Syllabus

Module title:	Veterinary epidemiology	ECTS	2
Polish translation:	Epidemiologia weterynaryjna		
Course:	**Veterinary Medicine**		

Module language:	English			Stage:	JM-FVM
Form of studies:	☒intramural ☐extramural	Type of module:	☒ basic ☐directional	☒ mandatory ☐elective	Semester: 3	☐ winter semester ☐summer semester
				Academic year:	**2023/2024**	Catalogue number:	**FVM-V-JMSS-03W-B33_23**

Module coordinator:	**dr hab. Michał Czopowicz, prof. SGGW**
Teachers responsible for the module:	Academic teachers of the Institute of Veterinary Medicine; Division of Veterinary Epidemiology and Economics; PhD students in accordance to the internal legal acts; visiting professors; other specialists in the field of study
Objectives of the module:	The main objectives of the course cover theoretical and practical information on epidemiological methods used in veterinary sciences. Students acquaint with basic epidemiological concepts, basic knowledge about course of a disease in population, diagnostic tests theory, disease survey, observational studies, evidence based medicine, clinical trials and basics of disease control.
	Laboratory classes:
	Basic epidemiological concepts. Definition of disease. Classification of diseases. Definition and fields of epidemiology. [2h]
	Emergence and course of diseases in population. Etiology of diseases. Patterns of disease occurrence. [2h]
	Occurrence of diseases in population. Population and its characteristic. Epidemiological measures describing development of diseases in population and impact exerted by diseases on population. [2h]
	Diagnostic tests I. Definition of a diagnostic test. True and false test results. [2h]
	Diagnostic tests II. Sensitivity and specificity of diagnostic tests. Predictive values of test results. [2h]
	Diagnostic tests III. Cut-off point and methods of its determination. ROC curve. Reliability of diagnostic tests. [2h]
	Diagnostic tests IV. Comparison of diagnostic tests. Multiple testing. [2h]
	Questionnaires. Disease surveys I. Structure of the questionnaire. Basics of questionnaire surveys. Basics of disease surveys. Methods of sampling. [2h]
	Disease surveys II. Determination of sample size. [2h]
	Observational studies I. Classification of observational studies. Retrospective and prospective studies. Cohort, case-control and cross-sectional studies. [2h]
	Observational studies II. Determination of relationship between hypothesized risk factor and disease. Evaluation of direction and strength of the relationship. [2h]
	Experimental studies and clinical trials. Types of experimental studies. Principles according to which experimental studies are conducted. Basic measures of effect. Definition of the clinical trial. Protocol. Role of sponsor, monitor and investigator. [2h]
	Evidence based medicine (EBM). Sources of medical knowledge. Types of medical scientific publications. Reliability of results of medical scientific studies. [2h]
	Computer systems in animal health protection and basics of animal disease control. Methods of medical data collection. National and European computer systems. Organization of animal disease control. Monitoring. Surveillance. Disease control schemes. Contingency plans. [2h]
	The topics of exercises, as well as their form and number of hours may change depending on the current external conditions determined by the published legal acts.
Teaching forms, number of hours:	a) Laboratory classes; hours 30;
Teaching methods:	Multimedia presentations, discussions, solving problems Detailed schedule will be defined by the coordinator of the course at the beginning of semester. Detailed organization of consultations will be defined by the coordinator of the course at the beginning of semester.
Formal prerequisites and initial requirements:	Following courses completed: Biostatistics and methods of documentation

Learning effects		Course outcomes:	Learning outcomes relative to the course outcomes	Impact on the course outcomes*
Knowledge:	1	knows the basic concepts of descriptive statistics and probability theory	B.W 6	3

	2	knows the types and basics of parametric and nonparametric tests using	B.W.6	3
	3	knows the principles of making and testing statistical hypotheses using appropriate computer software	B.W.6	3
	4	knows the principles of conducting observational studies	B.W.5 A.W.13 B.W.6	2 3 3
	5	knows the principles of conducting clinical trials	B.W.5, A.W.13 B.W.6	2 3 3
	6	knows the principles of creating questionary and conducting questionnaire surveys	B.W.6	3
	7	knows the basics of animal disease control	B.W. 4, A.W.13 B.W.9, B.W.16 B.W. 8 A.W 10	2 1 3 1
	8	knows the computer systems used in animal health control	B.W.16, C.W.2	1
Skills:	1	is able to plan and carry out epidemiological studies (disease surveys, observational and clinical studies)	A.U.15, A.U.16, A.U.13, A.U. 23 A.U.23, B.U.8, B.U.9 B.U.20, B.U 25 B.U.19, C.U.2, C.U.3	1 1 2 3
	2	is able to prepare a questionnaire and conduct a questionnaire surveys	C.U.3	3
	3	is able to interpret the parameters characterizing diagnostic tests and apply appropriate diagnostic tests in practice	A.U.19 B.U.6	2 3
Competences:	1	is able to conduct epidemiological research using appropriate computer software	KS.1, KS.2, KS.7, KS.8, KS.9,KS.11 KS.5	1 1 2
	2	critically analyses the results obtained and is able to use them in practice	KS. 1, KS. 7, KS. 8 KS.4, KS. 5	1 2
Objectives of the module required to obtain learning effects:		Basic epidemiological concepts. Definition of disease. Classification of diseases. Definition and fields of epidemiology. Emergence and course of diseases in population. Etiology of diseases. Patterns of disease occurrence. Occurrence of diseases in population. Population and its characteristic. Epidemiological measures describing development of diseases in population and impact exerted by diseases on population. Diagnostic tests I. Definition of a diagnostic test. True and false test results. Diagnostic tests II. Sensitivity and specificity of diagnostic tests. Predictive values of test results. Diagnostic tests III. Cut-off point and methods of its determination. ROC curve. Reliability of diagnostic tests. Diagnostic tests IV. Comparison of diagnostic tests. Multiple testing. Questionnaires. Disease surveys I. Structure of the questionnaire. Basics of questionnaire surveys. Basics of disease surveys. Methods of sampling. Disease surveys II. Determination of sample size. Observational studies I. Classification of observational studies. Retrospective and prospective studies. Cohort, case-control and cross-sectional studies. Observational studies II. Determination of relationship between hypothesized risk factor and disease. Evaluation of direction and strength of the relationship. Experimental studies and clinical trials. Types of experimental studies. Principles according to which experimental studies are conducted. Basic measures of effect. Definition of the clinical trial. Protocol. Role of sponsor, monitor and investigator. Evidence based medicine (EBM). Sources of medical knowledge. Types of medical scientific publications. Reliability of results of medical scientific studies. Computer systems in animal health protection and basics of animal disease control. Methods of medical data collection. National and European computer systems. Organization of animal disease control. Monitoring. Surveillance. Disease control schemes. Contingency plans.		
Assessment methods:		Attendance to the seminars is mandatory, according to the academic regulations, student can be absent during 20% of seminars. Final exam consists of 30 questions (single choice test, 1 point per correct answer), to pass student needs to accumulate at least 50% + 1 point. The final evaluation depends on the number of points received on the exam: 0-15 points. – 2.0 16-18 points. – 3.0 19-21 points – 3.5 22-24 points. – 4.0 25-27 points – 4.5 28-30 points – 5.0 Retake is for students who failed or could not attend the first term. Both terms have the same form. No extra assessment methods are anticipated.		

	In the event of a suspension of classes at the University and the need for distance / hybrid teaching, other forms of verification of learning outcomes are allowed in a manner appropriate to the situation. Regardless of the above, the assumed practical learning outcomes assigned to classes will be verified only during contact classes
Detail description of assessment methods; Formal documentation of learning outcome:	eHMS entry. Records collected in the course portfolio i.e. individual records of student results, presence lists, database of oral and written questions, written assessments of the students.
Elements impelling final grade:	**Final exam is 100% of the final grade.**
Teaching base:	Computer lab – room No 120, building 22
Mandatory and supportive materials : 1. Thrusfield M. (2018) Veterinary Epidemiology. Blackwell Science 2. Noordhuizen J.P.T.M., Frankena K., Thrusfield M., Graat E.A.M. (2001) Application of Quantitative Methods in Veterinary Epidemiology. Wageningen Pers 3. Smith R.D. (1995) Veterinary Clinical Epidemiology. CRC Press Relevant scientific publications, including those of the module coordinator.	
ANNOTATIONS 	

* 3 – complete and detailed, 2 – moderate, 1 – basic.

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:	**50 h**
Total ECTS points, accumulated by students during contact learning:	**2 ECTS**