



SZKOŁA GŁÓWNA
GOSPODARSTWA
WIEJSKIEGO

Milk hygiene

Educational subject description sheet

Basic information

Field of study Veterinary Medicine	Didactic cycle 2024/25
Speciality -	Subject code WETFVMS_D.5200K.01771.24
Organizational unit Faculty of Veterinary Medicine	Lecture languages english
Study level long-cycle	Mandatory Obligatory subjects
Study form full-time studies	Block Major subjects
Education profile General academic	Disciplines Veterinary medicine
Coordinator	Joanna Zarzyńska
Teacher	Joanna Zarzyńska
Period Semester 10	Examination Pass with grade
	Activities and hours Lecture: 15 Laboratory exercises: 15
	Number of ECTS points 2

Goals

Code	Goal
C1	The objective of the module is to prepare students for work in the veterinary inspection, in the field of food safety supervision of milk production and processing. Students will learn about the hygienic aspects of milk and dairy production, food quality and safety systems on farm stage and in processing plant, food law, sanitary and veterinary inspection principles, as well as test methods and hygienic assessment of milk and dairy products.

Entry requirements

Animal physiology 2, Biochemistry 2, Veterinary microbiology 2, Veterinary virology, Feed hygiene, Safety of food of animal origin 2.

Subject's learning outcomes

Code	Outcomes in terms of	Effects	Examination methods
Knowledge - Student knows and understands:			
W1	the principles of consumer health protection by proper supervision over milk production, milk&dairy products processing	B.W16, B.W17, B.W20	Written credit, Project
W2	the correct hygiene conditions and production technology, as well as food safety in the field of dairy production & processing	B.W17, B.W20	Written credit, Project
W3	the relevant legislation governing veterinary inspection	B.W21	Written credit
W4	the procedures related to HACCP— Hazard Analysis and Critical Control Points System	B.W18	Written credit, Project
W5	the principles of food law	B.W21	Written credit, Project
W6	laboratory techniques for standard testing of milk quality	B.W6	Written credit
W7	the principles of ensuring welfare in the barn	B.W9	Written credit
W8	the rules of milk sampling	B.W4	Written credit
Skills - Student can:			
U1	perform tests assessing the quality and safety of milk and dairy products	B.U18, B.U22, B.U23	Report
U2	interpret and evaluate the conditions of hygiene and technology of production, as well as and food safety	B.U18	Report
U3	use appropriate legal acts regulating veterinary inspection over food safety	B.U18	Written credit, Report
U4	prepare HACCP system documentation	B.U22	Project, Report
U5	prepare a sampling protocol, to collect and secure milk samples	B.U18, B.U23, B.U6	Report
U6	properly analyse and interpret the results of laboratory tests (quality of raw and processed milk)	B.U18, B.U23	Written credit, Report
U7	interpret tabulograms	B.U20, B.U5	Report
Social competences - Student is ready to:			
K1	cooperate with representatives of other professions in the field of public health protection	KS.11	Project, Report
K2	communicate and cooperate with breeders and entrepreneurs in the dairy production sector	KS.11, KS.5	Project, Report
K3	search for actual sources of knowledge and lifelong learning	KS.4, KS.8	Written credit, Project, Report
K4	use food law acts	KS.4, KS.8	Written credit, Project, Report

Code	Outcomes in terms of	Effects	Examination methods
K5	critical assessment of knowledge in the field of milk hygiene	KS.7	Written credit, Project, Report
K6	share own knowledge in the field of hygiene and milk and to use the knowledge of others	KS.9	Project, Report
K7	work in a team	KS.9	Project, Report

Study content

No.	Course content	Subject's learning outcomes	Activities
1.	1. Basic milk ingredients. Milk properties. (2h) 2. Milk production in Europe and in the world. Milk and vegetable drinks comparison (2h) 3. Milk hygiene at the barn level. Milking hygiene (2h) 4. Lactic acid bacteria. Fermentation cultures. Probiotics. (2h) 5. Pathogenic microorganisms in milk - food safety aspects. (3h) 6. Safety and hygiene aspects in the production of fermented dairy drinks and cheese. (2h) 7. Food law - milk. (2h) The content of the lectures supplements the content of laboratory classes.	W1, W2, W3, W4, W5, W6, W7, W8, U3, K3, K4	Lecture
2.	Laboratory classes (each class 3h): 1. Technology basics and hygiene aspects of the production of pasteurized, sterilized and UHT milk, as well as fermented drinks. 2. Microbiological examination of milk. Organoleptic examination of milk 3. Reading and analysis of milk microbiological test results. SCC. Factors affecting milk quality (at cow and herd level). The role of a veterinarian on a dairy farm. . 4. Physicochemical examination of milk. 5. HACCP system in the processing of milk and dairy products, hazard analysis and determination of critical control points.	W1, W2, W3, W4, W5, W6, W7, W8, U1, U2, U3, U4, U5, U6, U7, K1, K2, K3, K4, K5, K6, K7	Laboratory exercises

Course advanced

Activities	Methods of conducting classes
Lecture	Lecture, E-learning - lecture part, Discussion, Analysis of source materials
Laboratory exercises	Case study, Discussion, Brainstorm, Analysis of source materials, E-learning - exercises part, Teamwork, Individual work, Laboratory (experiment), learning by experiment, Observation, Measurement

Activities	Examination method	Percentage
Lecture	Written credit	50%
Laboratory exercises	Report	5%
Laboratory exercises	Written credit	40%
Laboratory exercises	Project	5%

Activities	Credit conditions
Lecture	There is one final written test covering all theoretical content of lecture and tutorials. Formula of open questions. To pass the course, it is necessary to obtain at least 60% of the total number of points from the written test. The test terms 1st and 2nd are hold in the same form. In case of unforeseen, unusual circumstances mandatory remote teaching and remote assessment methods might be adopted. The condition of joining the final test is passing practical skills evaluation. In the case of excused absence on the written test, the form of completion does not change.
Laboratory exercises	The teacher verifies practical effects during the laboratory classes. The student performs activities under the supervision of the lecturer. The student prepares documentation - a report from the performed activity, along with the obtained results interpretation. The teacher evaluates students' documentation (for credit).

Literature

Obligatory

1. Arvanitoyannis I. S. (2009). HACCP and ISO 22000: Application to Foods of Animal Origin (Institute of Food Science and Technology Series). Blackwell Science.
2. https://food.ec.europa.eu/system/files/2017-12/biosafety_fh_guidance_artisanal-cheese-and-dairy-products_en.pdf
3. The current legislation of the European Union related to food (EUR - lex) and international legislation (Codex Alimentarius).

Optional

1. review articles in eng
2. Web-sites: [http://www. International Dairy Federation](http://www.internationaldairyfederation.org) [http://www. International Dairy Foods Association](http://www.internationaldairyfoodsassociation.org), <http://www.fao.org>
3. web site: euromilk.org
4. milk hygiene industry guides
5. Monitoring the Hygiene of Raw Milk from Farms to Milk Retailers_article
6. https://snv.org/assets/explore/download/hygienic_and_quality_milk_production_training_manual_and_guideline.pdf

Calculation of ECTS points

Activity form	Activity hours*
Lecture	15
Laboratory exercises	15
Preparing a report	4
Conducting literature research	3
Preparation for the exam	15
Preparing the project	3
Self-study on the content covered in class	5
Student workload	Hours 60

Number of ECTS points	ECTS 2
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* hour means 45 minutes

Effects

Code	Content
KS.4	label.effect.prefix.competenceAbsolwent jest gotów do korzystania z obiektywnych źródeł informacji
KS.5	label.effect.prefix.competenceAbsolwent jest gotów do formułowania wniosków z własnych pomiarów lub obserwacji
KS.7	label.effect.prefix.competenceAbsolwent jest gotów do rzetelnej samooceny, formułowania konstruktywnej krytyki w zakresie praktyki weterynaryjnej, przyjmowania krytyki prezentowanych przez siebie rozwiązań, ustosunkowywania się do niej w sposób jasny i rzeczowy, także przy użyciu argumentów odwołujących się do dostępnego dorobku naukowego w dyscyplinie
KS.8	label.effect.prefix.competenceAbsolwent jest gotów do pogłębiania wiedzy i doskonalenia umiejętności
KS.9	label.effect.prefix.competenceAbsolwent jest gotów do komunikowania się ze współpracownikami i dzielenia się wiedzą
KS.11	label.effect.prefix.competenceAbsolwent jest gotów do współpracy z przedstawicielami innych zawodów w zakresie ochrony zdrowia publicznego
B.U5	label.effect.prefix.skillAbsolwent potrafi oceniać stan odżywienia zwierzęcia oraz udzielać porad w tym zakresie
B.U6	label.effect.prefix.skillAbsolwent potrafi pobierać i zabezpieczać próbki do badań oraz wykonywać standardowe testy laboratoryjne, a także prawidłowo analizować i interpretować wyniki badań laboratoryjnych
B.U18	label.effect.prefix.skillAbsolwent potrafi ocenić jakość produktów pochodzenia zwierzęcego
B.U20	label.effect.prefix.skillAbsolwent potrafi korzystać ze zgromadzonych informacji związanych ze zdrowiem i dobrotanem zwierząt, a w wybranych przypadkach również z produktywnością stada
B.U22	label.effect.prefix.skillAbsolwent potrafi oszacować ryzyko wystąpienia zagrożeń chemicznych i biologicznych w żywności pochodzenia zwierzęcego
B.U23	label.effect.prefix.skillAbsolwent potrafi pobrać próby do badań monitoringowych na obecność substancji niedozwolonych, pozostałości chemicznych, biologicznych, produktów leczniczych i skażeń promieniotwórczych u zwierząt, w ich wydzielinach, wydalinach, w tkankach lub narządach zwierząt, w produktach pochodzenia zwierzęcego, żywności, w wodzie przeznaczonej do pojenia zwierząt i w paszach
B.W4	label.effect.prefix.knowledgeAbsolwent zna i rozumie zasady postępowania diagnostycznego, z uwzględnieniem diagnostyki różnicowej, oraz postępowania terapeutycznego
B.W6	label.effect.prefix.knowledgeAbsolwent zna i rozumie sposób postępowania z danymi klinicznymi i wynikami badań laboratoryjnych i dodatkowych
B.W9	label.effect.prefix.knowledgeAbsolwent zna i rozumie zasady zapewniania dobrostanu zwierząt
B.W16	label.effect.prefix.knowledgeAbsolwent zna i rozumie zasady funkcjonowania Inspekcji Weterynaryjnej, także w aspekcie zdrowia publicznego
B.W17	label.effect.prefix.knowledgeAbsolwent zna i rozumie zasady ochrony zdrowia konsumenta zapewniane przez właściwy nadzór nad produkcją środków spożywczych pochodzenia zwierzęcego
B.W18	label.effect.prefix.knowledgeAbsolwent zna i rozumie systemy kontroli zgodne z procedurami HACCP (Hazard Analysis and Critical Control Points) - Systemu Analizy Zagrożeń i Krytycznych Punktów Kontroli
B.W20	label.effect.prefix.knowledgeAbsolwent zna i rozumie warunki higieny i technologii produkcji zwierzęcej
B.W21	label.effect.prefix.knowledgeAbsolwent zna i rozumie zasady prawa żywnościowego