Module code	M_WE_SEM6 DIAGN 2
Field of study	Veterinary medicine
Module name	Clinical and Laboratory Diagnostics 2
	Diagnostyka kliniczna i laboratoryjna 2
Language of instruction	English
Module type	obligatory
Level of studies	Long-cycle Master's Degree studies
Mode of study	Full-time
Year of study	3
Semester of study	6
ECTS credits, divided into contact/non-contact	5 (3,1/1,9)
Academic title/degree, name of the person responsible for the module	Dr hab. Marcin Szczepanik
Unit teaching the module	Department of Clinical Diagnostics and Veterinary Dermatology
Module objective	The aim of the module is to teach students methods of safe handling of animals, methods of general and detailed clinical studies concerning individual animal species (companion animals, livestock and horses) and basic analytical methods. The student is expected to learn clinical concepts and master skills related to clinical study and laboratory diagnosis according to the programme
The learning outcomes for the module are a description of the knowledge, skills and social competences that the student will gain after completing the module.	Knowledge:
	K1. Student knows how to properly conduct an animal description, perform a physical examination of the general and detailed examination of the various systems in livestock and horses.
	K2. Student knows the principles of collection, storage, transport, examination of biological material and their diagnostic significance
	Skills:
	S1. Student is able to carry out clinical examination of the body, respiratory, circulatory, digestive, locomotor, nervous and genitourinary systems of livestock and horses.
	S2. Student is able to collect, evaluate and store material for laboratory tests and perform basic laboratory tests in accordance with the safety requirements
	S3. The student is able to apply the reference values of diagnostic parameters for different animal species
	S4. The student is able to perform subcutaneous, intramuscular and intravenous injections and puncture.
	Social competences:
	C1. Student is able to ethically handle animals during examination and collection of material for tests.
	C2. Student is able to cooperate with other veterinarians during the performance of professional duties and with specialists from various fields.

	C3. Student is aware of his/her own limitations, knows the consequences of his/her actions on future professional duties, understands the need for constant education and self-improvement in the field covered by the curriculum
Entry and additional requirements	Clinical and Laboratory Diagnostics 1

Module curriculum:	Classes: Basic examination of cattle. Animal handling during examination and methods of taming cattle. Cattle age determination. Examination of mucous membranes of natural orifices. Lymph node examination Respiratory examination of cattle. Examination of the upper respiratory tract near nasal orifices. Nasal discharge, paranasal sinuses. Examination of the larynx and trachea, thyroid gland, assessment of cough and dyspnoea. Topographical and comparative chest palpation, auscultation of the lungs. Examination of cardiovascular system of cattle. Examination of the heart - visual inspection, palpation, tapping, auscultation (heart tones at major points - changes in strength, colour, rhythm). Examination of the peripheral vessels: arteries and veins. Examination of the forestomachs, abomasum and intestines of ruminants rumen: inspection); palpation, tapping (location of rumen sounds); auscultation (frequency, strength, type, contractions and rumen sounds). Examination of the reticulum: deep palpation; tapping; pain tests. Examination of the omasum by palpation, auscultation. Examination of the intestines of cattle through the rectum. Basic examination of horses. Handling animals during examination and methods of taming horses. Horse age determination. Examination of mucous membranes of natural orifices. Lymph node examination Respiratory examination of horses. Upper respiratory tract examination. Chest examination. Examination of the cardiovascular system of horses. Cardiac Examination and Peripheral Vascular Examination. Examination of the stomach and intestines of horses, diagnostic probing, transabdominal examination, rectal examination, and rectal administration. Subcutaneous, intramuscular, intravenous injections, punctures. Collection of material for laboratory testing, handling of biological material collected. Laboratory examination of urine: physical and chemical properties. Microscopic examination of urine sediment. Interpretation of results. Interstitial fluid testing. Hematological and biochemical examination of dogs and cats. Interpretation of results Lectures Examination of the respiratory and cardiovascular systems of cattle. Examination of digestive system of cattle. Examination of the genitourinary, nervous and musculoskeletal systems of cattle. Herd examination programme Clinical examination of horses.

	Clinical examination of horses. Detailed examination of the nervous, musculoskeletal and genitourinary systems. Examination of digestive system of horses. Preparation of biological material for laboratory testing, collaboration with laboratories Laboratory tests concerning the examination of the endocrine system thyroid and adrenal glands Biochemical testing. Diagnostic profiles. Liver and heart Urine and interstitial fluid testing. Haematological examination and coagulation factors. Examination of systems and organs. Digestive system: pancreas profile
List of core and supplementary literature	Core literature: Taylor S.M.: Diagnostic and therapeutic procedures Elsevier Baumgartner W.: Clinical diagnostics of animals Elsevier Marek J., Mocsy J.: Clinical diagnostics of internal diseases of animals Mocsy J.: Veterinary clinical diagnostics Mayer D., Harvey D., Laboratory diagnostics in veterinary medicine Edra Urban & Partner Sink C., Weinstein N.M Atlas of urine examination in dogs and cats Supplementary literature: Kelly W. R.: Diagnostic clinique veternaire. Libraire Maloine SA Editour, 1971. Gunther M.: Klinische Diagnostik unter besonderer Berucksichtigung der Anasthesiologie. Hirzel Verlag Leipzig 1979. Speirs V.: Clinical examination of horses. Saunders company. 1997. Lorenz M., Cornelius L.: Small animal medical diagnosis. Lippincott company, 1993.
Planned forms/activities/teaching methods	The course involves the following didactic methods: lecture, demonstration of research and diagnostic methods, classes with multimedia presentations and practical classes with animals and on mannequins in the Department of Internal Medicine

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<td>Verification methods and ways of documenting the achieved learning outcomes</td>
<td>K1 Credit for test Single-choice test graded according to the rules of verification of learning outcomes.
K.2. Credit for test Single-choice test graded according to the rules of verification of learning outcomes.
S. 1. S.2 S.3. S.4 Credit for practical classes
C. 1. Sc. 2 Sc 3.. Credit for tests and practical classes
As part of the module in semester 6, students are required to get three credits
In the field of clinical examination of cattle
In the field of clinical examination of horses
In the field of laboratory diagnostic
Each examination consists of two parts
Practical examination - with a patient. As part of the practical examination, each student draws 3 questions on the performance of specific activities concerning the clinical examination. The evaluation is made on the correctness of the examination and its proper interpretation
Theoretical examination in the form of single-choice test graded according to the verification of learning outcomes for students of Faculty of Veterinary Medicine
The grade for credits 1,2,3 is calculated as the arithmetic mean of parts A and B
In the case of a failing grade, a corrective oral assessment is organised: student has to answer 3 randomly drawed questioned.
The final grade is calculated as the arithmetic mean of 3 credits 1,2,3.
Final grade:
It is calculated on the basis of a weighted average in which the final grade of module 1 has a weight of 2, the final grade of module 2 has a weight of 2, and the exam has a weight of 6.
<table>
<tr><td>Grade</td><td>weight</td></tr>
<tr><td>Module 1</td><td>2</td></tr>
<tr><td>Module 2</td><td>2</td></tr>
<tr><td>Final Examination</td><td>6</td></tr>
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The final grade is based on the calculated average using the above formula
Average 2 to 2.75 - 2
2.76 to 3.25 - 3
3.26 to 3.75 - 3.5
3.76 to 4.25 - 4
4.26 to 4.75 - 4.5
4.76 to 5 - 5
The grade must be positive, in case of failing, a re-sit examination is organised.
Forms of documenting the achieved learning outcomes: archiving test examinations, academic teacher's register, examination minutes.</td>
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<tr><td>ECTS credits</td><td></td></tr>
<tr><td></td><td>CONTACT</td></tr>
<tr><td></td><td>Hours | ECTS</td></tr>
<tr><td></td><td>lectures | 30 | 1,2</td></tr>
<tr><td></td><td>classes | 30 | 1,2</td></tr>
<tr><td></td><td>Component grades/retake | 6 | 0,24</td></tr>
<tr><td></td><td>Exam | 6 | 0,24</td></tr>
<tr><td></td><td>consultations | 5 | 0,22</td></tr>
<tr><td></td><td>TOTAL contact | 76 | 3,1</td></tr>
<tr><td></td><td>NON-CONTACT</td></tr>
<tr><td></td><td>preparation for classes | 19 | 0,75</td></tr>
<tr><td></td><td>learning from books | 19 | 0.75</td></tr>
<tr><td></td><td>preparation for examination | 10 | 0,4</td></tr>
<tr><td></td><td>TOTAL non-contact | 48 | 1,9</td></tr>
<tr><td>The workload of activities that require direct participation of an academic teacher</td><td>Lecture attendance – 30 hours
Class attendance – 30 hours
Conference attendance – 5 hours
Test and examination attendance – 12 hours</td></tr>
<tr><td>Comparison of module learning outcomes and major learning outcomes</td><td>K.1. B.W4 +++, B.W5 +++. B.W6.+++
K.2 B.W6.+++
S.1 B.U1 +. B.U3+++, B.U5 ++
S.2. U.6 +++U.7 ++
S.3. U.6 +++
S.4.U.6+++
C.1 K2++ K3++
C2. K3++ K9 +++
C.3. K7++, K8++, K9+++</td></tr>
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<td>Elements and weighting factors affecting final grade</td>
<td>The final grade is calculated as the arithmetic mean of 3 credits 1,2,3.
Final grade:
It is calculated on the basis of a weighted average in which the final grade of module 1 has a weight of 2, the final grade of module 2 has a weight of 2, and the exam has a weight of 6.
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Average 2 to 2.75 - 2
2.76 to 3.25 - 3
3.26 to 3.75 - 3.5
3.76 to 4.25 - 4
4.26 to 4.75 - 4.5
4.76 to 5 - 5
One unexcused absence from classes (2 hours) is allowed.
Students who achieve above-average results in the practical part of the course (average grades of at least 4.5) may be exempted from the practical part of the final examination.</td>
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