</p> <p>Ravindran, V., & Blair, R. (2016). Feed additives and their impact on poultry production. Springer.</p> <p>Villamide, M. J., & Larbier, M. (2015). Nutritional requirements of poultry: Advances and challenges. Cambridge University Press.</p> <p>Ensminger, M. E. (2019). Poultry science. Interstate Publishers.</p> <p>Balloun, S. L. (2020). Modern feed formulation techniques for poultry. Elsevier.</p>
Update date	July 2025



PTN3216 OF DAIRY NUTRITION SCIENCE

Course Name	Dairy Nutrition Science
Code	PTN3216
Semester	VI
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit ponts	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	<ul style="list-style-type: none"> • Be enrolled in this course • No requirement to have passed in other courses is required
Course Description	After taking the Dairy Nutrition Science course, students can understand the important aspects in the application of nutrition science in the preparation of dairy cattle rations
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to explain the basic benchmark of dairy farmers' nutritional needs • Able to make an analysis of variability of nutritional needs and deficiencies in dairy cattle • Able to prepare rations that suit the needs/status of dairy cattle • Able to apply the latest scientific developments in dairy nutrition science
Content	<ol style="list-style-type: none"> 1. Introduction to Dairy Nutrition 2. Anatomy and Physiology of the Digestive System of Dairy Cows 3. Basic Nutritional Needs in Dairy Cows 4. Evaluation of Feed Ingredients for Dairy Cows 5. Ration Formulation for Dairy Cows 6. Effect of Nutrition on Milk Production 7. Feed Technology for Dairy Cows 8. Feeding Management 9. Nutrient Metabolism in Dairy Cows 10. Health and Nutrition in Dairy Cows



	<p>11. Nutrition in the Lactation Phase 12. Nutrients in the Dry and Pregnant Phases 13. Sustainability in Dairy Nutrition 14. Trends and Innovations in Dairy Nutrition</p>
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Baldwin, R. L. (2016). Ruminant nutrition and physiology. Springer.</p> <p>Chilliard, Y., Ferlay, A., & Rouel, J. (2017). Nutrition and milk fat synthesis in dairy cows. Elsevier.</p> <p>Dijkstra, J., Forbes, J. M., & France, J. (2018). Quantitative aspects of ruminant digestion and metabolism (2nd ed.). CABI Publishing.</p> <p>FAO. (2020). Dairy cattle feeding and nutrition guidelines. Food and Agriculture Organization of the United Nations.</p> <p>Goff, J. P., & Horst, R. L. (2019). Calcium and metabolic disorders in dairy cows. Academic Press.</p> <p>NRC. (2021). Nutrient requirements of dairycattle (8th ed.). National Academies Press.</p> <p>Pulina, G., & Rossi, R. (2016). Dairy nutrition management. Wageningen Academic Publishers.</p> <p>Van Soest, P. J. (2017). Nutritional ecology of the ruminant. Cornell University Press.</p> <p>Walstra, P., Wouters, J. T. M., & Geurts, T. J. (2020). Dairy science and technology. CRC Press.</p> <p>Zinn, R. A., & Owens, F. N. (2018). Feed efficiency and energy metabolism in dairy cows. Elsevier.</p>
Update date	July 2025



PTN3217 BEEF CATTLE NUTRITION SCIENCE

Course Name	Beef Cattle Nutrition Science
Code	PTN3217
Semester	6
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	After completing the Beef Cattle Nutrition Science course, students are expected to be able to explain the components, nutritional composition, and ration needs for beef cattle
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students will be able to explain the components, nutrient composition and nutritional needs of beef cattle as well as the process of nutrient metabolism that occurs in the body of beef cattle in meeting the needs of livestock productivity • Able to explain the evaluation of feeding beef cattle • Able to explain the processing technology of slaughter animal feed to ensure the availability of sustainable feed • Able to prepare rations for slaughtered livestock by utilizing waste around
Content	<ol style="list-style-type: none"> 1. Introduction to Beef Livestock Nutrition Science 2. Digestive System of Beef Cattle 3. Energy Needs in Beef Livestock 4. Protein Needs in Beef Livestock 5. Vitamins and Minerals for Beef Cattle 6. Slaughter Animal Feed Ingredients 7. Ration Formulation for Beef Livestock



	<p>8. Feed Processing Technology 9. Feeding Management 10. Utilization of Agricultural Waste for Feed 11. Nutrition and Quality of Meat 12. Environmental Influence on Beef Cattle Nutrition 13. Economic Aspects in Beef Livestock Nutrition 14. Sustainability in Beef Nutrition</p>
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric: $A \geq 80$ $B+ = 75-79$ $B = 70-74$ $C+ = 65-69$ $C = 60-64$ $D = 50-59$ $E \leq 49$</p>
Reading list	<p>Church, D. C., & Pond, W. G. (2019). Basic animal nutrition and feeding (5th ed.). Wiley.</p> <p>McDonald, P., Edwards, R. A., Greenhalgh, J. F.D., & Morgan, C. A. (2011). Animal nutrition (7th ed.). Pearson.</p> <p>NRC. (2016). Nutrient requirements of beef cattle(8th ed.). National Academies Press.</p> <p>Van Soest, P. J. (2017). Nutritional ecology of the ruminant (2nd ed.). Cornell University Press.</p> <p>Preston, T. R., & Leng, R. A. (2019). Matching livestock systems with available resources in the tropics and subtropics. FAO.</p> <p>Suttle, N. F. (2010). Mineral nutrition of livestock(4th ed.). CABI Publishing.</p> <p>Khan, N., & Habib, G. (2018). Nutritional management for better animal performance. Springer.</p> <p>Cheeke, P. R. (2013). Applied animal nutrition: Feeds and feeding. Prentice Hall.</p> <p>Yoon, I., & Stern, M. D. (2021). Feed additives in ruminant nutrition. Elsevier.</p> <p>Sinclair, L. A., & Wilkinson, R. G. (2020). Ruminant nutrition and production. Springer.</p>
Update date	July 2025



PTN3218 NONRUMINANT NUTRITION SCIENCE

Course Name	Nonruminant Nutrition Science
Code	PTN3218
Semester	VI
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none">• Lecture (explanation, discussion)• Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)• Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours• Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	After taking the Non-ruminant Nutrition Science course, students can understand the important aspects in the application of nutrition science in the preparation of non-ruminant rations
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Students will be able to explain the components, composition of nutrients and nutritional needs of non-ruminant livestock as well as the process of nutrient metabolism that occurs in the body of non-ruminant livestock• Able to explain the evaluation of feeding non-ruminant livestock• Able to explain the technology of processing non-ruminant animal feed to ensure the availability of sustainable feed• Able to prepare non-ruminant livestock rations by utilizing waste in the vicinity



Content	<ol style="list-style-type: none"> 1. Introduction to Non-Ruminant Livestock Nutrition Science 2. Anatomy and Physiology of the Non-Ruminant Digestive System 3. Energy Needs for Non-Ruminant Livestock 4. Protein and Amino Acid Needs 5. Vitamins and Minerals for Non-Ruminant Livestock 6. Digestion and Absorption of Nutrients 7. Formulation of Non-Ruminant Animal Feed Rations 8. Raw Materials for Non-Ruminant Animal Feed 9. Feed Processing and Technology 10. Feed Additives and Probiotics 11. Feed Management in Non-Ruminant Livestock 12. Feed Management in Non-Ruminant Livestock 13. The Effect of Nutrition on Production and Health 14. Sustainability in Non-Ruminant Livestock Nutrition
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Campbell, R. G., & Smith, L. M. (2018). Nutrition of non-ruminant livestock: Principles and practices. Academic Press.</p> <p>Cheeke, P. R., & Dierenfeld, E. S. (2010). Comparative animal nutrition and metabolism. CABI.</p> <p>De Lange, C. F. M., & Sauer, W. C. (2016). Protein metabolism and nutrition in monogastric animals. Wageningen Academic Publishers.</p> <p>Emmans, G. C., & Kyriazakis, I. (2018). Models of pig growth and nutrition. CABI.</p> <p>Leeson, S., & Summers, J. D. (2018). Commercial poultry nutrition (3rd ed.). Nottingham University Press.</p>



	McDonald, P., Edwards, R. A., & Greenhalgh, J. F. D. (2019). <i>Animal nutrition</i> (8th ed.). Longman Scientific & Technical.
Update date	July 2025



PTN3219 OF ANIMAL FEED PROCESSING SCIENCE AND TECHNOLOGY

Course Name	Animal Feed Processing Science and Technology
Code	PTN3219
Semester	6
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none">• Lecture (explanation, discussion)• Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)• Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours• Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	After taking the Feed Processing Science and Technology course, students can explain the concept, legal basis, functions, objectives, various problems and activities related to veterinary public health, as well as analyse various supervision, identification and inspection of meat, egg and milk food ingredients that are considered to cause public health problems
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to identify, formulate, and find solutions to problems related to animal feed processing• Able to explain the process of making good animal feed with the application of technology in physical, mechanical, chemical, enzymatic and biological processing (fermentation).• Able to apply knowledge in the aspect of efficient feed provision and technology• Able to apply a variety of best techniques and methods that combine theory and practice in feed processing technology



Content	<ol style="list-style-type: none"> 1. Introduction to Feed Processing Science and Technology 2. Nutritional Composition of Feed Raw Materials 3. Physical and Chemical Characteristics of Feed Materials 4. Feed Processing Technology: Palettization and Extrusion 5. Fermentation in Feed Processing 6. Feed Drying and Storage Technology 7. Animal Feed Formulation 8. Feed Processing Waste Management 9. Feed Quality Control 10. Technological Innovation in Feed Processing 11. Animal Feed Safety and Regulation 12. Economic Aspects in Feed Processing 13. Sustainability in Animal Feed Processing 14. Case Studies and Field Practice
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Van Soest, P. J. (2018). Nutritional ecology of the ruminant (2nd ed.). Cornell University Press.</p> <p>Wiseman, J., & Garnsworthy, P. C. (2015). Recent advances in animal nutrition. Nottingham University Press.</p> <p>Yoon, I. (2020). Feed additives in animal nutrition: Applications and safety. Elsevier.</p> <p>Zinn, R. A., & Owens, F. N. (2017). Innovations in feedlot feeding. Academic Press.</p> <p>Zulkifli, I. (2016). Sustainable feed production and livestock feeding strategies. Springer.</p>
Update date	July 2025



PTN3220 COMPANY ECONOMICS OF ANIMAL SCIENCE

Course Name	Company Economics of Animal science
Code	PTN3220
Semester	6
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	After taking the Animal science Company Economics course, students will be able to explain the meaning of the company and the business world as well as the environment that influences, the scope of the company's economy, economic principles in the company's household, the form of the company, the location of the company, the functions that must be carried out by the company, financing in the company, financial analysis in the company, as well as risks and company development, especially in the field of animal science
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students are able to apply economic principles in the household of a livestock company • Students are able to explain the business concepts of livestock companies and various approaches in the efficient and effective use of livestock production resources/factors as well as the development of livestock companies • Students are able to carry out surveys in solving problems related to the economic scope of livestock companies • Students are able to plan the development of the company, especially in the field of animal science • Students are able to implement coherent and up-to-date



	<p>knowledge in the field of livestock company economics</p> <ul style="list-style-type: none"> • Students are able to explain the functions that must be carried out by the company, financing in the company, financial analysis in the company, risks and company • development, especially in the field of livestock
Content	<ol style="list-style-type: none"> 1. Introduction 2. Economic scope of the company 3. Forms of companies from juridical aspects and technical economic aspects 4. Determination of the location of the company and factors affecting 5. Management and functions carried out by the company 6. Management and functions carried out by the company (Advanced) 7. Management and functions carried out by the company (Advanced) 8. Cost 9. Cost of goods sold and BEP 10. Corporate learning 11. Source of application 12. Financial ratio analysis 13. Financial ratio analysis (Advanced) 14. Company development and risk
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Prayogi Sunu. 2019. Economics of Animal science Companies. Manggu: Bandung.</p> <p>Budi Hartano. 2012. Livestock Business Economics. UB Press: Malang.</p> <p>Sumarni M., Suprihanto J. 2014. Introduction to the business of the basics of the company's economy.</p>



	Liberty: Yogyakarta Yendraliza, Rodiallah M., Masitah S., Zaki M. 2017. Introduction to Animal science and Industry. Aswaja Pressindo: Yogyakarta
Update date	July 2025



PTN3221 LIVESTOCK TRADING SYSTEM

Course Name	Livestock Trading System
Code	PTN3221
Semester	VI
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self- study hours)	<ul style="list-style-type: none"> • Learning Process: (2x50 minutes) x 14 weeks = 1400 minutes = 23 hours • Structured Assignments: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-Study: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent to 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	After completing the Animal science Business Administration course, students are expected to be able to explain the definition, principles, strategies and analysis of livestock product marketing, realize the importance of marketing for livestock business, and have the ability to determine the best livestock product marketing decisions
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students are able to apply the principles of livestock trading • Students are able to identify related problems in the field of the scope of livestock trading • Students are able to carry out surveys in solving problems related to the scope of livestock trading • Students are able to plan strategies for the development of livestock trading systems • Students are able to implement coherent and up-to-date knowledge in the field of livestock trading • Students are able to explain the analysis of the marketing system of livestock products



Content	<ol style="list-style-type: none"> 1. Introduction 2. Basics of understanding and the role of livestock product trading 3. Market and distribution of livestock products 4. Concept and determination and role of price 5. Market-minded strategic planning and marketing planning process 6. Marketing strategy of livestock products 7. Marketing margin 8. Mid Semester Exam 9. Marketing margin (Advanced) 10. Information systems and marketing research 11. Marketing research 12. Building farm satisfaction and loyalty 13. Marketing of livestock products 14. Marketing of livestock products (Continued) 15. Marketing of livestock products (Continued) 16. Mid Semester Exam
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Junior atmakusumah 2016 Animal science Business Edition 2, South Tangerang: Open University</p> <p>Thejo S Laksono 2010 Livestock Business System, teaching materials (https://www.scribd.com/doc/40683410/TATANIAGA-TERNAK)</p> <p>Ikbal rizki 2015 The function of animal science trading, teaching materials (https://www.scribd.com/doc/283533036/Fungsi-tataniaga-peternakan)</p> <p>Guidelines for the implementation of livestock trading by the Ministry of Agriculture (https://pdfslide.net/documents/pedoman-pelaksanaan-tata-</p>



	niaga-ternak-melalui-flpi alinnetsitesdefaultfilespedoman.html)
Update date	July 2025



PTN3222 LIVESTOCK PROJECT PLANNING AND EVALUATION

Course Name	Livestock Project Planning and Evaluation
Code	PTN3222
Semester	
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	After completing the Livestock Project Planning and Evaluation course, students are expected to be able to explain the aspects of project planning and evaluation in livestock which include investment, production, marketing, and capital criteria to be able to form a livestock business.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students apply logical, critical and systematic thinking regarding aspects of project planning and evaluation in animal science in the field of animal science social sciences well • Students are able to identify problems in building a livestock business • Students are able to carry out livestock project surveys • Students are able to plan strategies for planning and evaluating livestock business projects • Students are able to implement coherent and up-to-date knowledge about livestock projects including investment, production, marketing and capital criteria to be able to form a livestock business • Students are able to design an evaluation plan for a livestock business project • Students are able to explain about aspects of project



	planning and evaluation in livestock
Content	<ol style="list-style-type: none"> 1. Introduction 2. Market and marketing aspects 3. Market and marketing aspects (Advanced) 4. Engineering and technological aspects 5. Engineering and technology aspects (Advanced) 6. Management and human resources aspects 7. Management and human resources aspects (Continued) 8. Financial aspects 9. Financial aspects (Advanced) 10. Political, industrial and environmental aspects 11. Political, industrial and environmental aspects (Continued) 12. Juridical aspects 13. Project evaluation 14. Project evaluation (Advanced)
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Sadono Sukirno. 2002. Introduction to Macroeconomic Theory, 3rd Edition. RajaGrafindo Persada: Jakarta.</p> <p>Farid Wijaya. 2000. Introduction to Macroeconomics. BPFE. UGM: Yogyakarta.</p> <p>Suparmoko. 2000. Introduction to Macroeconomics. BPFE UGM: Yogyakarta.</p> <p>Pranata R., Mandala M. 2001. Macroeconomic Theory: An Introduction. LPFE UI: Jakarta</p> <p>Nopirin. 2000. Introduction to Macro and Micro Economics. BPFE, UGM: Yogyakarta</p> <p>Kusnadi, Kusdi R, Rudi Z. 1997. Ekonomi Mikro pendekatan akuntansi. Univ. Brawijaya: Malang.</p> <p>Iskandar Putong. 2000. Introduction to Economics:</p>



	Micro & Macro. Ghalia Indonesian: Jakarta
Update date	July 2025



PTN3223 SOCIAL RESEARCH METHODS

Course Name	Social Research Methods
Code	PTN3223
Semester	VI
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credits	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course explains about carrying out research according to scientific methods, compiling reports, especially theses, preparing publication manuscripts and making presentations in the field of animal science social sciences
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students are able to prepare research proposals, carry out research according to scientific methods, prepare reports, especially theses, prepare publication manuscripts and make presentations in the field of animal science social sciences well • Students are able to apply research methods from various previous research results • Students are able to explain the latest research methods as a comparison in the implementation of research in the field of animal science society
Content	<ol style="list-style-type: none"> 1. Definition and scope of quantitative research methods 2. Deductive logic in quantitative research 3. Theoretical framework 4. Concepts and variables 5. Hypothesis formulation 6. Research population and sample



	<ol style="list-style-type: none"> 7. Data and research ethics. 8. Data collection techniques 9. Data and data processing 10. Table presentation 11. Quantitative data analysis 12. Preparation of research proposals 13. Research on sociological problems 14. Presentation
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Faisal, Sanapiah. 1989. Social Research Formats. Raja Grafindo Persada: Jakarta</p> <p>John Hughes. 1987. The Philosophy of Social Research. Longman Singapore Publisher: Singapore</p> <p>Julia Brannen, Combining Research Methods: Qualitative and Quantitative, translated by Nuktah Arfawie Kurde, Yogyakarta: IAIN Cooperation</p> <p>Kuhn, Thomas S, 2000, The Structure of Scientific Revolution: The Role of Paradigm in the Scientific Revolution, Translation of Tjun Surjaman, Rosda, Bandung</p> <p>Muhadjir, Noeng. 2002. Quantitative Research Methodology, Rake Sarasin: Yogya.</p> <p>Nachmias, Chava Frankfort. 2002. Research Methods in The Social Sciences (Fifth Edition), Arnold, London.</p>
Update date	July 2025



PTN3224 EMPOWERMENT OF LIVESTOCK COMMUNITIES

Course Name	Empowerment of Livestock Communities
Code	PTN3224
Semester	VI
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2x50 minutes) x 14 weeks = 1400 minutes = 23 hours • Structured Assignments: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-Study: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent to 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses community empowerment which includes equality, participation, self-reliance, independence and sustainable principles in the field of livestock to realize the improvement of institutions, businesses, incomes, environment, life and livestock communities
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students are able to explain the principles of community empowerment which include equality, participation, self-reliance, independence and sustainable principles in the field of livestock to realize the improvement of institutions, businesses, incomes, environment, life and livestock communities • Students are able to explain the principles of community empowerment which include equality, participation, self-reliance, independence and sustainable principles in the field of livestock to realize the improvement of institutions, businesses, incomes, environment, life and livestock communities • Students are able to explain the principles of community empowerment which include equality, participation, self-reliance, independence and sustainable principles in the field of livestock to realize the improvement of institutions, businesses, incomes,



	<p>environment, life and livestock communities</p> <ul style="list-style-type: none"> • Students are able to explain aspects of community empowerment activities by respecting cultural diversity nationally
Content	<ol style="list-style-type: none"> 1. Relationship in community empowerment 2. Relationship in community empowerment (Continued) 3. The concept of community empowerment 4. The concept of community empowerment (Continued) 5. Community empowerment system 6. Community empowerment system (Continued) 7. Community empowerment system (Continued) 8. Forms of community empowerment 9. Forms of community empowerment (Continued) 10. The function of partnerships in community empowerment 11. Partnership function in community empowerment (Continued) 12. Partnership function in community empowerment (Continued) 13. Presentation 14. Presentation (Continued)
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Ambar Teguh, Sulistiani. 2004. Partnerships and Models of Community Empowerment. Media Style: Yogyakarta</p> <p>Budi, Setiyono. 2018. Model and Design of a Prosperous State. Nuances of Scholars: Bandung</p> <p>Noor M., 2011. Community empowerment. CIVIS, 1(2).</p>



	<p>Widjajanti, K., 2011. Community empowerment model. Journal of Development Economics: A Study of Economic and Development Problems, 12(1), pp.15-27.</p> <p>Maryani, D. and Nainggolan, R.R.E., 2019. Community empowerment. Deepublish.</p>
Update date	July 2025



PTN3225 LIVESTOCK-BASED REGIONAL DEVELOPMENT

Course Name	Livestock-Based Area Development
Code	PTN3225
Semester	VI
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses regional development strategies and concepts by utilizing the potential of livestock as the main driver of the economy and community development. This course aims to provide students with an understanding of the relationship between livestock, regional development, and environmental sustainability.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to prepare livestock area development plans based on the integration of livestock with plantations • Able to explain livestock-based regional development plans based on agribusiness principles • Able to explain the principles of community empowerment which include equality, participation, self-reliance, independence and sustainable principles in the field of livestock to realize the improvement of institutions, businesses, incomes, environment, life and livestock communities • Able to develop livestock-based areas by respecting the cultural diversity that exists in the community nationally and globally



Content	<ol style="list-style-type: none"> 1. Introduction to Livestock-Based Regional Development 2. Potential Regional Resources for Livestock Development 3. Regional Development Models and Approaches 4. People's Livestock Centre Area (KSPR) 5. Empowerment of Farmer Communities 6. Livestock-Based Agro-industrial System 7. Regional Spatial Planning for Livestock 8. Sustainability and Environment in Regional Development 9. Policies and Regulations Related to Livestock Development 10. Economic Analysis and Investment of the Livestock Sector 11. Livestock Development Supporting Infrastructure 12. Technology and Innovation in Livestock Development 13. The Role of Cooperatives and MSMEs in Livestock Development 14. Monitoring and Evaluation of Regional Development Programs
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Anwar, S., & Hermanto, M. (2018). Region-based resource management for livestock. Agro Library.</p> <p>Arsyad, L. (2019). Regional development economics: Concept and application. Yogyakarta: UPP STIM YKPN.</p> <p>Central Statistics Agency (BPS). (2021). Indonesiann livestock statistics. Jakarta: BPS.</p> <p>FAO. (2020). Livestock sector development forpoverty</p>



	<p>reduction: An economic and policy perspective. Rome: FAO.</p> <p>Ginting, S. P., & Nasution, A. H. (2020). Planning and development of livestock-based areas. Medan: University of North Sumatra Press.</p>
Update date	July 2025



PTN3226 LIVESTOCK BUSINESS COMMUNICATION

Course Name	Livestock Business Communication
Code	PTN3226
Semester	VI
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	In the Animal science Business Communication course, students can explain the functions and objectives of communication in the field of animal science, master the basics of communication skills as an extension worker, understand several models of extension and communication activities in the community, and understand the institution of animal science extension
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students apply innovations in livestock business communication techniques • Students are able to explain the functions and objectives of extension and communication, master the basics of communication skills as an extension worker, understand several models of extension and communication activities in the community, and understand the institution of livestock extension • Students are able to explain the functions and objectives of extension and communication, master the basics of communication skills as an extension worker, understand several models of extension and communication activities in the community, and understand the institution of livestock extension Students are able to explain the functions and objectives of extension and communication,



	<p>masterthe basics of communication skills as an extension worker, understand several models of extension and communication activities in the community, andunderstand the institution of livestock extension</p> <ul style="list-style-type: none"> • Students are able to explain the functions and objectives of extension and communication, master the basics of communication skills as an extension worker, understand several models of extension and • communication activities in the community, and understand the institution of livestock extension
Content	<ol style="list-style-type: none"> 1. Business communication 2. Communication success in the organization 3. Planning business messages 4. Organizing business messages 5. Revision of business messages 6. Writing a Direct Request 7. Writing positive messages and organizational approaches 8. Classification of various forms of business reports in organizations 9. Classification of various forms of brief reports in organizations 10. Classification of various forms of formal reporting in organizations 11. Resume writing process 12. The process of writing a good job application 13. Job interview 14. Business presentations
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	Guffey M.E., Rhodes K., Rogin P. 2005. Business Communication Process and Product. Thompson-



	<p>Nelson. Fourth Edition. Locker, Kitty O, Stephen K.K. 2008. Business Communication-Building Critical Skills. Mc. Graw- Hill. Fourth Edition. Purwanto D. 2006. Business Communication. Erlangga: Jakarta</p>
Update date	July 2025



PTN3227 LIVESTOCK MARKETING MANAGEMENT

Course Name	Livestock Marketing Management
Code	PTN3227
Semester	VI
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course explains the basic concept of marketing management in the field of livestock.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students are able to apply the basic concepts of marketing management in the field of animal science • Students are able to identify problems related to the marketing management system of livestock products • Students are able to evaluate marketing management systems related to livestock products • Students are able to explain marketing techniques for livestock products based on applicable regulations related to the export or import process of livestock products
Content	<ol style="list-style-type: none"> 1. Introduction 2. Organization and institutions in marketing 3. Characteristics of livestock products 4. Consumer behaviour models 5. Product definition 6. Market segmentation 7. Definition of marketing channels 8. Pricing strategy 9. Develop and manage advertising



	<p>10. Risks in marketing livestock products 11. Differentiating and positioning market offers 12. Market research objectives 13. Objectives of market research (Advanced) 14. Market research presentations</p>
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Gumbira Said. 2001. Agribusiness Management. Translated by: Julianto Agung. Edition I, Print I. Andy: Yogyakarta</p> <p>Umar Husein. 2002. Strategic Management in Action. Gramedia Pustaka: Jakarta</p> <p>Sutisna. 2001. Consumer Behaviour and Marketing Communication. Rosdakarya Youth: Bandung</p> <p>Umar Husein. 2000. Marketing Research and Consumer Behaviour. Gramedia Library: Jakarta</p>
Update date	July 2025



PTN3228 DIGITAL INDUSTRY LIVESTOCK BUSINESS

Course Name	Digital Industry of Livestock Business
Code	PTN3228
Semester	VI
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credits	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This coolant discussed the application of technology to support marketing, media publications and businesses in the field of livestock
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students are able to apply information technology to support marketing, media publications and businesses in the field of animal science • Students are able to apply information technology to support marketing, media publications and businesses in the field of animal science • Students are able to apply information technology to support marketing, media publications and businesses in the field of animal science • Students are able to apply information technology to support marketing, media publications and businesses in the field of animal science
Content	<ol style="list-style-type: none"> 1. Digital business and E-Commerce 2. Marketplace analysis E-Commerce 3. Digital business infrastructure 4. Digital business strategy 5. Digital business ethics 6. Change management in digital business 7. Change management in digital business (Advanced)



	<ol style="list-style-type: none"> 8. Digital business supply chain management 9. Digital business supply chain management (Advanced) 10. Digital business marketing and consumer relationship management 11. Marketing and consumer relationship management digital business (Advanced) 12. Financial aspects of digital business 13. Digital business design analysis 14. Digital business plan (Student practice)
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Suryana Yoga Perdana. 2020. Digital Business: An Easy Way to Do Business in the Industrial Age. Salemba Four: Jakarta</p> <p>Endi T., Suharti E. 2021. Digital Business. University of Muhammadiyah Tangerang: Tangerang</p> <p>Wahyuni S., Siregar D.J.S., Hernawaty, Afifah N. 2023. Digital Marketing for Livestock with Livestock Application. Stindo Press: Medan</p> <p>Dwi I. 2022. Digital Marketing in Agribusiness Products. Widina: Bandung</p>
Update date	July 2025



PTN3229 MEAT TECHNOLOGY

Course Name	Meat Technology
Code	PTN3229
Semester	VI
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	After completing the Meat Technology course, students are expected to be able to explain the structure and properties of muscles, factors that affect the composition of carcasses, the quality of carcasses and meat, the storage and preservation of meat, physical properties and parameters, the specifics of meat quality, and the chemical and physical components of meat muscles.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to explain solutions to the problem of applying technology in meat processing • Able to evaluate the application of technology in meat processing • Able to apply the latest technology in the meat processing process • Able to make processed meat products based on agricultural and plantation products • Able to apply a variety of best techniques and methods that combine theory and practice in meat processing technology • Able to apply meat processing technology in the scope of mono-disciplinary and/or inter-disciplinary
Content	<ol style="list-style-type: none"> 1. Muscle tissue and structure 2. Mechanism of muscle contraction



	<ol style="list-style-type: none"> 3. Muscle to meat conversion 4. Physical, chemical and microbial properties of fresh meat 5. Physical properties of fresh meat 6. Physical properties of fresh meat (continued) 7. Functional properties of meat components in processing 8. Handling and storage of meat products 9. Processing (Smoking) 10. Curing 11. Processing (Dry meat) 12. Food safety 13. Processing (Fermented sausage) 14. Future meat
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Aberle, E. D., Forrest, J. C., Gerrard, D. E., & Mills, E. W. (2017). Principles of meat science(5th ed.). Kendall Hunt Publishing.</p> <p>Toldrá, F. (2010). Handbook of meat processing. Wiley-Blackwell.</p> <p>Lawrie, R. A., & Ledward, D. A. (2014). Lawrie'smeat science (8th ed.). Woodhead Publishing.</p> <p>Feiner, G. (2006). Meat products handbook: Practical science and technology. Woodhead Publishing.</p> <p>Jensen, W. K., Devine, C., & Dikeman, M. (2004). Encyclopedia of meat sciences. AcademicPress.</p> <p>Pearson, A. M., & Gillett, T. A. (1996). Processedmeats. Springer.</p> <p>Hui, Y. H. (2012). Handbook of meat and meat processing (2nd ed.). CRC Press.</p> <p>Romanelli, P., & Pedonese, F. (2018). Advanced</p>



	<p>technologies in meat processing. Elsevier.</p> <p>FAO. (2019). Meat and meat products in human nutrition. Food and Agriculture Organization of the United Nations.</p> <p>Toldrá, F., Reig, M., & Mora, L. (2021). Advances in meat processing technology. CRC Press.</p>
Update date	July 2025



PTN3230 MILK AND EGG TECHNOLOGY

Course Name	Milk and Egg Technology
Code	PTN3230
Semester	VI
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none">• Lecture (explanation, discussion)• Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)• Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours• Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	Upon completion of the Milk and Egg Technology course, students are expected to be able to explain milk and eggs, their handling, and milk and egg processing
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Students are able to explain solutions to the problem of applying technology in milk and egg processing• Students are able to evaluate the application of technology in milk and egg processing• Students are able to apply technology in the milk and egg processing process• Students are able to make processed milk and egg products based on agricultural and plantation products• Students are able to make processed egg and milk products with the application of the latest techniques and technology• Students are able to apply dairy and egg processing technology in a monodisciplinary and/or interdisciplinary scope
Content	<ol style="list-style-type: none">1. Components and physicochemical properties of milk2. Dairy food safety



	<ol style="list-style-type: none"> 3. Milk quality assurance work plan 4. Milk (cheese) processing technology 5. Milk processing technology (milk cream) 6. Milk processing technology (fermented milk) 7. Milk processing technology (evaporated milk and milk powder) 8. Components and physicochemical properties of eggs 9. Lipids in fats 10. Egg food safety 11. Egg processing technology (pasteurization) 12. Egg processing technology (drying) 13. Physicochemical changes 14. Changes in egg products
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Soeparno. 2016. Meat Science and Technology 2nd Edition, Gajah Mada University Press</p> <p>Peni Patriani, Harapin Hadif, Edhy Mirwandhono, Tri Hesti wahyuni. 2020. Meat Processing Technology, University of North Sumatra, Medan: CV Anugerah Pangeran Jaya</p> <p>Suharjono Triatmojo. 2014. Eco-Friendly Tanning, Gajah Mada University Press</p> <p>Soeparno. 1992. Meat Science and Technology, Gamma Press Yogyakarta</p>
Update date	July 2025



PTN3231 HATCHING TECHNOLOGY

Course Name	Hatching Technology
Code	PTN3231
Semester	6
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none">• Lecture (explanation, discussion)• Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)• Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours• Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses the application of technology in the egg hatching process
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Students are able to explain solutions to the problem of applying technology in egg hatching• Students are able to evaluate the application of technology in egg hatching• Students are able to apply technology in the egg hatching process• Students are able to integrate agricultural and plantation waste related to the hatching process on eggs• Students are able to hatch eggs with the application of the latest techniques and technology• Students are able to apply egg hatching technology in a monodisciplinary and/or interdisciplinary scope



Content	<ol style="list-style-type: none"> 1. Introduction (definition, scope, types, hatchery history) 2. Eggs (structure, composition, and shape of eggs) 3. Egg anomalies (external and internal quality of eggs) 4. Conditions for hatching eggs 5. Hatching (hatching conditions, principles, and parameters) 6. Advanced hatching (selection, handling, and preparation of hatching eggs) 7. Types of hatching machines (models, how they work, and advantages) 8. Semi-automatic hatching machine 9. Hatchery management (temperature, humidity and air aeration regulation) 10. Advanced hatchery management (egg turning, candling, and hatchability influencing factors) 11. Embryonic development and handling of DOC 12. Evaluation of hatching results (hatching rate and grading) 13. Modern hatchery management (terminals, holding rooms, and setters) 14. Modern hatchery management (transfer of eggs to hatchers and vaccinations)
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Ulupi, N. and I. Rahayu. 2014. Poultry Nursery and Hatchery Management. Bogor: IPB Press.</p> <p>Yuwanta, T. 2007. Eggs and Egg Production. Yogyakarta: Gadjah Mada University Press</p> <p>Stadelman, W. J., D. Newkirk, L. Newby. 1995. Egg Science and Technology 4th ed. Boca Raton: CRC</p>



	<p>Press</p> <p>Kurtini, T and Rr. Riyanti. 2003. Hatching Technology. Textbooks. University of Lampung, Lampung.</p> <p>Randall, M. C. 1986. Raising Japanese Quail. New South Wales: Department of agriculture</p> <p>Jadhav, N. V. 2014. Practical Manual for Poultry Production and Hatchery. New Delhi: Daya Publishing Houses</p>
Update date	July 2025



PTN3232 TECHNOLOGY OF LIVESTOCK PRODUCTS

Course Name	Livestock By Product Technology
Code	PTN3232
Semester	VI
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	After completing the Livestock Product Technology course, students can apply the correct processing techniques for various livestock products by skill.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students are able to explain solutions to the problem of applying technology in the processing of livestock products • Students are able to evaluate the application of technology in the processing of livestock products • Students are able to apply technology in the processing process of livestock products • Students are able to combine agricultural and plantation waste products in the processing of livestock products • Students are able to make processed products from livestock with the application of the latest techniques and technology • Students are able to apply processing technology for livestock products in a monodisciplinary and/or interdisciplinary scope
Content	<ol style="list-style-type: none"> 1. Introduction 2. Technology for handling and processing livestock



	<p>products</p> <ol style="list-style-type: none"> 3. Rendering 4. Soap 5. Pet food 6. Egg shell 7. Protein and animal flour 8. Blood benefits and bone utilization 9. Whey processing 10. Sausage sleeve
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Saleh E. 2004. The Basis of Milk Processing and Livestock Derivative Products. USU Press: Medan</p> <p>Pratiwi, S. 2014. Physical, Chemical and Organoleptic Characteristics of Beef Sausage with Beef Intestinal Sleeve at Different Pineapple Mixing Durations. Thesis. Bogor Agricultural University: Bogor</p> <p>Ockerman H.W., Hansen C.L. 2000. Animal By-Product Processing and Utilization. CRC Press: Florida</p> <p>Soeparno. 1994. Meat Science. UGM Press: Yogyakarta</p>
Update date	July 2025



PTN3233 LIVESTOCK PRODUCT PROCESSING INDUSTRY

Course Name	Livestock Product Processing Industry
Code	PTN3233
Semester	6
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory elective courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2x50 minutes) x 14 weeks = 1400 minutes = 23 hours • Structured Assignments: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-Study: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent to 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	After completing the Livestock Product Processing Industry course, students can apply the correct processing techniques for various livestock products commodities skilfully.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students are able to apply the principles of processing in the livestock product industry • Students are able to identify problems in the livestock product processing industry • Students are able to supervise and evaluate technological methods in the process of the livestock product processing industry • Students are able to explain the layout, input and output processes and processing in the animal feed industry • Students are able to manage integrated and sustainable business planning in the livestock product processing industry • Students are able to plan the development of the best process technology in the livestock product processing industry • Students are able to apply a variety of best techniques and methods that combine theory and



	<p>practice in technology in the livestock processing industry</p> <ul style="list-style-type: none"> • Students are able to implement coherent and up-to-date knowledge about the livestock product processing industry
Content	<ol style="list-style-type: none"> 1. Introduction (Industry definition) 2. Factors affecting the livestock industry 3. Factors affecting the livestock industry (Continued) 4. Example of the processing stage of livestock products 5. Example of the processing stage of livestock products (Continued) 6. Stages of the upstream to downstream livestock industry process 7. Stages of the upstream to downstream livestock industry process (Continued) 8. Providing examples and companies of the livestock industry 9. Analyse industry opportunities and weaknesses with the SWOT method 10. Making examples and developing commodity ideas for companies engaged in the livestock industry 11. Able to analyse the differences in several examples of livestock industry in Indonesian 12. Able to analyse the differences of several examples of livestock industry in Indonesian (Continued) 13. Able to explain the factors that can hinder the development of the livestock industry system 14. Able to explain the factors that can hinder the development of the livestock industry system (Continued)
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
	Hariyono. 2022. Fundamentals of Livestock Industry



Reading list	Management. UB Press, Malang Bacharuddin Z. 2017. Fermentation Technology in the Livestock Industry. UGM Press, Yogyakarta Rosyidi D, Susilo A, Amertaningtyas D, Apriliyani MW, Utama DT. 2021. Industri Pengolahan Daging. UB Press, Malang
Update date	July 2025



7th Semester



PTN4101 FIELDWORK PRACTICE

Course Name	Fieldwork Practice
Code	PTN4101
Semester	VII
Lecture (Persons responsible)	Ir. Achmad Sadeli, S.Pt., M.Sc., IPM, ASEAN.Eng
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	Practice Field Activity: (1x60 minutes) x 24 days x 5 hours/day (Effective Time) = 7200 minutes = 120 hours Report Assignment: (1x60 minutes) x 4 days = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	Field Work Practice (PKL) is a course that aims to provide direct experience to students in the world of work in accordance with the scientific field they are engaged in. This course is designed to develop students' technical, managerial, and interpersonal skills through involvement in real activities in industry, government agencies, or other relevant organizations. PKL provides opportunities for students to apply the theory and knowledge that they have learned during lectures, as well as understand the challenges and dynamics of the world of work. Thus, students can improve their professional competence and job readiness.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to apply the theoretical knowledge that has been obtained during lectures to work in the field • Able to apply the knowledge that has been obtained during lectures while working in the field • Able to identify problems in the field with the knowledge that has been obtained during lectures • Able to disseminate the knowledge and application of technology that has been learned during lectures while working in the field • Able to build and expand networks while working in the field • Able to develop quality and confidence as well as soft



	skills in the field
Content	<ol style="list-style-type: none"> 1. Introduction (fieldwork practice briefing) 2. Fieldwork practice Preparation 3. Proposal preparation 4. Implementation of fieldwork practice <p>Fieldwork practice reporting (written and oral)</p>
Examination form	<ul style="list-style-type: none"> • Discipline (5%) • Responsibility (5%) • Teamwork (5%) • Field Technical Skills (5%) • Participation In Activities (5%) • Report Of Fieldwork (25%) • Seminar (25%) • Examination (25%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Grading rubric:</p> <p>A ≥ 80</p> <p>B+ = 75-79</p> <p>B = 70-74</p> <p>C+ = 65-69</p> <p>C = 60-64</p> <p>D = 50-59</p> <p>E ≤ 49</p>
Reading list	<p>Cresswell, J. W. (2018). Research design: Qualitative, quantitative, and mixed methods approach (5th ed.). SAGE Publications.</p> <p>Dawson, C. (2020). A practical guide to research methods (5th ed.). How to Books.</p> <p>Gibb, S. (2019). Learning and development: Processes, practices, and perspectives (3rd ed.). Palgrave Macmillan.</p> <p>Griffin, R. W. (2021). Management: Principles and practices (14th ed.). Cengage Learning.</p> <p>Hill, L. A. (2019). Becoming a manager: How new managers master the challenges of leadership. Harvard Business Review Press.</p> <p>Yates, L. (2018). Structured reflection in professional practice. Routledge.</p>
Update date	July 2025



PTN4102 POULTRY INDUSTRY MANAGEMENT

Course Name	Poultry Industry Management
Code	PTN4102
Semester	VII
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course is designed to produce graduates who are competent in managing poultry farming businesses in a modern, efficient, and sustainable manner, with a deep understanding of technology, management, and environmental and social challenges in the poultry farming sector.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to explain the latest innovations related to the application of technology in the management of the poultry industry • Able to explain the layout, input and output processes, and processing in the management of the poultry industry • Able to explain the evaluation related to the application of technology in the poultry industry to poultry productivity • Able to apply technology in the management of the poultry industry based on integrated agricultural integration • Able to apply the best technology in poultry feed processing • Able to make business plan designs related to the poultry industry



	<ul style="list-style-type: none"> • Able to analyse various techniques and best methods in process technology in the poultry industry • Able to explain regulations that support the use of technology in the poultry industry
Content	<ol style="list-style-type: none"> 1. Introduction to Poultry Industry Management 2. Types and Characteristics of Poultry Farms 3. Poultry Cage Design and Management 4. Poultry Feed and Nutrition Management 5. Poultry Rearing System 6. Poultry Health Management 7. Poultry Production Technology 8. Reproduction and Genetics of Poultry 9. Broiler Production Management 10. Production Management of Laying Hens 11. Environmental Management in Poultry Farms 12. Poultry Farming Business Economics and Analysis 13. Poultry Product Marketing Strategy Sustainability in the Poultry Industry
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>ell, D. D., & Weaver, W. D. (2019). Commercialchicken meat and egg production (5th ed.). Springer.</p> <p>Cherry, J. A., & Morris, R. H. (2020). Modernpoultry farming. Wiley.</p> <p>Cunningham, D. L. (2018). Poultry productionsystems: Behaviour, management and welfare. CAB International.</p> <p>Ensminger, M. E., & Parker, R. O. (2021).Poultry science. Pearson Education.</p> <p>FAO. (2019). Good practices in poultry</p>



	production systems. Food and Agriculture Organization of the United Nations. Leeson, S., & Summers, J. D. (2020). Commercial poultry nutrition (4th ed.). Nottingham University Press.
Update date	July 2025



PTN4102 DAIRY INDUSTRY MANAGEMENT

Course Name	Dairy Industry Management
Code	PTN4102
Semester	VII
Lecture (Persons responsible)	Dr. Usman Budi, S.Pt., M.Si.
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course is designed to equip students with comprehensive knowledge and practical skills necessary in dairy business management. A focus on technology, sustainability, and efficiency will help students manage competitive businesses in the modern era.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to explain the latest innovations related to the application of technology in dairy industry management • Able to explain the layout, input and output processes, and processing in dairy industry management • Able to explain the evaluation related to the application of technology in the poultry industry to dairy productivity • Able to apply technology in dairy industry management based on integrated agricultural integration • Able to apply the best technology in dairy feed processing • Able to make business design plans related to the dairy industry



Content	<ol style="list-style-type: none"> 1. Introduction to the Dairy Industry 2. Characteristics of Dairy Cows 3. Dairy Cattle Maintenance Management 4. Nutrition and Dairy Feed 5. Dairy Cow Health Management 6. Reproduction and Genetic Selection of Dairy Cows 7. Milk Production Management 8. Milk Processing and Storage 9. Dairy Waste Management 10. Economic Analysis of Dairy Farming Business 11. Dairy Marketing 12. Technology in the Dairy Industry 13. Sustainability in the Dairy Industry 14. Case Study and Development of Dairy Farming Business
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<ol style="list-style-type: none"> 1. Robinson, P. H. (2018). Dairy herd health and management: Practices for optimal production. CAB International. 2. Schingoethe, D. J. (2019). Feeding and management of dairy cattle for improved milk production. Academic Press. 3. Van Soest, P. J. (2017). Nutritional ecology of the ruminant (2nd ed.). Cornell University Press. 4. Walstra, P., Wouters, J. T. M., & Geurts, T. J. (2020). Dairy science and technology (3rd ed.). CRC Press. 5. Zobel, R. (2021). Technological advancements indairy farming. Elsevier.
Update date	July 2025



PTN4104 INDUSTRY MANAGEMENT OF BEEF AND LABOR CATTLE

Course Name	Industry Management of Beef and Labor Cattle
Code	PTN4104
Semester	VII
Lecture (Persons responsible)	Prof. Dr. Ir. Yunilas, MP
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none">• Lecture (explanation, discussion)• Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)• Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours• Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course provides comprehensive knowledge about the management of the slaughter and labour industry, covering technical, managerial, economic, and sustainability aspects. Students are expected to be able to apply the skills and concepts they learn to solve problems in the industry and improve the efficiency and competitiveness of livestock businesses.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to explain the latest innovations related to the application of technology in the management of the slaughter and work livestock industry• Able to explain the layout, input and output processes, and processing in the management of the slaughter and labour livestock industry• Able to explain the evaluation related to the application of technology in the slaughter and work industry to livestock productivity• Able to apply technology in the management of the slaughter and work industry based on integrated agricultural integration• Able to apply the best technology in slaughter and work animal feed processing• Able to make business plans related to the slaughter



	<p>and work livestock industry with agribusiness principles</p> <ul style="list-style-type: none"> • Able to analyse various techniques and best methods in process technology in the slaughter and working livestock industry • Able to explain regulations that support the use of technology in the slaughter and work industry
Content	<ol style="list-style-type: none"> 1. Scope of introduction to beef and working livestock science and industry 2. Application of technology in maintenance management 3. Application of technology in feed processing 4. Application of technology in marketing 5. Application of technology based on integrated farming 6. Prospects for beef and working livestock farming 7. Regulation of technology use in the beef and working cattle industry 8. Sustainable livestock development strategy 9. Commodity selection of the slaughter and working livestock industry
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<ol style="list-style-type: none"> 1. Daryanto, A. 2017. Daya Saing dan Rantai Nilai Inklusif Industri Peternakan. Bogor: IPB Press 2. Cottle D. and L. Khan. 2014. Beef Cattle Production and Trade. Victoria: CSIRO Publishing 3. Kuswati dan T. Susilawati. 2016. Industri Sapi Potong. Malang: UB Press 4. Skelley, W. C. 2015. Beef Cattle Management – with Information on Selection, Care, Breeding and Fattening of Beef Cows and Bulls. UK: Cooper Press 5. Government regulations on animal welfare



	<ol style="list-style-type: none">6. Jones, S. M. 1995. Quality and Grading of Carcasses of Meat Animals 1st ed. Boca Raton: CRC Press7. Jones, S. M. 1995. Quality and Grading of Carcasses of Meat Animals 1st ed. Boca Raton: CRC Press8. Wu, G. 2022. Recent Advances in Animal Nutrition and Metabolism. Berlin: Springer Publishing
Update date	July 2025



PTN4105 MANAGEMENT OF NON-RUMINANT LIVESTOCK INDUSTRY

Course Name	Management of Non-Ruminant Livestock Industry
Code	PTN4105
Semester	VII
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3x50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-Study: (3x60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent to 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course prepares students to understand, manage, and develop the non-ruminant livestock industry in a professional, efficient, and sustainable manner, by utilizing modern technology and paying attention to livestock welfare and environmental sustainability.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to explain the latest innovations related to the application of technology in the management of the non-ruminant livestock industry (horses, pigs and rabbits) • Able to explain the layout, input and output processes, and processing in the management of the non-ruminant livestock industry (horses, pigs and rabbits) • Able to explain the evaluation related to the application of technology in the non-ruminant livestock industry other than poultry on livestock productivity • Able to apply the best technology in the processing of non-ruminant animal feed other than poultry • Able to make business designs related to the non-ruminant livestock industry, other than poultry with agribusiness principles



Content	<ol style="list-style-type: none"> 1. Introduction to Non-Ruminant Livestock Industry 2. Types of Non-Ruminant Livestock 3. Nutrition and Non-Ruminant Animal Feed 4. Non-Ruminant Livestock Reproductive Management 5. Non-Ruminant Livestock Health Management 6. Cultivation Systems and Technologies 7. Meat and Egg Production 8. Non-Ruminant Livestock Waste Treatment 9. Economics and Analysis of Non-Ruminant Livestock Business 10. Marketing of Non-Ruminant Livestock Products 11. Non-Ruminant Livestock Welfare 12. Regulations and Policies of the Non-Ruminant Livestock Industry 13. Sustainability Issues in the Non-Ruminant Livestock Industry 14. Trends and Innovations in the Non-Ruminant Livestock Industry
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Daghir, N. J. (2018). Poultry production in hot climates (2nd ed.). CABI Publishing.</p> <p>Edwards, S. A., & Mawson, R. (2019). Pig production: What the industry needs to know. Wiley-Blackwell.</p> <p>Leeson, S., & Summers, J. D. (2020). Commercial poultry nutrition (3rd ed.). Nottingham University Press.</p> <p>McDonald, P., Edwards, R. A., Greenhalgh, J. F. D., & Morgan, C. A. (2021). Animal nutrition (8th ed.). Pearson.</p> <p>Mercks, H. W. (2019). Diseases of swine (11th ed.). Wiley-Blackwell.</p> <p>Owen, E., & Owen, R. (2020). Rabbit farming:</p>



	Production systems and management. Springer.
Update date	July 2025



PTN4106 ENTREPRENEURSHIP

Course Name	Entrepreneurship
Code	PTN4106
Semester	VII
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	<ul style="list-style-type: none"> • Lecture (explanation, discussion) • Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning) • Participants 30-50 students per class
Workload (including teaching hours, self-study hours)	Learning Process: (2x50 minutes) x 14 weeks = 1400 minutes = 23 hours Structured Assignments: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours Self-study: (2x60 minutes) x 14 weeks = 1680 minutes = 28 hours
Credit points	2 credits (equivalent to 3.2 ECTS)
Required and recommended prerequisites for joining the module	<ul style="list-style-type: none"> • Be enrolled in this course • No requirement to have passed in other courses is required
Course Description	This course aims to create a generation of entrepreneurs who are competent, innovative, and able to adapt to global challenges and make positive contributions to society.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Students are able to explain the scope of entrepreneurship and are expected to have entrepreneurial motivation, be able to develop and build mental attitudes and entrepreneurial personalities and also have entrepreneurial ideas. • Students explain the scope of entrepreneurship and are expected to have entrepreneurial motivation, be able to develop and build mental attitudes and entrepreneurial personalities and also have entrepreneurial ideas. • Students are able to explain the scope of entrepreneurship and are expected to have entrepreneurial motivation, be able to develop and build mental attitudes and entrepreneurial personalities and also have entrepreneurial ideas. • Students are able to explain the scope of entrepreneurship and are expected to have entrepreneurial motivation, be able to develop and build mental attitudes and entrepreneurial personalities and also have entrepreneurial ideas. Students are able to explain the scope of



	<p>entrepreneurship and are expected to have entrepreneurial motivation, be able to develop and build mental attitudes and entrepreneurial personalities and also have entrepreneurial ideas.</p> <ul style="list-style-type: none"> • Students are able to explain the scope of entrepreneurship and are expected to have entrepreneurial motivation, be able to develop and build mental attitudes and entrepreneurial personalities and also have entrepreneurial ideas
Content	<ol style="list-style-type: none"> 1. Introduction 2. History of poultry development and poultry industry system 3. Concept and development of entrepreneurship 4. Self-introduction and entrepreneurial personality development 5. Self-recognition and personality development 6. Entrepreneurial character 7. Development of entrepreneurial motivation and glancing at entrepreneurial opportunities 8. Development of entrepreneurial motivation and glancing at entrepreneurial opportunities 9. Broiler poultry farm management 10. Discovering and developing entrepreneurial ideas 11. Discovering and developing entrepreneurial ideas 12. Creativity and business plan 13. Business development program 14. Discussion and practitioners
Examination form	<ul style="list-style-type: none"> • Project-Based Learning (30%) • Case Method (20%) • Quizzes (5%) • Assignments (5%) • Midterm exams (20%) • Final exams (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Leonardus Saiman. 2015. Entrepreneurship: Theory of Practice and Cases. Salemba Four: Jakarta.</p> <p>Sumarsono T.G., Supardi. 2021. Entrepreneurship: Strategies Towards Success. Agos Bookstore:</p>



	Jakarta Darmawan A., Handayani E., Wibowo H., TubastuviN., Pratama B.C. 2021. Entrepreneurship, Innovation and Business Legality. UMP Press:Purwokerto
Update date	July 2025



8th Semester



PTN4297 PROPOSAL SEMINAR

Course Name	Proposal Seminar
Code	PTN4297
Semester	VIII
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)
Workload (including teaching hours, self-study hours)	
Credits	1 credit
Required and recommended prerequisites for joining the module	<ul style="list-style-type: none">• Be enrolled in this course• Have passed courses with a total weight of 100 credits
Course Description	This course provides experience for students to submit their research proposals in front of the forum, which is intended to improve the proposed research methodology so that research can be carried out properly and appropriately in accordance with scientific principles
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to apply logical, critical and systematic thinking in the preparation of research plans• Able to identify problems related to the plan for the preparation of the research framework• Able to make data interpretation by compiling various methods and experiments related to the field of animal science• Able to search for data-based literature and the latest information in the preparation of research plans related to the field of animal science• Able to provide information related to plans for scientific experiments in the field of livestock• Able to analyse data of various best techniques and methods that combine theory and practice related to the field of animal science• Able to present research plans both orally and in writing related to the field of animal science



Content	<ol style="list-style-type: none"> 1. Introduction to Research and the Role of Research Proposals 2. Selection and Formulation of Research Problems 3. Literature Search and Theoretical Foundations 4. Formulation of Research Objectives and Benefits 5. Research Approach and Design 6. Population, Samples, and Sampling Techniques 7. Data Collection: Techniques and Instruments 8. Data Analysis and Interpretation of Results 9. Research Ethics and Plagiarism 10. Structure and Format of Research Proposal 11. Research Proposal Presentation Preparation Techniques 12. Strategies for Answering Questions and Criticism 13. Proposal Seminar Simulation 14. Proposal Refinement Based on Seminar Input
Examination form	<ul style="list-style-type: none"> • Systematics of writing (20%) • Element of novelty (10%) • Clarity of the method (20%) • Presentation (20%) • Argument and reasoning (30%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Grading rubric:</p> <p>A ≥ 80</p> <p>B+ = 75-79</p> <p>B = 70-74</p> <p>C+ = 65-69</p> <p>C = 60-64</p> <p>D = 50-59</p> <p>E ≤ 49</p>
Reading list	<p>Creswell, J. W., & Creswell, J. D. (2018). Research design: Qualitative, quantitative, and mixed methods approach (5th ed.). SAGE Publications.</p> <p>Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2019). How to design and evaluate research in education (10th ed.). McGraw-Hill Education.</p> <p>Kumar, R. (2019). Research methodology: A step-by-step guide for beginners (5th ed.). SAGE Publications.</p> <p>Neuman, W. L. (2020). Social research methods: Qualitative and quantitative approaches (8th ed.). Pearson.</p> <p>Punch, K. F. (2014). Introduction to social research: Quantitative and qualitative approaches (3rd ed.). SAGE Publications.</p>
Update date	July 2025



PTN4298 RESULTS SEMINAR

Course Name	Results Seminar
Code	PTN4298
Semester	8
Lecture (Persons responsible)	
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)
Workload (including teaching hours, self-study hours)	
Credits	1 credit
Required and recommended prerequisites for joining the module	<ul style="list-style-type: none">• Be enrolled in this course• Have passed courses with a total weight of 140 credits
Course Description	This course provides experience for students to actively participate in scientific seminar forums and train students in writing thesis research results in the form of scientific papers and delivering them in the seminar forum
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to apply logical, critical and systematic thinking in the preparation of research results• Able to find solutions to problems related to research results• Able to analyse data with various methods and experiments related to research results• Able to evaluate research results related to the latest innovations in the field of animal science• Able to explain the latest methods and experiments related to research results• Able to explain the data of research results adjusted to the development of science related to the field of animal science• Able to present research results both orally and in writing related to the field of animal science



Content	<ol style="list-style-type: none"> 1. Introduction to the Seminar on Research Results 2. Preparation of Research Report 3. Use of Scientific Language in Reports 4. Data Processing and Visualization of Research Results 5. Scientific Presentation Techniques 6. Communication Skills in Seminars 7. Critical Analysis of Self-Research 8. Seminar Simulations and Exercises 9. Research Methodology in Seminars 10. Discussion of Research Results 11. Time Management in Seminars 12. Ethics in Scientific Seminars 13. Seminar Evaluation and Reflection 14. Publication and Development of Research Results
Examination form	<p>Systematics of writing (20%) Element of novelty (10%) Clarity of the method (20%) Presentation (20%) Argument and reasoning (30%)</p>
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Creswell, J. W., & Creswell, J. D. (2018). Research design: Qualitative, quantitative, and mixed methods approach (5th ed.). SAGE Publications. Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2019). How to design and evaluate research in education (10th ed.). McGraw-Hill Education. Kumar, R. (2019). Research methodology: A step-by-step guide for beginners (5th ed.). SAGE Publications. Neuman, W. L. (2020). Social research methods: Qualitative and quantitative approaches (8th ed.). Pearson. Punch, K. F. (2014). Introduction to social research: Quantitative and qualitative approaches (3rd ed.). SAGE Publications.</p>
Update date	July 2025



PTN4299 THESIS

Course Name	Thesis
Code	PTN4299
Semester	8
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)
Workload (including teaching hours, self-study hours)	
Credit points	4 credits
Required and recommended prerequisites for joining the module	<ul style="list-style-type: none">• Be enrolled in this course• Have passed courses with a total weight of 140 credits
Course Description	The thesis aims to introduce and train students in applying science and technology and solving problems found in the field. Research is non-experimental in the form of field research, case studies, or literature studies, with non-experimental research data can be in the form of primary, secondary, or a combination of primary and secondary data, which is still within the scope of the field of animal husbandry.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to apply logical, critical and systematic thinking in the final project• Able to identify problems related to livestock• Able to search for data-based literature and the latest information related to the field of animal science• Able to manage the planning of scientific activities related to the field of animal science• Able to analyse data of various best techniques and methods that combine theory and practice related to the field of animal science• Able to draw scientific conclusions according to coherent and up-to-date knowledge related to the field of animal science• Able to interpret scientific data in writing related to the field of animal science according to environmentally friendly ethics• Able to present scientific data effectively orally related to the field of animal science



Content	<ol style="list-style-type: none"> 1. Introduction to Thesis Writing 2. Selection of Research Topic 3. Problem Formulation and Research Objectives 4. Literature Studies and Theoretical Foundations 5. Research Methodology 6. Data Collection Instruments and Techniques 7. Data Processing and Analysis 8. Interpretation of Research Results 9. Writing a Thesis Report 10. Research Ethics and Scientific Writing 11. Presentation and Seminar of Research Results 12. Time Management in Thesis Writing 13. Thesis Review and Revision 14. Scientific Publication
Examination form	<ul style="list-style-type: none"> • Systematics of thesis writing (20%) • Thesis substance (30%) • Ability to master the substance of the thesis (30%) • The ability to express opinions (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Grading rubric: $A \geq 80$ $B+ = 75-79$ $B = 70-74$ $C+ = 65-69$ $C = 60-64$ $D = 50-59$ $E \leq 49$
Reading list	<p>Creswell, J. W., & Creswell, J. D. (2018). Research design: Qualitative, quantitative, and mixed methods approach (5th ed.). SAGE Publications.</p> <p>Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2019). How to design and evaluate research in education (10th ed.). McGraw-Hill Education.</p> <p>Kumar, R. (2019). Research methodology: A step-by-step guide for beginners (5th ed.). SAGE Publications.</p> <p>Neuman, W. L. (2020). Social research methods: Qualitative and quantitative approaches (8th ed.). Pearson.</p> <p>Punch, K. F. (2014). Introduction to social research: Quantitative and qualitative approaches (3rd ed.). SAGE Publications.</p>
Update date	July 2025