Module title:	One Health in veterinary practice	ECTS	1
Polish translation:	Teoria "Jedno Zdrowie" w praktyce weterynaryjnej		
Course:	**Veterinary Medicine**		

Module language: English		Stage: JM-FVM	
Form of studies: ■ intramural ☐ extramural	Type of module: ☐ basic ■ directional ☐ mandatory ■ elective	Semester: 6…….	☐ winter semester ■ summer semester
Academic year:	2022/2023 intake	Catalogue number:	**FVM-V-JMSS-05W-E77_22**

Module coordinator:	**Dr hab. Magdalena Rzewuska prof. SGGW**
Teachers responsible for the module:	**Academic teachers at the Institute of Veterinary Medicine/ dr hab. Magdalena Rzewuska prof. WULS, dr hab. Marta Mendel prof. WULS, dr Dorota Chrobak-Chmiel, dr Ilona Stefańska, dr Maciej Klockiewicz, dr Artur Jabłoński, dr hab. Agnieszka Jackowska-Tracz**
Objectives of the module:	The One Health concept is a worldwide strategy for expanding interdisciplinary collaborations and communications in all challenges related to public, human and animal health and the natural environment. It concerns different aspects of human and animal health practice, such as disease prevention, treatment, epidemiology, management of hospitals, management of community practices, farming management, environment protection, professional ethics and research. The main objective of the module is to acquaint students with the impact of pharmaceuticals on the global ecosystem, human and animal health and sustainability of the environment. The One Health concept will be presented from the point of view of multidrug resistance of microorganisms and parasites, contamination, and health risk of various chemotherapeutics in a food chain, and the environmental pollution. Lectures: 1. The One Health concept and its implementation into veterinary medicine science and practice (1 h) 2. Multidrug resistance in bacterial and fungal pathogens and its significance to human and veterinary medicine (2 h) 3. Pesticide, biocide and chemotherapeutic pollution of the environment – the One Health perspective (2 h) 4. Emerging zoonotic diseases – epidemiology and prevention in the aspect of One Health (2 h) 5. The influence of food animal farming management on the environment and public health (1 h) 6. The importance of food production technology and control to the protection of the environment and human and animal health (1 h) 7. The impact of global climate changes on humans, animals and the environment from the point of view of One Health concept (1 h) Seminars: 1. Development and the spread of antimicrobial and antiparasitic drug resistance in various ecosystems (2 h). 2. Pesticide, biocide and chemotherapeutic pollution of the environment – the One Health perspective (1 h) 3. The influence of food animal farming management on the environment and public health (1 h) 4. The importance of food production technology and control to the protection of the environment and human and animal health (1 h) The content of the lectures supplements the content of the laboratory classes.
Teaching forms, number of hours:	a) Lectures; 10 hours; b) Seminars; 5 hours;
Teaching methods:	- Original multimedia presentations prepared by academic teachers. - Short presentations prepared by students working in groups (according to the materials prepared by the teacher), including discussion and the use of scientific sources. - Consultations (0.5h/week) Detailed schedule of the classes and detailed organization of consultations will be defined by the coordinator of the course at the beginning of semester.
Formal prerequisites and initial requirements:	Passing the course: Veterinary microbiology, Veterinary pharmacology 1 Pathomorphology 1

Learning effects		Course outcomes:	Learning outcomes relative to the course outcomes	Impact on the course outcomes*
Knowledge:	1	knows the basics of One Health strategy.	A.W.16 C.W.3	1 3

			B.W. 15	3
			B.W.17	2
	2	understands the need of expanding interdisciplinary collaborations and communications in all aspects of health care for humans, animals and the environment.	A.W.13	1
			B.W.20	3
			C.W.2	2
	3	understands a crucial role of veterinarians in implementation of the One Health concept as humans and animals share the same environment.	B.W.17	3
			C.W.2	3
			C.W.3	2
	4	understands implications of multidrug resistance, environmental pollution and climate changes for human and animal health.	A.W.15	1
			A.W.16	1
			A.W.17	2
			A.W.18	3
			B.W.6	1
			B.W.15	3
			B.W.17	2
			B.W.20	3
Skills:	1	knows to describe and interpret drug resistance issues associated with animal health and environment protection in the aspect of the One Health strategy.	A.U.10	1
			A.U.11	3
			A.U.16	3
			A.U.19	1
			B.U.13	2
			C.U.2	3
	2	knows how to implement the One Health approach into veterinary practice.	A.U.16	3
			A.U.17	1
			B.U.10	2
			B.U.22	2
			B.U.23	3
			B.U.25	2
	3	is able to collaborate with healthcare professionals and other specialists.	A.U.12	3
			A.U.15	3
			A.U.21	2
			C.U.3	2
Competences:	1	recognizes how fundamental an interdisciplinary collaboration is to better understand and effectively resolve human and animal health problems.	KS.1	3
			KS.5	2
			KS.6	2
			KS.9	3
			KS.11	3
	2	knows that prevention and control of drug resistance and prudent use of antimicrobials is everyone's responsibility.	KS.1	3
	3	is aware of the necessity of constant education using current scientific sources.	KS.4	3
			KS.7	2
			KS.8	3

Objectives of the module required to obtain learning effects:	Objectives of all lectures and seminars.
Assessment methods:	Attendance to the lectures and seminars is mandatory, according to the academic regulations, a student can be absent on 20% of classes (= 3 hours). The final test consists of 6 open questions (max. 2 points per correct answer), to pass a student must collect 7.5 points. Retake is for students who failed or could not attend the first term. Both terms have the same form. The final test includes the contents of all lectures and seminars. No extra assessment methods are anticipated. In case of unforeseen, unusual circumstances mandatory remote teaching and remote assessment methods might be adopted.

<table>
<tr><td>Detail description of assessment methods;

Formal documentation of learning outcome:</td><td>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.</td></tr>
<tr><td>Elements impelling final grade:</td><td>The following conditions must be fulfilled to pass:
1. Attendance to the lectures and seminars (a student can be absent on 20% of classes).
2. Collection of min. 7.5 points from the final test.
Note: the final module grade is not an arithmetic mean of grades from all terms of the final test.

The final module grade is based on the sum of points from the final test according to the scale:
The maximum sum of points: 12
Required min. 62.5% the maximum sum of points = 7.5 points

<table>
<tr><th colspan="2">Elements impelling final grade in</th><th>Rounding points</th><th>Final grade</th></tr>
<tr><th>%</th><th>points</th><th></th><th></th></tr>
<tr><td>0 – <62.5</td><td>0 – <7.5</td><td>0 - 7.0</td><td>failing</td></tr>
<tr><td>62.5 - ≤ 70</td><td>7.5 - ≤8.4</td><td>7.5 – 8.0</td><td>passing</td></tr>
<tr><td>>70 - ≤75</td><td>>8.4 - ≤9.0</td><td>8.5 – 9.0</td><td>passing plus</td></tr>
<tr><td>>75 - ≤85</td><td>>9.0 - ≤10.2</td><td>9.5 – 10.0</td><td>good</td></tr>
<tr><td>>85 - ≤95</td><td>>10.2 - ≤11.4</td><td>10.5 – 11.0</td><td>good plus</td></tr>
<tr><td>>95 -100</td><td>>11.4 – 12.0</td><td>11.5 – 12.0</td><td>excellent</td></tr>
</table></td></tr>
<tr><td>Teaching base:</td><td>Lecture facilities and laboratories of the Institute of Veterinary Medicine</td></tr>
<tr><td colspan="2">Mandatory and supportive materials :
1. Mayers D.L., Sobel J.D., Ouellette M., Kaye K.S., Marchaim D.: Antimicrobial drug resistance: mechanisms of drug resistance, vol.1. Springer, 2017.
2. Kon K. i Rai M.: Antibiotic resistance: mechanisms and new antimicrobial approaches. Elsevier, 1th ed., 2016.
3. van Herten, J., Meijboom, F.L.B. Veterinary Responsibilities within the One Health Framework. Food ethics 3, 109–123 (2019). https://doi.org/10.1007/s41055-019-00034-8
4. Osterhaus, A.D.M.E., Vanlangendonck, C., Barbeschi, M. et al. Make science evolve into a One Health approach to improve health and security: a white paper. One Health Outlook 2, 6 (2020). https://doi.org/10.1186/s42522-019-0009-7.
5. “Of Animal and Men: The Importance of Animal Environment to Antimicrobial Resistance: A One Health Approach” by Miliane Moreira Soares de Souza, Cláudio Marcos Rocha-de-Souza, Dayanne Araújo de Melo, Cássia Couto da Motta, Ramon Loureiro Pimenta, Irene da Silva Coelho and Shana de Mattos de Oliveira Coelho; Published: April 14th 2020; DOI: 10.5772/intechopen.92118
6. Abelenda-Alonso G, Rombauts A, Burguillos N, Carratalà J. One air, one health: air pollution in the era of antimicrobial resistance. Clin Microbiol Infect. 2021 Jul;27(7):947-948. doi: 10.1016/j.cmi.2021.04.006.
7. Zinsstag J, Schelling E, Waltner-Toews D, Tanner M. From "one medicine" to "one health" and systemic approaches to health and well-being. Prev Vet Med. 2011 Sep 1;101(3-4):148-56. doi: 10.1016/j.prevetmed.2010.07.003.
8. Relevant scientific publications indicated by teachers.</td></tr>
<tr><td colspan="2">ANNOTATIONS</td></tr>
</table>

* 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:	**25 h**
Total ECTS points, accumulated by students during contact learning:	**1 ECTS**