SEM2

Name of the programme module	Environmental Protection
Programme module type (obligatory/optional)	Obligatory
Year of the study programme	I
Term for a given field	II
ECTS credits together with contact/no contact hours division	2 (1/1)
Academic unit offering the module	Toxicology and Environmental Protection Department
Module objective	To make students acquire knowledge and skills related to issue of environmental protection
Educational results	Knowledge: Has extended knowledge of ecology and environment protection. Knows and describes biological effects of the environment pollution on health of people and animals. Has extended knowledge of processes occurring in ecosystems, factors disturbing their functions and methods of limiting the negative impact of chemicals on the environment, health of people and animals
	Skills: Can define negative environmental and biological effects of application of natural and synthetic chemicals in agriculture, industry and municipal services management and methods used to minimise negative effects of environment pollution. Can describe and assess factors related to the environment anthropogenisation affecting production of animals, quality of animal products and impact of animal production on public health and natural environment U3. Can search for, analyse and use necessary information derived from various sources to prepare and present a research paper.
	Social skills: Is aware of social, professional and ethical responsibility for production of safe foodstuffs as well as shaping and condition of the environment.
Contents of the education module	Terminology related to ecology, environmental protection and nature conservation. International environmental protection and nature conservation conventions and organisations. Legal regulations related to nature conservation in Poland. Environmental protection programme, natural environment monitoring, veterinary monitoring. Processes occurring in ecosystems and factors disturbing their functions. Environmental protection – pollution and protection of air. Pollution and protection of water. Waste water treatment methods. Causes of soil degradation, their protection and reclamation. Protection of the environment against waste. Environmental noise and vibrations. Transport and communication as a source of hazardous substances in the air. Natural disasters and their influence on environment degradation. Hazard of radiation. Role of a veterinarian in environmental protection. Environment pollution and health of people and animals – food safety.
Planned didactic forms/activities/methods	Lecture; Recitation and laboratory classes (multimedia presentations, quality tests); Achievement test; Discussion

Name of the programme module	Histology and embryology 2
Programme module type (obligatory/optional)	Obligatory
Year of studies for a given field	I
Term for a given field	II
ECTS credits together with contact/no contact hours division	4 (2.5/ 1.5)
A unit providing the course	Department of Anatomy and Histology of Animals
Module objective	Acquainting students with detailed histology: microscopic structure and ultrastructure of organs in respective systems, their functions and differences across species. Acquainting students with veterinary embryology: structure and classification od mammalian placentas.

Educational results	Knowledge: Knowledge of microscopic structure of organs in respective animal systems; knowledge of the structure of mammalian placentas. Knowledge of how the tissue structure and its function are linked together; knowledge of the structure and the functions of placentas. Understanding processes that take place in respective tissues, organs and placentas
	Skills: Ability to independently recognise the microscopic structure of organs. Ability to analyse the structure of mammalian placentas. Ability to find a link between the structure and the function of tissues, organs and placentas
	Social competence: Ability to share the knowledge of detailed histology and veterinary embryology in an academic milieu and outside it (among other social groups). Ability to cooperate in a group and assume different roles; understanding the importance of lifelong learning and self-improvement
Content of the programme module	Histological structure of the integumentary system, organs in the circulatory, lymphatic, digestive, respiratory, excretory, reproductive systems, endocrine glands, which will enable acquisition of basic knowledge of detailed animal histology. Connection of tissue and organ structure with their functions. Acquaintance with the course of development of mammalian placentas and their functions will act as an introduction to the implementation of further stages of the studies. The content of the module is indispensable and it is connected with several theoretical and clinical subjects in veterinary medicine.
Planned didactic forms/actions/methods	Lecture, multimedia presentations, laboratory, microscopic analysis of histological preparations, discussion, cases with slides, the department's website, oral review, test.

Name of the programme module	General and Veterinary Genetics
Programme module type (obligatory/optional) field	Obligatory
Year of the study programme	I
Semester of the study programme	II
ECTS credits together with contact/no contact hours division	2 (1.44 / 0.56)
A unit providing the course	The Department of Biological Bases for Livestock Production
Module objective	The aim of the module is to familiarise students with the basics of general and molecular genetics from material and molecular basics of heredity to elements of genetic engineering
Educational results	Knowledge: Knows basic concept categories and genetic terminology Knows and understands basic mechanisms and genetic processes of inheriting the structure of chromosomes and genes, processes of replication, transcription and translation, principles of encoding genetic information, regulation of gene expression, gene and chromosome mutation.
	Skills: Student is able to think logically, understand literature on genetics in Polish and interpret genetic data
	Social competence: Student accurately identifies and solves genetic problems, has the ability to self-educate and the awareness of the developments in genetic disciplines
Content of the programme module – a concise description (about 100 words).	Knowledge: written test. Skills: solving tasks independently Social competence: participation in a discussion
Contents of the education module	Introduction to genetics. Chronology of important events. Material basics for heredity. Cytogenetics, cell division, gametogenesis. Basics of molecular genetics. The genome structure of prokaryotic and eukaryotic organisms. Mutagenesis, molecular mechanisms of mutation. Point mutation, chromosomal aberration, genomic mutation. Diseases and inherited abnormalities, basics of cancerogenesis. Genetic basics of immunity and resistance. Genetics of development. Non-nuclear genetics, parental influence. Gene expression and regulation. Inheriting qualitative and quantitative traits. Human genetics – basics. The importance of genetics in medicine, agriculture, breeding, basics of transgenics.
Planned didactic forms/activities/methods	Lectures, laboratory classes, recitation classes, solving tasks, discussion

Name of the programme module	Agronomy
Programme module type (obligatory/optional)	Obligatory
Year of studies for a given field	I
Term for a given field	II
ECTS credits together with contact/no contact hours division	1 (0.8/0.2)
A unit providing the course	Department of Herbology and Plant Cultivation Techniques
Module objective	Acquisition of knowledge of natural and agrotechnical factors that shape plant yielding, agricultural systems, characteristics and significance of arable crop groups, the collected crops and their use.
Educational results	Knowledge: Knowledge of natural and agrotechnical requirements of arable crops. Knowledge of basic plant production systems and principles of modern agricultural production. Knowledge of respective arable crop groups, yielded harvest and the ways of developing it.
	Skills: Ability to plan the cultivation of the most important crops.

	Social competence: Awareness of how agrotechnical factors influence the quality of crops and the condition of environment.
Content of the programme module	It encompasses the knowledge of plant cultivation, the role of natural (soil, climate, terrain relief, biocoenose) and agrotechnical factors (sowing, variety, fertilization, protection, harvest) in shaping the harvest, agricultural systems (conventional, ecological, sustainable) profile, usefulness and development of the produce.
Planned didactic forms/actions/methods	Lecture, multimedia presentation, discussion.

Name of the programme module	Biostatistics and methods of documentation
Programme module type (obligatory/optional)	Obligatory
Year of studies for a given field	I
Term for a given field	II
ECTS credits together with contact/no contact hours division	2 (1/1)
A unit providing the course	Department of Applied Mathematics and Computer Science
Module objective	Acquainting students with basic concepts of the theory of probability and mathematical statistics; ability to use descriptive statistics for elementary analysis of experimental data; knowledge of statistical inference – estimation, hypothesis testing; knowledge of and ability to use computer software for statistical data analysis (e.g. Excel).
Educational results	Knowledge: Knowledge of basic concepts of the theory of probability and mathematical statistics (probability, random variable, distribution, distribution function, density, population and sample, estimator, confidence interval, test). Knowledge of basic distribution and estimator types used in mathematical statistics and ability to describe their characteristics. Ability to demonstrate model confidence intervals and tests
	Skills: Ability to apply a preliminary (descriptive) experimental data analysis. Ability to adapt model examples of statistical inference in given situations. Ability to use computer software (e.g. Excel) in statistical analysis and inference
	Social competence: A need for improvement of one's knowledge and skills in the time of rapid technological growth. Awareness of the need for mathematical modelling of phenomena for the purpose of scientific cognition.
Content of the programme module	Descriptive statistics (construction of stem-and-leaf displays, determining basic characteristics: measures of position, dispersion, asymmetry and concentration) Elements of the theory of probability (probability, random variable, distribution function, density, discrete and continuous probability distributions – examples: binominal distribution, Poisson distribution, normal distribution, Student's t-distribution, Chi-square) Point and interval estimation (construction of confidence intervals for a mean, mean difference, variance, variance ratio) Parametric tests (mean and variance hypothesis testing) Non-parametric tests (testing the characteristics independence and distribution conformity hypotheses)
Planned didactic forms/actions/methods	Lecture, computer laboratory, tutorials, consultations

Name of the programme module	Protection of Intellectual Property
Programme module type (obligatory/optional)	Obligatory
Year of studies for a given field	I
Term for a given field	II
ECTS credits together with contact/no contact hours division	1 (0.5/0.5)
A unit providing the course	Division of Veterinary Microbiology
Module objective	Acquainting the students with the knowledge of legal protection of different forms of industrial and intellectual property, in particular knowledge as an intellectual property, copyright, protection of inventions, trademarks, industrial and utility designs, geographical indications, acquisition of patents, as well as with the act on fighting unfair competition and the act on database

	protection.
Educational results	Knowledge: General knowledge of the principles of legal protection of various forms of intellectual and industrial property. Ability to embrace legal provisions and the knowledge of applicable law with the use of standards. Ability to obtain, interpret and use the principles of intellectual property protection and the right to industrial property protection.
	Skills: Ability to duly prepare documents and opinions so they meet the needs of courts as regards the patent law and inventions. Ability of fluent application of PIP legal acts on communication with appropriate bodies of government administration. Ability to use the information gathered in information systems without breaching the law.
	Social competence: Ability to cooperate and work in a group. Awareness of the significance of intellectual property protection in a given social order. Awareness of the need to permanently broaden the knowledge about intellectual protection, ideas and the acquisition of new patents.
Content of the programme module	Protection of Intellectual Property: 1. Introduction to the Protection of Intellectual Property Legal bases: international and domestic. Historical overview of the PIP development in the world. 2. The concept of individual property, its formation and development. 3. Legal protection of works: copyright and other. 4. The object of copyright. Joint authorship and other forms of authorship. Moral rights and property rights. 5. Industrial property right. Idea, invention, innovation, trademark. Utility and industrial design. 6. The role of intellectual property in the activities of a higher education institution. 7. The role of the patent attorney in legal protection of inventions and trademarks. 8. Patent protection in territorial terms. Domestic, European and international procedure of granting patents. Consequences of patent law breach. 9. Other applicable legal acts, inter alia, the act on fighting unfair competition and the act on database protection.
Planned didactic forms/actions/methods	Lecture, multimedia, discussion

Name of the programme module	History of veterinary medicine and deontology.
Programme module type (obligatory/optional) field	Obligatory
Year of the study programme	I
Semester of the study programme	II
ECTS credits together with contact/no contact hours division	1.0 (0 .7/0.3)
A unit providing the course	Department and Clinic of Internal Diseases of Animals, Sub-Department of Internal Diseases of Farm Animals and Horses
Module objective	The aim of the module is to provide students with the ground for: understanding professional ethics, linking historical facts that are related to the profession of a veterinary doctor, learning about the relation between the doctor, the patient, and the patient's owner, acquiring the skills of ethical medical thinking, correctly using real terms, terminology and appropriately interpreting basic legal documents that are related to the profession.
Educational results	Knowledge:The student shows the knowledge of history, terminology and basic legal documents regarding the profession; Understand the principles of deontology and is familiar with the principles of professional ethics
	Skills: Knows the basic laws and mechanisms underpinning history and is able to notice causal links between phenomena and combine them together into good veterinary practice
	Social competencies: Observes the principles of professional ethics ; Developed the habit of lifelong knowledge and skill building; Possesses the skill of effective interpersonal communication and is able to take action under uncertain and stressful conditions; is able to easily establish the working relationship with the animal owner and colleagues from a medical team; is capable of effective and efficient management and reasonable task-planning
Content of the programme module	The lecture programme of the module includes:

	Ancient veterinary medicine History of veterinary medicine in the Polish territory History of the control of infectious animal diseases Veterinary procedures and instruments Scientific research and veterinary literature History of veterinary education Research institutes and veterinary medicines across centuries Organisation of veterinary health care in Poland Professional and scientific veterinary organisations Military veterinary medicine Veterinary and sanitary supervision of the slaughter, marketing and hygiene of animal products Veterinary ethics and deontology Veterinary self-government and corporate organisations Veterinary signs and symbols
Planned didactic forms/activities/methods	Multimedia-based, interactive lecture, field classes, self-learning. The assessment made by the lecturer and listeners is a measure of the critical approach of the author of the presentation to the literature regarding the subject. Consultations

Name of the programme module	Bioethics
Programme module type (obligatory/optional)	Obligatory
Year of studies for a given field	I
Term of studies for a given field	II
ECTS credits together with contact/no contact hours division	2 (1.32 / 0.28)
A unit providing the course/ Module objective	The objective of the module: Acquisition of basic philosophical, ethical and bioethical concepts Familiarising students with basic bioethical trends, Demonstrating the relationship between ethical and moral, legal and administrative spheres Studies over human conscience as an individual interpretation of natural law, Shaping responsibility for oneself and another human being, as well as any other living specimen both in individual and collective lives.
Educational results	Knowledge: After the completion of the course the student: Knows how to describe individual eras that went down in the history of the development of philosophical, ethical and bioethical trends that became a foundation of relevant relations with the surrounding reality, Knows the most important ethical and moral schools, as well as a new bioethical perception of the reality of the world of fauna
	Skills: The student knows how to interpret different moral and ethical proposals that the modern world has to offer. Knows how to communicate with other entities using the conceptual framework that is typical for ethical and moral sciences, as a complementation of their professional language.
	Social competence: The student is able to hold a conversation on topics that may appear hard or controversial, which concern proper interpersonal relations between the human being and the world of animals, as well as the rights and obligations that arise from it. Is able to discern the element of medical compassion in these relations. It concerns both the lifestyle and a proper way going through the university period. Is effective with the creation of the professional community on the foundation of respecting human dignity and freedom, Is effectively involved not only in the completion of the academic programme at the Life Sciences University in Lublin, but also in social activity.
Content of the programme module – a concise description (about 100 words).	Lectures: The content relates to philosophical and ethical sciences, the law, conscience and lifestyle, basics of the profession and possibly a medical vocation. For this reason the issues covered include definitions and terminology used by given, also contemporary, ethical trends. The course offers an in-depth analysis of ethical personalism which draws attention to the development of the following attitudes: responsibility for another person, responsibility both for the type and effects of human work, i.e. for

	the effects of human activity in relation to the society and exerting influence on others by setting an example of one's own good life.
Planned didactic forms/activities/methods	Lectures, discussion, short papers prepared by student groups

Name of the programme module	Physical education
Programme module type (obligatory/optional)	Obligatory
Year of studies for a given field	I
Term of studies for a given field	II
ECTS credits together with contact/no contact hours division	1 contact point
A unit providing the course	Physical Education and Sports Study
Module objective	The objective of the module is to acquaint students with methods, means and forms of organisation used in the classes of physical education with the purpose of developing efficiency and physical fitness, as well as health-improving habits
Educational results	Knowledge: Basic knowledge of health-improving significance of physical activity, hygiene and health-improving lifestyle. Knowledge of basic general physical exercises and the rules of team sports. Awareness of cause and effects links between systematic physical activity, health and physical fitness.
	Skills: Recreational motor skills which make various life situations easier. Ability to design and organise health–improving activities that also develop physical fitness (selection of organizational forms, exercises, methods and means). Ability to evaluate one's own physical fitness.
	Social competence: Awareness of the responsibility for one's own health and keeping fit. Ability to cooperate and work in a group assuming various roles. Understanding the importance of lifelong learning, ability to inspire and organise learning processes for others in terms of motor skills.
Content of the programme module	The exercises involve: improving technical and tactical elements of selected team games both formally and recreationally:basketball – improving passing, catching, dribbling and shooting on target in game elements and the game proper, practising man-for-man marking and zone marking; recreational school game and the game proper volleyball – improvement of passing, digging, serving, setting and hitting, as well as blocking and spotting. Strengthening exercises in the gym, methods of selecting the load – personal training, circular training. Exercises with accompanying music that improve motor coordination and strengthen muscles, with the use of balls, steppers, dumbbells and body weight in choreographies. Exercises that shape the physical performance of the body with the use of aerobic equipment (stationary bicycles, treadmills, rowing machines) – methods of keeping fit through aerobic and anaerobic exercises
Planned didactic forms/actions/methods	practical classes in the form of exercises; conversations that promote physical activity and the principles of a healthy lifestyle

Name of the programme module	Animal anatomy 2
Programme module type (obligatory/optional)	Obligatory
Year of studies for a given field	I
Term for a given field	II
ECTS credits together with contact/no contact hours division	6 (3.7/2.3)
A unit providing the course	Department of Anatomy and Histology of Animals
Module objective	Acquisition of abilities and knowledge of the anatomy of domestic animals (horses, cows, sheep, pigs, dogs, cats, birds) as well as functional interrelations between respective organs and systems in an animal body.

Educational results	Knowledge: Detailed knowledge of the body structure in domestic animals. Knowledge of the position, structure and basic functions of respective organs in domestic animals. Knowledge of and ability to describe differences in the structure of organs and systems in different species of domestic animals
	Skills: Ability to seek, comprehend, analyse and implement necessary information from various literature sources. Ability of accurate verbal communication with different entities. Ability to put into practice the knowledge of anatomy of domestic animals.
	Social competence: Understanding the importance of lifelong learning. Ability to cooperate and work in a group assuming various roles. Ability to popularise basic knowledge of animal anatomy among friends and acquaintances. Awareness of the need for targeted further self-improvement
Content of the programme module	Acquisition of detailed knowledge of animal anatomy: acquisition of macroscopic anatomy of respective systems in domestic animals (muscular, nervous, circulatory). Identification of animal species based on characteristic anatomy of organs and structures: ability to use anatomical veterinary terminology in Polish, Latin, Greek, as regards clinical needs.
Planned didactic forms/actions/methods	Lecture, multimedia presentations, slides, transparencies, information board, museum exhibits. Dissection classes - preparation of animal limb and head muscles

Name of the programme module	Biochemistry
Programme module type (obligatory/optional)	Obligatory
Year of studies for a given field	I and II
Term for a given field	II and III
ECTS credits together with contact/no contact hours division	5.0 (3.0/2.0), 6.0 (3.2/2.8)
A unit providing the course	Department of Biochemistry
Module objective	The aim of teaching biochemistry is to acquaint students with biochemical transformations together with their regulation, which take place in cells and tissues, and which are indispensable for the proper functioning of the entire organism, as well as with some laboratory techniques used in a biochemical laboratory. The acquaintance with these transformations is necessary for an integration of theoretical and practical knowledge and the understanding of pathological processes at the cellular level and the interpretation of laboratory test results, which are all acquired during clinical classes.2
Educational results	Knowledge: Ability to present metabolic transformation of macromolecules and their regulation at a cellular level. Ability to describe the tissue specificity of metabolism. Ability to apply the knowledge of analytical methods
	Skills: Ability to recognise interrelations between biochemical transformations and clinical symptoms of metabolic diseases. Ability to determine selected biochemical parameters
	Social competence: Awareness of the need for further education and self-improvement. Open to active participation in group
Content of the programme module	Lectures: Amino acids, peptides, proteins – structure, properties, biological significance. Enzymes – structure, divisions, specificity, functioning mechanism, enzyme kinetics, types of inhibition. Enzymes in laboratory diagnostics. Co-enzymes and prosthetic groups – structure, functions, biological significance. Nucleic acids – structure, properties, biological significance. Biochemical mechanisms of transcription and translation. Amino acids metabolism, neutralisation of ammonium ions. Metabolism of carbohydrates and lipids – significance, energy, regulation. Metabolism integration, selected issues referring to detoxification as well as tissue and body fluid specificity.Tutorials: qualitative and quantitative determination of amino acids, proteins, sugars and other components of body fluids. Kinetics of enzymatic reactions, chromatography, electrophoresis, testing the activity of indicative enzymes and hydrolase in the gastrointestinal tract, evaluation of the biochemical parameters of blood, urine, milk and bile.

Planned didactic forms/actions/methods	Laboratory classes, lectures, self-study materials on the unit's website, online materials available upon entering a password (VikiWet, Casus)