

Module title:	Gait analysis in animals	ECTS	2
Polish translation:			
Course:	Veterinary medicine		

Module language:	English	Stage JM-FVM	
Form of studies	<input checked="" type="checkbox"/> intramural <input type="checkbox"/> extramural	Type of module:	<input checked="" type="checkbox"/> basic <input type="checkbox"/> directional <input type="checkbox"/> mandatory <input checked="" type="checkbox"/> elective
		Semester: 10	<input type="checkbox"/> winter semester <input checked="" type="checkbox"/> summer semester
		Academic year: 2024-2025	Catalogue number:

Module coordinator:	Assoc. Prof. Ozan Gündemir										
Teachers responsible for the module:	Assoc. Prof. Ozan Gündemir, dr hab.Tomasz Szara, prof.SGGW										
Unit responsible for the module:	Institute of Veterinary Medicine, Department of Morphological Sciences										
Faculty in charge:	Faculty of Veterinary Medicine										
Objectives of the module:	<p>The disciplines related to gait analysis include basic information about gait analysis, gait biomechanics in animals, and gait analysis systems, as well as essential information for using these systems in animals. The main goal is to gain theoretical knowledge about gait analysis systems and practical skills.</p> <p>Topics:</p> <ol style="list-style-type: none"> 1. Biomechanics and Biostatics. Anatomical and functional characteristics 2. Animal locomotion. Anatomical and functional characteristics 3. Kinematics of walking in animals 4. Gait analysis systems introduction 5. Gait analysis methods in animals 6. Clinical gait analysis in animals and COP analysis 7. Cop analysis 8. Kinematic analysis 9. Kinetic analysis 10. Motion capture 11. COP analysis 12. Static analysis 										
Teaching forms, number of hours:	Exercises: presentations, discussion, training number of hours – 15										
Teaching methods:	<p>The course is conducted in the form of lectures and practicals. There will be multimedia presentations on the gait biomechanics of animals in the lectures.</p> <p>According to an internally agreed schedule of 2h / week, consultations are outside the regular schedule. The manner of organizing consultations will be determined by the subject coordinator at the beginning of the semester.</p>										
Formal prerequisites and initial requirements:	Animal anatomy and physiology										
Learning outcomes:	<p>Knowledge: the student knows and understands;</p> <p>01 - Information on introductory gait biomechanics in animals</p> <p>02 - Force and motion information in gait analysis</p> <p>03 - Gaining information about gait analysis techniques</p> <p>04 - Determining which gait analysis technique to use according to the purpose</p> <p>05 - Knows the usage areas of gait analysis in physiotherapy and orthopedics</p>	<p>Skills: The student can;</p> <p>06 - Can use gait analysis devices in dogs and horses.</p> <p>07 - Can interpret gait analysis results in terms of orthopedics</p> <p>08 - Knows how to apply motion capture technique</p>	<p>Competences: The student is ready to;</p> <p>09 - Constantly deepen his/her knowledge and cooperate with other veterinarians</p> <p>10 - Using the results of the gait analysis, he/she can monitor the progress of the treatment given to the animals.</p>								
Assessment methods:	<p>The condition of joining the theoretical final credit is obtaining confirmation of the correct performance of the required practical activities (minimum two).</p> <p>Final exam is in the form of a single-choice test. The test consists of 20 questions with 4 proposed answers, covering the content of lectures and practicals.</p> <p>The student must obtain a minimum of 10 points from the test to pass the test.</p> <p>Scale of points from the test:</p> <table border="1"> <thead> <tr> <th>Number of points</th> <th>Grade</th> </tr> </thead> <tbody> <tr> <td>Below 10</td> <td>2 (failed)</td> </tr> <tr> <td>10-12</td> <td>3</td> </tr> <tr> <td>12-14</td> <td>3+</td> </tr> </tbody> </table>			Number of points	Grade	Below 10	2 (failed)	10-12	3	12-14	3+
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10-12	3										
12-14	3+										

	<p>14-16 4 16-18 4+ 18-20 5</p> <p>Apart from the indicated methods of verification of learning outcomes (form, number), no additional methods are foreseen. In suspending classes at the University and the need for distance learning, other methods of verifying the learning outcomes will be implemented according to the situation.</p>
Formal documentation of learning outcomes:	Entry into the eHMS system and documentation included in the 'Course Portfolio' (individual student assessment cards, attendance lists, question sets, student essays.
Elements impelling final grade	Admission to final credit: Number of absences from classes following the study regulations as admission to the test + obtaining credit for practical activities (maximum two) Final grade: 100% final score
Teaching base:	Online classes
Mandatory and supportive materials: 1. Whittle, M. W. (2014). Gait analysis: an introduction. Butterworth-Heinemann. 2. Levine, D., Richards, J., & Whittle, M. W. (2012). Whittle's Gait Analysis-E-Book. Elsevier health sciences. 3. Baker, R. (2006). Gait analysis methods in rehabilitation. Journal of neuroengineering and rehabilitation, 3(1), 1-10. 4. Gündemir, O., Duro, S., Aydın Kaya, D., & Zenginler Yazgan, Y. (2020). Temporo-spatial and kinetic gait parameters in English setter dogs. Anatomia, Histologia, Embryologia, 49(6), 763-769. 5. Gündemir, O., Alpak, H., Erdikmen, D. O., & Kaya, D. A. (2020). Evaluation of gait character of Akbaş and Kangal shepherd dogs by using pressuresensitive walkway. Turkish Journal of Veterinary and Animal Sciences, 44(2), 427-434. 6. DeCamp, C. E. (1997). Kinetic and kinematic gait analysis and the assessment of lameness in the dog. The Veterinary Clinics of North America. Small Animal Practice, 27(4), 825-840. 7. Allen, K., DeCamp, C. E., Braden, T. D., & Balms, M. (1994). Kinematic gait analysis of the trot in healthy mixed breed dogs. Veterinary and comparative orthopaedics and traumatology, 7(04), 148-153. 8. Assaf, N. D., Rahal, S. C., Mesquita, L. R., Kano, W. T., & Abibe, R. B. (2019). Evaluation of parameters obtained from two systems of gait analysis. Australian veterinary journal, 97(10), 414-417.	

Quantitative summary of the module:

Estimated number of work hours per student (contact and self-study) essential to achieve presumed learning outcomes of the module - base for quantifying ECTS	45 h
Total ECTS points, accumulated by students during contact learning:	2 ECTS

Learning outcomes of the module relative to the learning outcomes of the subject:

Outcome category	Learning outcomes:	Learning outcomes relative to the course outcomes:	Impact on the course outcomes*
Knowledge – K1	Information on basic gait biomechanics in animals	B.W.1, B.W.2	3
Knowledge – K2	Force and motion information in gait analysis	B.W.2, B.W.3, B.W.5, B.W.6, B.W.9, B.W.11, B.W.13	3
Knowledge – K3	Gaining information about gait analysis techniques	B.W.3, B.W.4, B.W.6	3
Knowledge – K4	Determining which gait analysis technique to use according to the purpose	B.W.3	3
Knowledge – K5	Knows the usage areas of gait analysis in physiotherapy and orthopedics	B.W.4, B.W.6	3
Skills - S1	Can use gait analysis devices in dogs and horses.	B.U.1, B.U.2, B.U.3, B.U.5	3
Skills – S2	Can interpret gait analysis results in terms of orthopedics	B.U.1,B.U.4,B.U.9,B.U.10, B.U.11,B.U.13,B.U.15	3
Skills – S3	Knows how to apply motion capture technique	B.U.1,B.U.2,B.U.3,B.U.6, B.U.7,B.U.15	3
Competences – C1	Constantly deepen his/her knowledge and cooperate with other veterinarians	KS.1, K.S.2, K.S.3, K.S.4, K.S.5, K.S.7	2
Competences – C2	Using the results of the gait analysis, he/she can monitor the progress of the treatment given to the animals.	K.S.1, KS.2, K.S.4, K.S.5	2