

## SEM 7

Name of the programme module	Veterinary parasitology and invasiology 2
Programme module type (obligatory/optional)	Obligatory
Year of studies for a given field	IV
Term for a given field	VII
ECTS credits together with contact/no contact hours division	3 (1.5/1.5)
A unit providing the module	Department of Parasitology and Invasive Diseases
Module objective	Discussion of the parasitic nematodes and ectoparasites in humans and animals both in Poland and in the world, as well as parasitic diseases caused by these groups of parasites, which are significant from the economic, sanitary and invasiological point of view. Awareness of the significance of parasitic zoonoses (group of nematodes and outside parasites. Presentation of the principles of modern diagnostics, as well as therapies and prophylaxis of invasive diseases caused by nematodes and ectoparasites Coexistence of parasites and clinical correlations.
Educational results	Knowledge: Knowledge of concepts from the field of parasitology and general invasiology, e.g. the parasitic spreading route. Knowledge of the most common parasitic invasions in people and animals (protozoans, trematodes, tapeworms). Knowledge of parasitological diagnostic methods, antihelminthics and basic principles of therapies and prophylaxis of parasitic diseases (protozoans, trematodes, tapeworms)
	Skills: Ability to conduct a parasitological examination and recognise a given invasion. Ability to apply appropriate treatment of basic disease entities and suggest a suitable prophylaxis (protozoans, trematodes, tapeworms)
	Social competence: Awareness of animal parasitic disease hazard (protozoans, trematodes, tapeworms)
Content of the programme module	A review of nematode invasion in carnivores, horses, ruminants, pigs, birds and humans. Strategies of fighting off nematode invasions as well as available medicines used in the therapy of nematode induced diseases. Ectoparasites of carnivores, humans, pigs, horses, sheep and methods of fighting them. Available preparations for combating outside parasites. Environmental conditioning of invasions (protozoans, helminths, ectoparasites) and an environmental contamination with parasitic forms in the context of human and animal health. Parasitoses of game animals (hares, roes, deer, boars). Parasitic zoonoses.
Planned didactic forms/actions/methods	Lectures, tutorials, multimedia presentations, live demonstrations, practical classes (including microscopy, macroscopic preparations (fixed), laboratory tests, parasitic preparation, post-mortem examinations

Name of the programme module	Internship –parasitology
Programme module type (obligatory/optional)	Obligatory
Year of studies for a given field	III or IV
Term for a given field	VI or VII
ECTS credits together with contact/no contact hours division	1 ( 0.5/0.5)
A unit providing the course	Department of Parasitology and Invasive Diseases, Institute of Biological Bases of Animal Diseases
Module objective	The aim of the classes is to improve the practical skills which are useful in diagnostics and treatment of parasitic diseases through a practical participation of students in diagnostic works in a parasitological laboratory.
Educational results	Knowledge: The knowledge of basic health and safety at work regulations for a parasitological laboratory. The knowledge of basic diagnostic methods required in parasitological diagnostics.
	Skills: Ability to conduct a basic parasitological examination.
	Social competence: Awareness of the parasitic zoonoses threat.
Content of the programme module	Discussion of health and safety at work regulations as regards diagnostic laboratories. Students learn how to use basic equipment in a parasitological laboratory. Faecal examination – macroscopic, microscopic (thin layer smear, stained smear, flotation, decantation, a flotation and decantation method, MC Master quantitative method) Larvascopy methods, nematode larvae culture, serological methods. Scrape test, Examining soil in search for parasitic forms. Parasitological section
Planned didactic forms/actions/methods	Tutorials, practical classes / including laboratory classes, sections,

Name of the programme module	Milk hygiene
Programme module type (obligatory/optional)	Obligatory
Year of studies for a given field	IV
Term for a given field	VII
ECTS credits together with contact/no contact hours 2division	3 (2/1)
A unit providing the course	Department of Hygiene of Food of Animal Origin
Module objective	Acquainting the students with sanitary, veterinary and technological aspects of obtaining and processing milk in order for them to be prepared to discharge their duties connected with the official supervision of processing milk
Educational results	Knowledge: Knowledge of legal acts that regulate the principles of sanitary and veterinary supervision over obtainment and processing of milk. Knowledge of hygienic requirements, technological processes and HACCP procedures in milk processing. Knowledge of laboratory milk testing methods and dairy products to the extent necessary to duly discharge the duties of sanitary and veterinary supervision.
	Skills: Ability to interpret and apply suitable regulations of the food law while discharging the duties of sanitary and veterinary supervision over milk processing. Ability to select appropriate methods and techniques of milk and dairy products testing. Ability to correctly describe and evaluate sanitary conditions on every level of milk obtainment and processing.
	Social competence: Awareness of the responsibility for the consumer's safety as regards the supervision, as well as an ability to formulate opinions as regards their occupation. Understanding of the need for continuing education in connection with the progress of science and technological advancement.
Content of the programme module	The essence of the 'Milk hygiene' programme module is the acquainting the students with: a) the principles of sanitary and veterinary supervision, obtainment and processing of milk pursuant to the existing legal regulations, b) competence of the official veterinary doctor while discharging the duty of a supervisor, c) technological processes in milk processing, d) HACCP system in dairy production, e) methods of testing milk and dairy products.
Planned didactic forms/actions/methods	Lectures, laboratory classes, field classes in a creamery

Name of the programme module, also in English	Diagnostic imaging
Programme module type (obligatory/optional) field	Obligatory
Year of the study programme	IV
Semester of the study programme	VII
ECTS credits together with contact/no contact hours division	4 (2.4/1.6)
A unit providing the course	Laboratory of Radiology and Ultrasonography
Module objective	To learn about diagnostic imaging techniques, the basics of the analysis of x-ray, ultrasound and computed tomography images and endoscopy, and the principles of radiation protection within the set hour limit. To acquire the skills of choosing the appropriate method of diagnostic imaging and interpreting the achieved results in different disease conditions and different species of animals.
Educational results	Knowledge: Student acquired the knowledge necessary to evaluate the results of x-ray and ultrasound tests, and to formulate a diagnosis (including a differential diagnosis)
	Skills: Student has the skill of interpreting imaging results correctly and is able to formulate a diagnosis (including a differential diagnosis); shows the skill of using diagnostic apparatus, including radiographic and ultrasound apparatus; is able to produce a clear case narrative and maintain documentation in accordance with applicable rules and regulations and in a form that is comprehensible both to the owner of an animal and to other doctors
	Social competencies: Student is capable of independent action, formulates his or her own opinions, assumes responsibility for the taken decisions and is aware of their influence on human and animal health within the scope of diagnostic imaging; is able to set priorities to implement tasks, correctly identifies and resolves dilemmas related to the profession, observes the principles of ethics and veterinary deontology; is aware of his or her own limitations, understands that continuing professional education and self-improvement are essential
Content of the programme module	Advantages and limitations, indications and contraindications for the use of particular diagnostic imaging techniques; radiation protection, design and types of x-ray devices, principles for carrying out an x-ray examination, interpretation of thoracic and abdominal lesions; methods of contrast examinations, radiological image of a bone during osteogenesis and after reaching skeletal maturity, bone fracture and healing, bone inflammation and bone neoplasms, degenerative bone and joint diseases; preparation of a patient for a CT scan, basics of the interpretation of a computed tomography image; documentation of the conducted examinations; apparatus, image formation, artifacts in ultrasound imaging; basic principles of abdominal

	ultrasound imaging and diagnosis of abdominal lesions; endoscopy: endoscopic instruments, preparation of a patient for the examination; basic principles of endoscopy
Planned didactic forms/activities/methods	Lectures, multimedia presentations, practical classes, discussion, oral examination

Name of the programme module	Veterinary Toxicology
Programme module type (obligatory/optional)	Obligatory
Year of studies for a given field	IV
Term for a given field	VIII
ECTS credits together with contact/no contact hours division	4 (3.04/0.96)
A unit providing the course	The Institute of Toxicology and Environmental Protection
Module objective	Acquisition of knowledge and skills of animal poisoning
Educational results	<p><b>Knowledge:</b> Knowledge of the mechanisms of pathophysiological changes formation on the sub-cellular, cellular, tissue, organ and systemic level in the course of animal poisoning. Knowledge of basic concept and toxicological terms, poisoning-inducing agents in animals, knowledge and ability to describe the principles of poisoning diagnostics and treatment, the knowledge and ability to provide a detailed description of the causes, symptoms and treatment in selected poisoning cases. Knowledge for conducting a clinical examination of animals according to the examination plan, a thorough analysis of clinical symptoms, recognition of anatomo-pathological changes, an assessment of laboratory and additional results, ability to diagnose with reference to differential diagnostics, ability to take therapeutic or/and prophylactic measures as regards animal poisoning</p> <p><b>Skills:</b> Ability to describe systemic and environmental conditions, etiological agents and development mechanisms of animal poisoning, and apply the knowledge to take appropriate diagnostic, therapeutic and prophylactic measures. Ability to explain and interpret disorders on a molecular level, as well as on a cellular, tissue, organ, systemic and the entire organism level in the course of animal poisoning. Ability to conduct an inquiry, conduct a clinical examination according to the examination plan, a thorough analysis and proper interpretation of clinical symptoms, anatomo-pathological changes, laboratory and additional results, ability to diagnose with reference to differential diagnostics, ability to take therapeutic and prophylactic measures in cases of animal poisoning</p> <p><b>Social competence:</b> Ability to act autonomously and formulate own opinions, ability to take responsibility for decisions and the awareness of their effects, with particular attention to those which affect animal and human health</p>
Content of the programme module	<p>Basic concepts and terms in toxicology. Poisoning-inducing agents. Toxicokinetics and toxicodynamics. The role of biotransformation in the effects of poison. Toxicometrics. The description of the most common animal poisonings in medical practice (the circumstances and causes of poisoning, the effects of poison in the organism, the mechanism of action, symptoms, treatment and procedures in case of pronounced fatal poisonings. Diagnostics of acute and chronic poisonings - history (when and where the symptoms occurred, the course of poisoning, number of animals and the species, a method of feeding, general zoohygienic conditions), clinical symptoms (from the nervous system, circulatory system, respiratory system, digestive system, excretory system, reproductive system, eyes and skin), typical anatomo-pathological changes, laboratory examination.</p>
Planned didactic forms/actions/methods	Lecture, Laboratory classes, Tutorials (films that demonstrate a course of clinical poisonings in animals and medical procedures) Partial credit tests (written)

Name of the programme module	Zoonosis
Programme module type (obligatory/optional) field	Obligatory
Year of the study programme	IV
Semester of the study programme	VII
ECTS credits together with contact/no contact hours division	1 (0.6/0.4)
A unit providing the course	Department of Epizootiology and Clinic of Infectious Diseases
Module objective	Conveying knowledge that is required to perform the occupation of a veterinary doctor, including the knowledge of infectious and parasitic diseases that are naturally transmitted from vertebrates to a human, transmission routes of a zoonotic agent from an animal to a human, the methods for the prevention of zoonoses, basic information on epidemiology, etiologic agents, symptoms in animals and in a human, sources of infection and a reservoir of an infectious agent, the prevention and control of zoonotic diseases, the methods of protection, the possible use of zoonotic diseases as a biological weapon by terrorists, veterinary and medical legislation in force.

Educational results	Knowledge: Specifies, describes and interprets risk factors, the causes of prevalence, clinical symptoms, and anatomopathological changes in specific zoonotic diseases of infectious and parasitic etiology. Student understands the pathogenesis of specific disease entities and is familiar with the principles for their diagnosis and therapy. Is familiar with basic diagnostic tests that are currently used to diagnose zoonoses. Knows the principles of general prevention and the prevention of specific disease entities, particularly including diseases entities with the greatest zoonotic potential. Is familiar with legislation in force that regulates the control of zoonotic diseases.
	Skills: Student is able to carry out epizootic and epidemiological investigation, including an interview and clinical and additional tests in order to diagnose an infectious or a parasitic zoonotic disease in individuals and in increased risk groups. Is able to carry out suitable anti-epidemic procedures in zoonoses. Takes appropriate course of action in the case of the identification of a zoonotic disease. Is familiar with issues in the scope of public health protection, particularly including food infections and xenozoonoses
	Social competencies: Student observes the principles of professional ethics. Developed the habit of lifelong knowledge and skill building. Is able to evaluate the risk to public health
Content of the programme module	<p>The programme of practical classes in zoonosis comprises etiology and pathogenesis, the sources of infection and a reservoir of an infectious agent, entry points and routes of the spread of a disease, human and animal symptoms of a zoonotic disease, diagnosis, management, differential diagnosis, prevention, treatment and control of the following disease entities:</p> <p>General characteristics of zoonotic diseases (classification of zoonoses, zoonoses as a health and a social problem, zoonoses of the 21 century, xenozoonoses, legislation on zoonotic disease control, basic diagnostic tests that are used today to diagnose a zoonosis). Classification of particular zoonoses: Prion diseases (bovine spongiform encephalopathy, variant Creutzfeldt–Jakob disease) Viral diseases (rabies, West Nile virus infection, hemorrhagic fevers caused by arenaviruses and viruses of the Bunyaviridae family, avian flu, foot-and-mouth disease, infection with Hendra and Nipah viruses, arboviral infection and tick-borne encephalitis) Bacterial diseases (Q fever, Lyme disease, brucellosis, botulism, cat scratch disease, tuberculosis, salmonellosis, staphylococcal poisoning, tularemia, anthrax, leptospirosis) Parasitic diseases (toxoplasmosis, giardiasis, sarcocystosis, scabies, toxocariasis, trichinosis, human taeniasis caused by taenia saginata or taenia solium, echinococcosis, ascariasis) Fungal diseases (microsporosis, trichophytosis, system fungal infections: histoplasmosis, aspergillosis, cryptococcosis, sporotrichosis) Currently emerging zoonoses The possibility of using zoonotic diseases as a biological weapon by terrorists</p>
Planned didactic forms/activities/methods	Didactic methods: lectures, recitation classes, clinical training, consultations, reading the recommended literature, preparation for classes, assessment

Name of the programme module	Pathomorphology
Programme module type (obligatory/optional) field	Obligatory
Year of studies for a given	IV
Term for a given field	VII
ECTS credits together with contact/no contact hours division	4 (2.5/1.5)
A unit providing the course	Department of Pathological Anatomy
Module objective	The aim of education in the second semester is familiarising the students with methods of performing autopsy in different pet species and the skill of macroscopic and microscopic identification of morphological changes occurring in the body of an animal in the course of a disease.
Educational results Content of the programme module – a concise description (about 100 words). Planned didactic forms/activities/methods	<p>Knowledge: A student who has completed the module:</p> <p>Knows the types of macroscopic pathological changes and their images, types of autopsy techniques and diagnosis used in pathomorphology. Knows the causes and cause and effect relationships between microscopic and macroscopic image of pathomorphological changes, as well as the cause and effect relationships between pathomorphological changes and their factors. . Knows the indications for performing additional tests in the process of selecting pets.</p>
	<p>Skills: A student who has completed the module:</p> <p>Is able to carry out the autopsy of pets and to collect and preserve samples for additional (microbiological, histopathological, toxicological, etc.) tests. Identifies, describes and names anatomopathological changes in accordance with Polish and Latin terminology and interprets anatomopathological changes with regard to medical history data, clinical and laboratory test results; formulates a pathomorphological diagnosis and takes the elements of differential diagnosis into account in the cases of infectious diseases. . Is able to specify the pathomechanism and the cause of death and prepares an autopsy report.</p>

	Social competencies: a student who has completed the module: Shows responsibility for the decisions taken in relation to the statements on the causes of diseases and death in animals. Is aware of the dangers resulting from contact with the body of a dead animal and biological samples.
Contents of the education module	System pathology with regard to malformations, regressive changes, inflammations, circulatory disorders, progressive changes and neoplasms occurring in the following systems: Pathology of the gastrointestinal tract – oral cavity and the oesophagus, forestomachs and the stomach proper, small and large intestine, liver, pancreas. Pathology of the respiratory system – upper respiratory tract: nasal cavity, paranasal sinuses, throat, larynx, trachea, pulmonary pathology. Pathology of the circulatory system: cardiac pathology, vascular pathology. Pathology of the genitourinary system – the consequences of damaged kidneys, nephritis, pathology of the urine transportation system, pathology of the ovaries and the uterus, pathology of male genitals.
Planned didactic forms/activities/methods	Lectures, demonstration, discussion, practical classes, exercises in the use of the microscope, performing an autopsy in different animal species, individual consultations

Name of the programme module	Hygiene of food-animals and meat 1
Programme module type (obligatory/optional)	Obligatory
Year of studies for a given field	IV
Term for a given field	VII
ECTS credits together with contact/no contact hours division	4 (2.1/1.9)
A unit providing the course	Department of Hygiene of Food of Animal Origin
Module objective	Students acquire the knowledge and skills in the field of: a) official supervision over the slaughter of food animals and the processing of carcass from these animals, b) ante-mortem examination of food animals, as well as the sanitary and veterinary macroscopic examination of meat
Educational results	<p>Knowledge: The knowledge of the principles of supervision over the slaughter of food animals, as well as the techniques of ante-mortem examination of food animals, the macroscopic examination of meat pursuant to the applicable legal regulations, to the extent necessary to discharge the duties of sanitary and veterinary supervision. Understanding of the functioning principles of the meat safety and quality assurance systems on every stage of the food chain. Knowledge of the organs and muscle tissue properties, as well as their post-mortem changes</p> <p>Skills: Ability to interpret and apply suitable regulations of the food law while discharging the duties of sanitary and veterinary supervision over the slaughter of food animal. Ability to conduct an ante and post-mortem examination of food animals and their meat. The ability to properly describe and verify the procedures of the HACCP system at the stage of food animal slaughter.</p> <p>Social competence: The ability to correctly identify and resolve the dilemmas connected with the performance of the supervision and the ability to formulate opinions regarding the activity performed. Awareness of the responsibility for consumer safety as regards the supervision, as well as the need for targeted further education and self-improvement.</p>
Content of the programme module	The essence of the 'Hygiene of food animals and meat' programme module is to acquaint students with: a) the principles of official supervision over the process of food animal slaughter and the competence of the official doctor performing the supervision pursuant to the applicable legal provisions, b) practical aspects of the ante- and post-mortem examination of food animals with a special reference to the macroscopic examination c) technology of food animal slaughter, d) the HACCP system in the processing line of the slaughter, e) safety criteria, appropriate nutritional value and the organoleptic quality of meat.
Planned didactic forms/actions/methods	Lectures, laboratory classes, field classes in a slaughterhouse

Name of the programme module, also in English	Equine diseases. Block I
Programme module type (obligatory/optional) field	obligatory
Year of studies for a given	IV
Term for a given field	VII
ECTS credits together with contact/no contact hours division	6.0 (3.0/3.0)
A unit providing the course	Department of Epizootiology and Clinic of Infectious Diseases, Faculty of Veterinary Medicine, University of Life Sciences in Lublin, Poland Department and Clinic of Internal Diseases of Animals, Sub-Department of Internal Diseases of Farm Animals and Horses,

	Faculty of Veterinary Medicine, University of Life Sciences in Lublin, Poland
Module objective	Conveying knowledge that is required to perform the occupation of a veterinary doctor, including the knowledge of ethology, epidemiology, pathogenesis, diagnosis, treatment and prevention of equine infectious and non-infectious diseases, and principles of administrative procedure in the case the of suspicion or identification of compulsory notifiable diseases
Educational results	Knowledge: Specifies, describes and interprets clinical symptoms, causes and anatomopathological changes in specific, infectious and non-infectious disease entities. Understands the pathogenesis of infectious and non-infectious diseases and is familiar with principles for their diagnosis, therapy and prevention
	Skills: Student is able to carry out epizootic investigation, and clinical and additional tests for the diagnosis of infectious and non-infectious equine diseases in single animals and in a group of animals. Is able to carry out veterinary medical procedures that are suitable for the management of infectious and non-infectious equine diseases in single animals and in a group of animals. Takes appropriate course of action in the case of the identification of a compulsory notifiable disease
	Social competencies: Student observes the principles of professional ethics, developed the habit of lifelong knowledge and skill building and shows the skills of effective interpersonal communication and taking action under uncertain and stressful conditions
Content of the programme module	Programme of lectures and practical classes in equine diseases Block I comprises ethology, epidemiology, pathogenesis, clinical symptoms, pathological changes, diagnosis, differential diagnosis, treatment, prevention and control of infectious diseases, including: African horse sickness, equine infectious anaemia, equine viral arteritis, contagious equine metritis, salmonellosis, herpes infection (EHV1, EHV4, EHV3), influenza, influenza-like illness, infectious lymphangitis, glanders, strangles, West Nile fever, infectious encephalitis and myelitis, tetanus, infectious lung diseases of foals, neonatal diarrhea, sepsis, Rhodococcus equi infection and etiopathogenesis, symptomatology, diagnosis, differential diagnosis, prevention and treatment of non-infectious cutaneous diseases and diseases related to non-infectious cutaneous diseases, respiratory, circulatory and excretory diseases, diseases of the nervous system, laminitis, deficiency diseases, diseases of foals, myopathy, water-electrolyte balance and its disorders, non-surgical management of colic, procedures for the intensive therapy of equine internal diseases, metabolic disorders, selected issues regarding equine endocrinology (diabetes, thyroid diseases, diabetes insipidus, pituitary dwarfism, metabolic syndrome), laboratory diagnostics of disorders of organs and systems
Planned didactic forms/activities/methods	Didactic methods: lectures, recitation, laboratory and field classes, demonstrations, clinical training, consultations