Name of the programme module	Animal anatomy 3
Programme module type (obligatory/optional)	Obligatory
Year of studies for a given field	II
Term for a given field	III
ECTS credits together with contact/no contact hours division	5 (3,3/1,7)
A unit providing the course	Department of Animal Anatomy and Histology
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 English, Latin, Greek, as regards clinical needs.
Planned didactic forms/actions/methods	Lecture, multimedia presentations, slides, transparencies, information board, museum exhibits. Dissection classes.

Name of the programme module	Biochemistry 2
Programme module type (obligatory/optional)	Obligatory
Year of studies for a given field	II
Term for a given field	III
ECTS credits together with contact/no contact hours division	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 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. Practicals: testing the activity of indicative enzymes and hydrolases 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, movies)

Name of the programme module	Animal Breeding and Husbandry
Programme module type (obligatory/optional)	Obligatory
Year of studies for a given field	II
Term for a given field	III
ECTS credits together with contact/no contact hours division together with contact/no contact hours division	3 (2/1)
A unit providing the course	Institute of Animal Breeding and Biodiversity Conservation
Module objective	Acquainting students with biological principles of animal production, conditions of husbandry and breeding for basic farm animals (cattle, pigs, horses, sheep, goats, poultry).
Educational results	Knowledge: Extended knowledge of biology of farm animals. Knowledge of husbandry of livestock together with their species and races, genetic bases for their breeding and improving.
	Skills: Ability to apply the acquired basic knowledge when solving problems in the course of future education. Ability to explain the principles of animal husbandry and breeding, select animals for matching, reproduction and selection, evaluate the conditions that ensure animal health and welfare.
	Social competence: Ability to act autonomously and formulate own opinions, ability to take responsibility for decisions and awareness of their effects, with particular attention to those decisions which affect animal and human health.
Content of the programme module	The subject pertains to the issues connected with husbandry and breeding of farm animals. Introduction of issues that regard reproduction, animal care from birth all throughout their growth and development. Description of races and genetic and environmental factors that form the practical value of animals. Underlining the importance of native breeds in contemporary husbandry and breeding. Discussing the lines of possible use of particular farm animals species. Discussion of basic issues as regards: keeping breeding records, duties connected with husbandry, evaluation of the practical and breeding value, animal selection for matching and crossbreeding. Discussion of the systems of animal maintenance and feeding with a particular reference to the welfare of animals and zootechnical prophylaxis.
Planned didactic forms/actions/methods	Lecture, laboratory classes, tutorials, discussion, group work, field trip, presentations prepared by students, conversation, project method

Name of the programme module	Technology of Animal Production
Programme module type (obligatory/optional)	Obligatory
Year of studies for a given field	II
Term for a given field	III
ECTS credits together with contact/no contact hours division	2 (1.3/0.7)
A unit providing the course	Institute of Animal Breeding and Biodiversity Conservation
Module objective	Acquainting students with the organisation and functioning of farms that specialise in animal production.
Educational results	Knowledge: Extended knowledge of farm animals biology that is suited for direct application in animal production. Knowledge of welfare, natural environment protection, principles of by-product utilisation and animal production waste.
	Skills: Ability to apply the acquired basic knowledge when solving problems in the processes of animal production. Ability to describe and evaluate factors that influence animal production, animal behaviour and the quality of food of animal origin and the influence of animal production on public health and natural environment.
	Social competence: Awareness of the social and professional responsibility for the welfare of animals.
Content of the programme module	The course covers the issues related to the organisation of animal production on a farm. The course encompasses technologies of milk production, livestock, eggs, wool, feathers as well as fur and coat materials. It describes the principles of how specialist livestock farms function and appropriate legal provisions. It describes livestock buildings, rooms and installations used by respective animal species as well as work organisation, prophylactic and tending procedures performed in livestock farms. It also encompasses planning the production in a commercial farm together with all the necessary production means.
Planned didactic forms/actions/methods	Lecture, laboratory classes, tutorials, discussion, group work, field trip, presentations prepared by students, conversation, project method

Name of the programme module	Veterinary Economics
Programme module type (obligatory/optional)	Obligatory
Year of studies for a given field	II
Term for a given field	III
ECTS credits together with contact/no contact hours division	1 (0,7/0,3)
A unit providing the course	
Module objective	The main aim of the Veterinary Economics course is to acquaint students with fundamental terms and problems of modern economics and to convey knowledge about basic mechanisms shaping economic processes and principles of consumers and producers economic decision making with a particular focus on the veterinary services. An additional aim of the course is to acquaint students with the basic structure and content of a business plan.
Educational results	Knowledge: Knowledge of the fundamental microeconomic issues and the criteria of consumers and producers decision making. Knowledge of the main parts of a business plan and their content.
	Skills: Ability to analyse and interpret the processes of adjustments in the market. Ability to prepare business plan for a startup firm offering veterinary services.
	Social competence: Awareness of basic market mechanisms and ability to actively participate in debates on microeconomic topics Awareness of the need for further education and self-improvement.
Content of the programme module	Key terms and problems of economics. Market mechanisms. The market forces of supply and demand. Elasticity and its application. Government policy: price control policies and taxation. Structure and content of a business plan, SWOT analysis, PEST analysis, Porter's Five Forces, Marketing strategy, Assets and sources of funds of an enterprise, Financial analysis
Planned didactic forms/actions/methods	Lectures with multi-media presentation, discussion

Name of the programme module	Animal nutrition and feeding stuffs
Programme module type (obligatory/optional)	Obligatory
Year of studies for a given field	II
Term for a given field	III
ECTS credits together with contact/no contact hours division	4 (2.7/1.3)
A unit providing the course	Institute of Animal Nutrition and Bromatology
Person responsible	Edyta Kowalczuk - Vasilev, PhD
Module objective	The aim of this course is to acquaint a student with physiology of nutrition, the role of particular nutrients in organism, nutritional requirement of different species of animals and current recommendations, as well as nutritional value of feeds. Students will acquire skills to determine the nutritional requirement of animals, diets formulation and understand practical aspects of animal feeding.
Educational results	Knowledge: Knowledge of digestion physiology and nutrients metabolism and energy transformation in animal organism, as well as their impact on their health and performance. Knowledge of the nutritional value of different feeds, the role of their processing, the adverse effects of anti-nutritional factors in feeds and the role of feed additives. Understanding nutrient requirements of particular groups of animals, depending on their species, age and physiological stage.
	Skills: Ability to make calculations and evaluate the nutritional value of feed mixture or a feed ration. Ability to evaluate a manner of nutrition as regards nutritional norms and recommendations, as well as determine the cause of metabolic diseases and other problems in animal breeding.
	Social competence: Awareness of the influence of nutrition on production effects and the animal health, as well as an ability to share the knowledge outside the academia (on farms, among veterinary doctors and animal producers). Awareness of the need to permanently broaden the knowledge of how different nutritional factors influence the functioning of animal organism.
Content of the programme module	Basic nutrients (crude protein, crude fiber, ether extract, nitrogen free extracts, crude ash) and their digestion, absorption and metabolism after absorption. Minerals and vitamins (their role, requirements - physiological and nutritional needs, resources). Divisions of resources of animal nutrition: roughages (assortment, factors determining their nutritional value) and methods of their preservation (drying, ensiling); grains; leguminous seeds; by products of food industry; feed additives. Methods of feeds evaluation. Digestibility of feed nutrients - methods of estimation. Nitrogen balance. Energy balance (utilization of gross energy of feed by the animals' organisms). Units of energy and protein value of feeds and animal requirements. Metabolism and energy transformation. Evaluation systems of feeds intended for monogastric animals and ruminants. Feed intake (physiological determination, measure). Nutritional requirements of particular groups of animals (ruminants, horses, pigs, poultry, dogs and cats). Nutrient requirements for growth, lactation and reproduction. Feeding models of animals. Formulation of diets for different groups of animals.

	Nutrition and health consequences in animals. Influence of feed components on the quality of food of animal origin.
Planned didactic forms/actions/methods	Lectures, Multimedia presentations, Discussions; Analytical laboratory analyses; Diets' formulation using computer programs; Field study (Farms visiting).

Name of the programme module	Animal physiology
Year of studies for a given field	II
Programme module type (obligatory/optional)	Obligatory
Term for a given field	III
ECTS credits together with contact/no contact hours division	5 (3.6/1.4)
A unit providing the course	Department of Animal Physiology
Module objective	Acquainting students with physiological mechanisms of the functions of animal body and the regulation of these mechanisms, with a particular reference to the processes responsible for maintaining the homeostasis of the body.
Educational results	Knowledge: Ability to describe life processes taking place in an animal body at the cellular, organ and systemic level. Ability to describe the activities, functions and the interaction of systems, organs and tissues. Understanding basic mechanisms of physiological regulation of cellular, tissue and organ activity and their mutual integration on the level of the organism
	Skills: Ability to take measurements, evaluate and interpret basic physiological parameters of the body as health indicators. Ability to define the physiological state as an adaptation of the ever-changing environmental factors. Ability to use the basic principles of physiology in specialist learning.
	Social competence: Awareness of the importance of the body's physiological state for its health, animal production and the quality of food of animal origin. Awareness of the need to permanently broaden the knowledge of how different factors interact with the functions of animal organism.
Content of the programme module	Electrophysiological principles of excitability. Functional organisation of the nervous system. Physiology of skeletal and smooth muscles. Physiology of blood – homeostasis, hemopoesis, defence mechanisms, haemostasis, blood groups. Basic haematological parameters. Physiology of the gastrointestinal tract – regulation of food intake, digestive processes, absorption, motor activity. Specificity of the gastrointestinal tract activity in ruminants. Physiology of bone tissue.
Planned didactic forms/actions/methods	Lecture, multimedia presentations, films, virtual laboratory, performance of in vivo circulatory and spirometry tests, biochemical determinations and haematological analyses, discussions, laboratory class report.