

Module code	M_WE SEM9 CHZG2
Field of study	Veterinary medicine
Module name, also the name in English	Diseases of farm animals. Block II
	Choroby zwierząt gospodarskich. Blok II
Language of instruction	English
Module type	obligatory
Level of studies	Long-cycle master's degree studies
Form of study	Full-time
Year of study in the field of study	V
Semester of study in the field of study	IX
ECTS credits, divided into contact/non-contact hours	11(7,0/ 4,0)
Academic title/degree, name of the person responsible for the module	Prof. dr hab. Krzysztof Lutnicki
Unit teaching the module	Department and Clinic of Animal Reproduction, Department and Clinic of Animal Surgery, Department of Epizootiology and Clinic of Infectious Diseases, Faculty of Veterinary Medicine, University of Life Sciences in Lublin
Module objective	<p>Transfer of knowledge and practical skills necessary to perform the profession of a veterinary surgeon in the field of surgery, reproduction and infectious diseases of farm animals, introduction to the clinical picture of infectious diseases, surgery and reproduction, principles of therapeutic and prophylactic procedures in individual diseases, as well as the ability to recognize and differentiate them, prophylaxis and treatment. In addition, learning the specifics of livestock reproduction, acquiring theoretical and practical skills in gynecology and obstetrics, neonatal care, and the diagnosis, treatment and prevention of mammary gland diseases.</p> <p>The program includes knowledge of diseases requiring surgical treatment, how to perform basic surgical procedures in reproduction and livestock surgery in veterinary practice.</p> <p>The student will obtain a basic understanding of how to take an environmental and disease history, diagnose diseases and use laboratory and imaging tests, and treat and prevent infectious diseases, reproductive disorders, and lameness.</p>
	Knowledge:

<p>The learning outcomes for the module include a description of the knowledge, skills and social competences that the student will gain after completing the module.</p>	<p>A student knows and understands:</p> <p>K1. Etiology and pathogenesis, diagnostic methods, therapeutic management and prevention of specific diseases of livestock and herd</p> <p>K2. Principles of analysis and proper interpretation of clinical data and laboratory findings in specific disease entities presented under reproductive and infectious diseases. Knows and understands the principles of admittance to and performance of surgical procedures based on initial and laboratory findings.</p> <p>K3. Polish and Latin nomenclature of diseases of farm animals</p> <p>K4. Insemination methods, reproductive biotechnologies, breeding selections.</p> <p>K5. Principles of milk composition analysis</p> <p>K6. Clinical consequences of disorders of water-electrolyte, acid-base balance and principles of their compensation in surgery and reproduction.</p> <p>K7. Diagnosis, treatment options, and therapeutic outcomes of specific diseases requiring surgical intervention as well as infectious and contagious diseases.</p> <p>K8. Knows the principles of prevention and treatment of infectious diseases, reproduction, and surgery of livestock.</p> <p>K9. Methods of dealing with suspected or confirmed diseases subject to eradication or registration</p>
	<p>Skills:</p> <p>A student can:</p> <p>S1. Use basic laboratory techniques in the diagnosis and treatment of livestock diseases</p> <p>S2. Select and administer appropriate chemotherapy with consideration of the target animal species</p> <p>S3. Apply the veterinarian code of ethics in practice when treating livestock diseases.</p> <p>S4. Prepare clear case descriptions, maintain records in accordance with applicable livestock regulations.</p> <p>S5. Work as part of a team in situations requiring the involvement of several physicians from different specialties.</p> <p>S6. Estimate the danger of infectious diseases and reproductive disorders in specific technological groups of livestock</p> <p>S7. Assess the need for euthanasia and properly inform the owner</p> <p>S8. Apply methods of safe sedation and anesthesia to livestock</p> <p>S9. Conduct an epizootic investigation</p>
	<p>Social competences:</p>

	<p>A student is willing to:</p> <p>C1. Demonstrate an attitude consistent with the code of ethics for veterinarians in clinical practice</p> <p>C2. Deepen knowledge and improve skills in infectious diseases, surgery and reproduction of livestock.</p> <p>C3. Interpersonally communicate and collaborate with representatives of other professions in the prevention and treatment of livestock.</p> <p>C4. Act and make decisions under stress caused by the need for emergency surgical interventions or exposure to the development of epizootics.</p>
<p>Prerequisites and additional requirements</p>	<p>Livestock diseases block 1</p>
<p>Module program content</p>	<p><b>Livestock Reproduction:</b></p> <p><u>Exercise topics (two hours per each exercise):</u></p> <ol style="list-style-type: none"> <li>1. Examination plan lists: detailed discussion of the examination plan, clinical examination lists (viewing and palpation), milking methods (advantages and disadvantages)</li> <li>2. Macroscopic examination of milk and taking samples for bacteriological tests: evaluation of milk (inflammatory secretion) on the forestripping apparatus, making and interpreting the field cellular reaction (TOK), teat disinfection and technique of taking milk for bacteriological tests, symbols and abbreviations for recording: udder quarters, physical changes in the udder, macroscopic evaluation of milk and TOK result</li> <li>3. Microscopic examination of milk: cell types in milk, Prescott-Breed somatic cell count, antibiotic detection tests in milk</li> <li>4. Bacteriological examination of milk: types of microbiological media, evaluation of microbiological quality of milk, performance of cultures and antibioticograms and their clinical interpretation (4 hrs)</li> <li>5. Mechanical milk extraction: evaluation of the udder suitability for mechanical milking, construction and principles of operation of milking apparatus, hygiene of milk extraction</li> <li>6. Surgical procedures on the udder and teats: udder and teat anaesthesia, surgical treatment of fistulas and perforating wounds to the teat sinus (practical exercises on isolated organs) 4h</li> <li>7. Principles of catheterization of the vagina, uterus, uterine lavage, infliction of intrauterine drugs, collection of vaginal, cervical mucus, tissue biopsy of various parts of the reproductive system</li> <li>8. The use of hormonal preparations in livestock reproduction</li> <li>9. Clinical examination of the reproductive organs and udder of a cow (practical training): examination <i>per rectum</i> and <i>per vaginam</i>, evaluation of milk on the forestripping</li> </ol>

- apparatus, performing TOK test, perfecting the technique of collecting milk for bacteriological tests (4-hour exercise)
10. Improving skills of examination and assessment of reproductive organs and udders (practical exercises) 4h
  11. seminar

Lecture topics

1. Differences in the structure of the mammary gland in female livestock - species characteristics (3-hour lecture)
2. Mechanisms of milk secretion, endocrinology of lactation. Discussion of defense mechanisms of the udder (1-hour lecture)
3. Mastitis in female livestock the most common and expensive disease of dairy cows? (3-hour lecture)
4. Mastitis in heifers (1-hour lecture)
5. Mastitis in goats (1-hour lecture)
6. Udder edema - a current problem (2-hour lecture)
7. Postpartum lactation disorders in sows (2-hour lecture)
8. Methods of heat synchronization and ovulation in dairy cattle (2-hour lecture)

**Infectious Diseases of Livestock:**

Exercise topics (3 hours per each exercise):

1. Diseases of the nervous system: Borna disease, ovine brucellosis, scrapie.
2. Multiorgan diseases: Maedi-visna disease, Rift Valley fever and Nairobi disease of sheep and goats, Morel disease, Schmallenberg disease Akabane disease. Septicaemic diseases: ovine rinderpest.
3. Infectious diseases of sheep and goats - sheep pox and goat pox, infectious agalactia in sheep and goats, pulmonary adenopathy in sheep and goats, viral arthritis and encephalitis in goats, serous lymphadenitis: etiopathogenesis, epidemiology, diagnosis.
4. Cattle plague, contagious bovine pleuropneumonia, infectious pericardial dropsy, BVD/MD - diagnosis and control. Credit for diseases of sheep and goats.
5. Enzootic bovine bronchopneumonia, IBR/IPV, and pastellosis - diagnosis and control.
6. Tuberculosis, enzootic bovine leukosis, paratuberculosis - diagnosis and control.
7. Anaerobic diseases (blackleg, malignant oedema, infectious haemoglobinuria) - diagnosis and control.
8. Bluetongue disease, Q fever - diagnosis and control.
9. Rabies, anthrax, cephalosporins, bovine spongiform encephalopathy - diagnosis and control.
10. Infectious Brucellosis - Bovine mange disease, bovine cysticercosis, chlamydiosis, salmonellosis, campylobacteriosis, leptospirosis.
11. Infectious diseases of the nervous system: picornavirus encephalomyelitis, vomiting and wasting disease,

diseases caused by Streptococcus spp. Credit for cattle diseases.

12. Infectious diseases causing disorders in reproduction: parvovirus, circovirus, SMEDI syndrome, brucellosis, leptospirosis, chlamydiosis - occurrence, etiology, pathogenesis, clinical symptoms, post-mortem lesions, diagnosis, possibilities of control.
13. Infectious diseases of the respiratory system: swine influenza, pasterellosis, bordetellosis, pleuropneumonia, Haemophilus parasuis infections, infectious atrophic rhinitis, Glässer's disease - occurrence, etiology, pathogenesis, clinical signs, post-mortem lesions, diagnosis, possibilities of control.
14. Porcine hemorrhagic infectious enteropathies - etiopathogenesis, epidemiology and possibilities of control.
15. Organ and systemic mycoses of animals.

Lecture topics (2 hours per each lecture):

1. General issues in communicable disease control - legal regulations. Basic concepts of infectious diseases, knowledge of epidemics (conditions of their development, course) Ways of spreading infectious diseases. Epidemiological investigation. Anti-epidemic management. Bioassurance.
2. Foot-and-mouth disease in cattle and other animal species - etiopathogenesis, epidemiology and possibilities of control.
3. Brucellosis in cattle, goats, sheep and pigs, brucellosis as a zoonosis.
4. BVD-MD and other bovine viral diarrhea (rotavirus, coronavirus,) - etiopathogenesis, epidemiology, and possibilities of control.
5. Anaerobic diseases of sheep and goats - etiopathogenesis, epidemiology, diagnosis and possibilities of control.
6. Anaerobic diseases in cattle and pigs - etiopathogenesis, epidemiology, diagnosis and possibilities of control.
7. Enterovirus infections in livestock - etiopathogenesis, epidemiology, diagnosis and control.
8. Exanthematous diseases in livestock: etiopathogenesis, epidemiology, diagnosis.
9. Classical swine fever, African swine fever - eradication and prevention, official regulations on eradication - national and European Union legislation, principles of bio-assurance.
10. Transmissible spongiform encephalopathies of ruminants (TSEs) - diagnosis, legal status, management
11. Circovirus infections in livestock - etiopathogenesis, epidemiology and possibilities of control.

12. Viral gastrointestinal diseases of pigs, cattle and other species - etiopathogenesis, epidemiology and possibilities of control.
13. Aujeszky's disease - etiopathogenesis, epidemiology and possibilities of control.
14. Q fever - etiopathogenesis, epidemiology and possibilities of control.
15. Infectious diseases of the nervous system and movement disorders in livestock.

**Livestock Surgery:**

Lectures (1h/lecture)

1. General issues, class organization, recommended literature
2. Operative treatment of displacement of abomasum by classical methods
3. Laparoscopic repositioning of displaced abomasum
4. Castration of male livestock
5. Complications after castration of male ruminants
6. Complications after castration of boars
7. Cryptorchidism and hernias in livestock
8. Surgical treatment of agnail in ruminants
9. Finger diseases in livestock, amputation
10. Hoof regeneration, principles
11. Neck diseases requiring surgical treatment
12. Surgical treatment of diseases of the skin and its products, inflammation of the external jugular vein
13. Lameness and other orthopaedic conditions
14. Removal of horns and horn bundles
15. Underdevelopment of the rectum and anus

Exercises: (1h/topic)

1. Livestock taming
2. Patient preparation for surgery, postoperative care
3. Practical hoof regeneration
4. Orthopedic treatment of hoof diseases
5. Hoof amputation
6. Rumenotomy
7. Rumen fistula
8. Castration of bulls and boars
9. Selected diseases of small ruminants requiring surgical intervention
10. Intestinal strangulation obstructions
11. Operative repositioning of displaced abomasum
12. Methods of anesthesia in surgical cases in livestock, selected issues
13. Surgical treatment of urinary tract diseases
14. Surgical treatment of diseases of the limbs (tarsal region, wrist, spastic paresis, arthritis of the knee)
15. Traumatic capsulitis and peritonitis

<p>List of core and supplementary literature</p>	<p><b>Livestock Reproduction:</b></p> <ol style="list-style-type: none"> <li>1. E.S.E. Hafez – Reproduction in farm animals: Wiley 2016</li> <li>2. D.E. Noakes, T.J. Parkinson, G.C.W. England: Reproduction and Obstetrics: Veterinary 9th ed. Saunders, Elsevier, 2009</li> <li>3. R.F. Youngquist, W.L. Threlfall Large Animal: Theriogenology. 2nd ed. Saunders, Elsevier. 2007</li> <li>4. D.E. Noakes, T.J. Parkinson, G.C.W. England: Veterinary Reproduction and Obstetrics. 9th ed. Saunders, Elsevier, 2009</li> </ol> <p><b>Infectious Diseases of Livestock:</b></p> <ol style="list-style-type: none"> <li>1. Pig diseases. D.J. Taylor, St Edmundsbury Press Ltd, Bury St Edmunds, Suffolk 2006</li> <li>2. Diseases of Swine. H.W.Dunne, A.D.Leman, Iowa State University Press</li> <li>3. Sheep and goat medicine. Pugh D.G, W.B. Saunders Company. Philadelphia, Pennsylvania, 2002.</li> <li>4. Diseases of dairy cattle. Thomas J. Divers, Simon F. Peek, Saunders Elsevier. 2008.</li> </ol> <p>Internet: OIE, WHO i inne źródła</p> <p><b>Livestock Surgery:</b></p> <ol style="list-style-type: none"> <li>1. Roger W. Blowey A. David Weaver.: Atlas of cattle diseases Elsevier, Urban&amp;Partner</li> <li>2. Weaver David, Guy St Jean, Adrian Steiner.: Bovine surgery and lameness.</li> </ol>
<p>Planned forms/activities/teaching methods</p>	<p>Lectures:</p> <ul style="list-style-type: none"> <li>- multimedia presentations by employees responsible for conducting lectures</li> </ul> <p>Laboratory classes:</p> <ul style="list-style-type: none"> <li>- conducting and discussing clinical case studies, analysis of results, discussion, seminars</li> </ul> <p>Clinical Classes:</p> <p>Clinical examination of animals in specific diseases</p> <p>Treatment of clinical cases</p> <p>Analysis of test results</p> <p>Collection of material</p> <p>Consultations for students as determined by the coordinator at the beginning of the semester</p>
<p>Verification methods and ways of documenting the achieved learning outcomes.</p>	<p>K - credit for the block is given on the basis of positive results obtained from block subjects in the form of a test and the arithmetic mean of these results</p> <p>S - assessment of self-performed procedures (clinical examination, diagnostic procedure, treatment process proposal) by the instructor,</p> <p>C - participation in the discussion, answering questions at the beginning of each laboratory classes, written colloquia.</p> <p>Grading scale according to Book of Education Quality</p>

ECTS credits	Participation in lectures - 60 hours. Class attendance – 105 hours Preparation for laboratory classes - 39 hours. Preparing for the recitation section - 26 hours. Preparation for partial credit - 30 hrs. Attendance for credit - 3 x 2 hours. =7 hrs. Exam preparation - 25 hours. Exam - 3 hours. Total student workload - 295 hours, which equals 11 ECTS credits
The workload of activities that requires direct participation of an academic teacher	The workload of activities that require direct participation of a teacher <ul style="list-style-type: none"> <li>• Participation in lectures - 60 hours.</li> <li>• Class attendance – 105 hours</li> <li>• Exam participation - 3 hours.</li> <li>• Attendance for credit - 7 hours</li> <li>• Participation in consultations - 6 hours.</li> </ul> Workload of 175 hours - 7 ECTS credits
Relation of module learning outcomes to course learning outcomes.	K1 – B.W3. ++, K2 – B.W6. ++, K3 – A.W20. ++, K4 – B.W12. ++ , K5 – B.W.14. ++, K6 – B.W.2 ++, K7 – B.W.3. ++, K8 – B.W.16 ++, K9 – B.W8. ++ S1 – B.U6. ++, S2 – B.U10. ++, S3 – A.U16. ++, S4 – A.U14. ++, S5 – A.U15. ++, S6 – B.U8. ++, S7 – B.U15. ++, S8 – B.U11. ++, S9 – B.U19.++ C1 – K2++, C2 – K8++, C3 – K9++, K11++, C4 – K10++
Elements and values affecting the final grade	<u>Credit for Infectious Diseases of Livestock:</u> Oral/written test - weighting of 30% Final credit - weighting of 70%.  <u>Credit for Livestock Surgery</u> Written credit - weighting of 100%  <u>Credit for Livestock Reproduction</u> Passing grades - weighting of 5% Oral credit - weighting of 10% Credit for the required practical activities - weighting of 10%. Final exam - weighting of 60% <b>Final grade:</b> Credit for Infectious Diseases of Livestock - weighting of 33% Credit for Livestock Reproduction - weighting of 33% Credit for Livestock Surgery - weighting of 33%.