

2023/2024

VETERINARY PUBLIC HEALTH

UNIVERSITY OF ZAGREB
 FACULTY OF VETERINARY MEDICINE
 Heinzelova 55
 Tel. 01/ 2390-123
 Division: VETERINARY PUBLIC HEALTH AND FOOD SAFETY
 Unit: Hygiene, Technology and Food Safety Unit
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Register no.:
 File no.:

Zagreb, 20/11/2023

COURSE SYLLABUS

Course name: Veterinary Public Health

Academic year 2023/2024

Course leader: Full Prof. Nevijo Zdolec

Deputy course leader: Assist. Prof. Tomislav Mikuš

Teachers: Full Prof. Ljubo Barbić, Full Prof. Frane Božić, Full Prof. Željka Cvrtila, Full Prof. Anamaria Ekert Kabalin, Full Prof. Albert Marinculić, Full Prof. Kristina Matković, Full Prof. Željko Mikulec, Full Prof. Marina Pavlak, Full Prof. Andreja Prevendar-Crnić, Full Prof. Velimir Sušić, Full Prof. Nevijo Zdolec, Assoc. Prof. Dean Konjević, Assoc. Prof. Maja Maurić Maljković, Assoc. Prof. Sven Menčik, Assoc. Prof. Mario Ostović, Assoc. Prof. Vilim Starešina, Assoc. Prof. Vladimir Stevanović, Assist. Prof. Tomislav Mikuš, teaching assistant Marta Kiš, DVM

First day of classes: 30/11/2023

Last day of classes: 25/01/2024



174265	REPUBLIKA HRVATSKA	
Veterinarski fakultet u Zagrebu		
Primljeno:	21.11.2023	
Klasifikacijska oznaka	Org. jed.	
605-03/23-04/28	251-61-32;	
Uredžbeni broj	Prilozi	Vrijednost
251-61-17/356-23-56	0	-

Timetable for LECTURES academic year 2023/2024

LECTURES				
Date	Methodological unit	Teacher	Location / time	Literature
30/11/2023 1 st lecture	Chemical risks in food chain	Full Prof. Željka Cvrtila	9am-10,30am Library Hygiene, Technology and Food Safety Unit	CODEX ALIMENTARIUS (2003): Food Hygiene Basic Text. Food and Agricultural Organization of the United Nations. World health organization. Reprinted 2005. EFSA Scientific Opinions on the public health hazards (https://www.efsa.europa.eu/en/publications)
11/12/2023 2 nd lecture	Nutrition The influence of nutrition on the quality of animal products. Animal feed additives	Full Prof. Željko Mikulec	11,30am-14,30pm Library Animal nutrition and dietetics Unit	MCDONALD, P., R.A. EDWARDS, J.F.D. GREENHALG, C.A. MORGAN, L.A. SINCLAIR, R.G. WILKINSON (2010): Animal Nutrition (7th edition), Pearson Prentice Hall. Lecture materials
12/12/2023 3 rd lecture	Introduction to VPH	Full Prof. Nevijo Zdolec	12,00pm-13,30pm Library Hygiene, Technology and Food Safety Unit	Lecture materials https://ecvph.org/
13/12/2023 4 th lecture	Biological hazards in the food chain	Full Prof. Nevijo Zdolec	12,00pm-13,30pm Library Hygiene, Technology and Food Safety Unit	RAY, B., A. BHUNIA (2014): Fundamental Food Microbiology. 5th edition. CRC Taylor & Francis, SAD. Lecture materials
14/12/2023 5 th lecture	Veterinary waste - health risk; Pest insects of importance in public health; Rodent control in public health	Full Prof. Kristina Matković	8,15am-10,30am Library Animal Hygiene, Behaviour and Welfare Unit	DEWULF, J., F. VAN IMMERSEEL, ur. (2018): Biosecurity in Animal Production and Veterinary Medicine: From Principles to Practice. ACCO, Leuven, Belgium.
14/12/2023 6 th lecture	Hygienic safety of drinking water; Disinfection in public health; Welfare of economically usable animals for food production	Assoc. Prof. Mario Ostović	11,00am-13,15pm Library Animal Hygiene, Behaviour and Welfare Unit	GREGORY, N. G., T. GRANDIN (2007): Animal Welfare and Meat Production. 2nd edition. N. G. Gregory, Cromwell, Trowbridge, UK. MENCH, J. A., ed. (2018): Advances in Agricultural Animal Welfare: Science

				and Practice. Woodhead Publishing, Elsevier, Ltd., UK
18/12/2023 7 th lecture	Alimentary infections and intoxications	Assist. Prof. Tomislav Mikuš	9,00am-10,30 am Library Hygiene, Technology and Food Safety Unit	JEANTET, R., T. CROGUENNEC, P. SCHUCK, G.BRULÉ (2016): Handbook of Food Science and Technology 2 - Food Process Engineering and Packaging. John Wiley & Sons, Inc., London, UK Selected chapters LUNING, P.A., F. DEVLIEGHERE, R. VERHÉ (eds) (2007): Biological hazards. In: Safety in the agri-food chain. Wageningen Academic Publishers. Selected chapters
19/12/2023 8 th lecture	Monitoring and control of zoonoses in slaughterhouses	Full Prof. Nevijo Zdolec	9,00am-10,30am Library Hygiene, Technology and Food Safety Unit	NINIOS, N., J. LUNDEN, H. KORKEALA, M. FREDRIKSSON-AHOMA (2014): Meat inspection and control in the slaughterhouse. Wiley Blackwell.
20/12/2023 9 th lecture	Antimicrobial resistance in the food chain	Full Prof. Nevijo Zdolec	9,00am-10,30am Library Hygiene, Technology and Food Safety Unit	RAY, B., A. BHUNIA (2014): Fundamental Food Microbiology. 5th edition. CRC Taylor & Francis, SAD. Lecture materials
08/01/2024 10 th lecture	Prerequisite programs and HACCP	Assist. Prof. Tomislav Mikuš	9,00am-10,30am Library Hygiene, Technology and Food Safety Unit	NINIOS, N., J. LUNDEN, H. KORKEALA, M. FREDRIKSSON-AHOMA (2014): Meat inspection and control in the slaughterhouse. Wiley Blackwell.
08/01/2024 11 th lecture	Animal husbandry Genetic basis of animals and its impact on the quality of animal products/foodstuffs of animal origin Part I	Assoc. Prof. Sven Menčik/Full Prof. Velimir Sušić	11,00am-12,30pm Library Hygiene, Technology and Food Safety Unit	Guide to good farming practices for animal production food safety. Food and agriculture organization of the United Nations. World organisation for animal health. Rome, 2009. Breeding strategies for sustainable management of animal genetic resources. Food and agriculture organization of the United Nations. Rome, 2010. Breeding for disease resistance in farm

				animals. Ur. Axford R.F.E., S. C. Bishop, F. W. Nicholas, J. B. Owen; CABI Publishing, 2000.
09/01/2024 12 th lecture	Animal husbandry Genetic basis of animals and its impact on the quality of animal products/foodstuffs of animal origin Part II	Full Prof. Anamaria Ekert Kabalin/Full Prof. Velimir Sušić	11,00am-12,30pm Library Hygiene, Technology and Food Safety Unit	Guide to good farming practices for animal production food safety. Food and agriculture organization of the United Nations. World organisation for animal health. Rome, 2009. Breeding strategies for sustainable management of animal genetic resources. Food and agriculture organization of the United Nations. Rome, 2010. Breeding for disease resistance in farm animals. Ur. Axford R.F.E., S. C. Bishop, F. W. Nicholas, J. B. Owen; CABI Publishing, 2000.
10/01/2024 13 th lecture	Animal husbandry Risk factors and their interdependence in different animal production systems	Assoc. Prof. Maja Maurić-Maljković	11,00am-12,30pm Library Hygiene, Technology and Food Safety Unit	Guide to good farming practices for animal production food safety. Food and agriculture organization of the United Nations. World organisation for animal health. Rome, 2009. Breeding strategies for sustainable management of animal genetic resources. Food and agriculture organization of the United Nations. Rome, 2010. Breeding for disease resistance in farm animals. Ur. Axford R.F.E., S. C. Bishop, F. W. Nicholas, J. B. Owen; CABI Publishing, 2000.
11/01/2024 14 th lecture	Basics of epizootiology and epidemiology of zoonoses	Full Prof. Ljubo Barbić	9,00am-10,30am Library Hygiene, Technology and Food Safety Unit	Obligatory literature: GOYAL S.M (2006): Viruses in Foods. Springer. BLACKBURN C.W., P.J. MCCLURE (2002): Foodborne Pathogens - Hazards, Risk Analysis and Control.
11/01/2024 15 th lecture	Basics of diagnosis and control of zoonoses in our country and in	Full Prof. Ljubo Barbić	10,30am-12,00pm Library	

	the world; Basics of prophylaxis; Control of food-borne zoonoses		Hygiene, Technology and Food Safety Unit	CRC Press. WHO (2017): The burden of foodborne diseases in the WHO European region. WHO. Optional literature: BEDI J.S., VIJAY D., DHAKA, P. (2022): Textbook of Zoonoses. Wiley-Blackwell. HUI Y.H., SATTAR S.A., K.D. MURELL, W.K. NIP, STANFIELD P.S. (2000): Foodborne Disease Handbook, Second Edition: Volume 2: Viruses: Parasites: Pathogens, and HACCP. CRC Press
11/01/2024 16 th lecture	Zoonoses transmitted by food caused by viruses, prions	Assoc. Prof. Vladimir Stevanović/ Full Prof. Ljubo Barbić	12,00pm-13,30pm Library Hygiene, Technology and Food Safety Unit	
16/01/2024 17 th lecture	Epidemiology: Alimentary infections and intoxications	Full Prof. Marina Pavlak	13,00pm-14,30pm Library Hygiene, Technology and Food Safety Unit	THRUSFIELD, M.V. (2007): Veterinary epidemiology – selected chapters
24/01/2024 18 th lecture	Pharmacology Veterinary drug residues	Full Prof. Frane Božić	8,30am-10,00am Library Pharmacology and Toxicology Unit	Guideline on approach towards harmonisation of withdrawal periods http://www.ema.europa.eu/docs/en_GB/ document_library/Scientific_guideline/20 16/07/WC500210929.pdf Evaluation of certain veterinary drug residues in food. Seventieth report of the Joint FAO/WHO Expert Committee on Food Additives. World Health Organisation. World Health Organisation Tech. Rep. Ser. 2014. (988): 1-123. Commission Directive 2006/130/EC of 11 December 2006 implementing directive 2001/82/EC of the European Parliament and of the Council as regards the establishment of criteria for exempting certain veterinary medicinal products for food-producing animals from the requirement of a veterinary prescription. Commission Directive 2009/9/EC of 10 February 2009 amending Directive 2001/82/EC of the European Parliament

				and of the Council on the Community code relating to medicinal products for veterinary use (Official Journal L 44, 14/2/2009 pp. 10-61).
24/01/2024 20 th lecture	Analytical toxicology in Veterinary Public Health	Full Prof. Andreja Prevendar Crnić	10,00am-11,30am Library Pharmacology and Toxicology Unit	GUPTA, R. C. (2007): Veterinary toxicology. Basic and clinical principles. AP, 2007

Timetable for PRACTICALS academic year 2023/2024

PRACTICALS					
Date	Methodological unit	Teacher	Type of practical	Location / time	Literature
15/01/2024 1 st practical	PRP&HACCP - Infrastructure	Assist. Prof. Tomislav Mikuš	Construction practicals I	8,00am-16,00pm Hygiene, Technology and Food Safety Unit	Handouts and working materials
	- Sanitation	Assist. Prof. Tomislav Mikuš			
	- Pest control plans, water control, education	Teaching assistant Marta Kiš, DVM			
	- Chemical analysis plans, SOP with additives, spices and allergens	Full Prof. Željka Cvrtila			
	- Microbiological analysis plans and standards	Teaching assistant Marta Kiš, DVM			
18/01/2023 2 nd practical	<i>Toxoplasma</i> sp., <i>Sarcocystis</i> sp.; <i>Taenia</i> sp., <i>Cysticercus</i> <i>cellulosae</i> , <i>Cysticercus</i> <i>bovis</i> ; <i>Alaria</i> sp., Fam. <i>Anisakidae</i> ; <i>Trichinella</i> sp; <i>Giardia</i> sp., <i>Cryptosporidium</i> sp., <i>Entamoeba</i> sp.; <i>Leishmania</i> sp., <i>Babesia</i> sp.; <i>Echinococcus</i> sp.; fam. <i>Ascaridae</i> , Visceral larva migrans, Cutaneous larva migrans, Strongyloidosis; Ectoparasites of medical importance	Full Prof. Albert Marinculić	Conversatory	9,00am-13,30pm Library Hygiene, Technology and Food Safety Unit	URQUHART, G.M., J. ARMOUR, J.L. DUNCAN, A.M. DUNN, F.W. JENNINGS (1987): Veterinary Parasitology, Essex.
23/01/2024 3 rd practical	PRP&HACCP - Risk Analysis	Assist. Prof. Tomislav Mikuš	Construction practicals II	8,00am-16,00pm Hygiene, Technology and Food Safety Unit	Handouts and working materials

	- Product description	Teaching assistant Marta Kiš, DVM			
	- Flow chart	Full Prof. Željka Cvrtila			
	- Determination and monitoring CCP	Teaching assistant Marta Kiš, DVM			
	- Official control of HACCP implementation	Full Prof. Nevijo Zdolec			
25/01/2023 4 th practical	Field Exercises	Teaching assistant Marta Kiš, DVM		9,00am-13,30pm Lorković	Handouts and working materials

Timetable for SEMINAR academic year 2023/2024

SEMINARS				
Date	Methodological unit	Teacher	Location / time	Literature
04/12/2023 1 st seminar	Food authenticity and food fraud Quality Management	Full Prof. Željka Cvrtila	9,00am-10,30am Library Hygiene, Technology and Food Safety Unit	SPINK, J. W. (2019): Food Fraud Prevention. Springer Science and Business Media, LLC, part of Springer Nature 2019 FAO Food and Nutrition Paper No 14/9, FAO Roma, Manual of Food Quality Control. ISO standards Quality management systems in the food industry https://hrcak.srce.hr/45997
21/12/2023 2 nd seminar	Surveillance of zoonoses from the farm to the slaughterhouse	Full Prof. Nevijo Zdolec	9,00am-10,30am Library Hygiene, Technology and Food Safety Unit	NINIOS, N., J. LUNDEN, H. KORKEALA, M. FREDRIKSSON- AHOMA (2014): Meat inspection and control in the slaughterhouse. Wiley Blackwell.
16/01/2024 3 rd seminar	Slaughter by-products and disposal	Assist. Prof. Tomislav Mikuš	8,30am-10,00am Library Hygiene, Technology and Food Safety Unit	Regulation (EC) No 1069/2009 of the european parliament and of the council of 21 October 2009 Commission regulation (EU) No 142/2011 of 25 February 2011
17/01/2024 4 th seminar	Alimentary infections and intoxications	Full Prof. Nevijo Zdolec	8,30am-10,00am Library Hygiene, Technology and Food Safety Unit	HERTEDIA, N., I. WESLEY, S. GARCIA (eds) (2009): Microbiologically safe foods. Willey & Son, Inc., Publication – Selected chapters
17/01/2024 5 th seminar	Accreditation in VPH	Assist. Prof. Tomislav Mikuš	10,00am-11,30am Library Hygiene, Technology and Food Safety Unit	ISO standards Regulations and Directives EU
17/01/2024 6 th seminar	Alimentary infections and intoxications	Full Prof. Marina Pavlak	14,00pm-15,30pm Library Hygiene, Technology and Food Safety Unit	THRUSFIELD, M.V. (2007): Veterinary epidemiology – selected chapters Handouts and working materials

22/01/2024 7 th seminar	Nutrition The influence of nutrition on the quality of animal products Animal feed	Full Prof. Željko Mikulec	9,00am-10,30am Library Animal nutrition and dietetics Unit	MCDONALD, P., R.A. EDWARDS, J.F.D. GREENHALG, C.A. MORGAN, L.A. SINCLAIR, R.G. WILKINSON (2010): Animal Nutrition (7th edition), Pearson Prentice Hall.
24/01/2024 8 th seminar	Residue and sublethal effects of xenobiotics	Full Prof. Andreja Prevedar Crnić	11,30am-13,00pm Library Pharmacology and Toxicology Unit	GUPTA, R. C. (2007): Veterinary toxicology. Basic and clinical principles. AP.

STUDENT OBLIGATIONS

Lecture attendance	In order to gain minimal 3 points a student must attend 21 lecture hours. Each particular lecture hour is summed as 0,142 point.
Exercises attendance	In order to gain the minimal number of points (4), a student must attend 22 exercise hours. Each particular exercise hour is summed as 0,180 point.
Seminars attendance	To achieve the minimum number of points (4), the student must be present at 11 hours of seminars. Each particular seminar hour is summed as 0,380 point
Activity in exercises and seminars	The maximum number of points a student can collect is 10. To achieve this, 4 points can be collected for a successfully prepared and held seminar and 6 points for positive oral answers during exercises and seminars. The minimum number of points a student must collect is 5. This includes 4 points for correct oral answers during exercises and seminars and at least 1 point for preparing and holding seminars.
Final exam	The final exam comprises all results gained from attending lessons. The exam is written. At the exam student answers 20 questions. One correct answer is worth 2 points. The student must gain a minimum of 24 points / answer 12 questions / to achieve 24 minimum points.
Examination requirements	Student requirements are defined in the Regulations on the Integrated Undergraduate and Graduate Study of Veterinary Medicine (2022). Given the above, the student must acquire a minimum number of points from all assessment elements in order to take the final exam. Article 41: a student can justifiably be absent from up to 50 % of the lectures; 30% of the seminars and 30 % of the exercises.

GRADING AND EVALUATING STUDENT WORK

Continuous knowledge-checking (mid-terms)	During the course, continuous knowledge will be evaluated by 1 preliminary written exam (8 questions). In case of justified absence from the first term of colloquium (medical certificate), the student can access to second term. The maximum number of point student can earn is 32. Student must achieve a minimum of 20 points (answer a minimum of 5 questions). In case student answers less than 5 questions correctly at a preliminary exam, he/she must retake the preliminary exam. The colloquium includes questions from the topics held by lecturers from Nutrition, Infection Diseases, Toxicology, Animal Husbandry, Parasitology, Epidemiology and Animal Hygiene, Behaviour and Welfare Units.
Final exams (dates)	09.02.2024., 20.02.2024.
Form of final exam	Written exam

LITERATURE

Obligatory literature

- CODEX ALIMENTARIUS (2003): Food Hygiene Basic Text. Food and Agricultural Organization of the United Nations. World health organization. Reprinted 2005.
- DEWULF, J., F. VAN IMMERSEEL, ur. (2018): Biosecurity in Animal Production and Veterinary Medicine: From Principles to Practice. ACCO, Leuven, Belgija.
- GOYAL, S.M (2006): Viruses in Foods. Springer.
- BLACKBURN C.W., P.J. MCCLURE (2002): Foodborne Pathogens - Hazards, Risk Analysis and Control. CRC Press.
- GREGORY, N. G., T. GRANDIN (2007): Animal Welfare and Meat Production. 2nd edition. N. G. Gregory, Cromwell, Trowbridge, UK.
- GUPTA, R. C. (2007): Veterinary toxicology. Basic and clinical principles. AP, 2007
- JEANTET, R., T. CROGUENEC, P. SCHUCK, G.BRULÉ (2016): Handbook of Food Science and Technology 2 - Food Process Engineering and Packaging. John Wiley & Sons, Inc., London, UK Selected chapters
- HERTEDIA, N., I. WESLEY, S. GARCIA (eds) (2009): Microbiologically safe foods. Willey & Son, Inc., Publication – Selected chapters
- MENCH, J. A., ur. (2018): Advances in Agricultural Animal Welfare: Science and Practice. Woodhead Publishing, Elsevier, Ltd., UK.
- NINIOS, N., J. LUNDEN, H. KORKEALA, M. FREDRIKSSON-AHOMA (2014): Meat inspection and control in the slaughterhouse. Wiley Blackwell
- RAY, B., A. BHUNIA (2014): Fundamental Food Microbiology. 5th edition. CRC Taylor & Francis, SAD
- ROVIRA J., A. CENCIC, E. SANTOS, M. JAKOBSEN (2007): Biological hazards. In: Safety in the agri-food chain. LUNING, P.A., F. DEVLIEGHERE, R. VERHÉ (eds). Wageningen Academic Publishers. Selected chapters
- URQUHART, G.M., J. ARMOUR, J.L. DUNCAN, A.M. DUNN, F.W. JENNINGS (1987): Veterinary Parasitology, Essex.
- SPINK, J. W. (2019): Food Fraud Prevention. Springer Science and Business Media, LLC, part of Springer Nature 2019.
- THRUSFIELD, M.V. (2007): Veterinary epidemiology – selected chapters
- ZDOLEC, N. (2016): Fermented Meat Products: Health Aspects. CRC Taylor & Francis, SAD.
- WEBSTER, J. (ed) (2011): Management and Welfare of Farm Animals. 5th edition. Wiley-Blackwell.
- WHO (2017): The burden of foodborne diseases in the WHO European region. WHO.
Guideline on approach towards harmonisation of withdrawl periods
http://www.ema.europa.eu/docs/en_GB/document_library/Scientific_guideline/2016/07/WC500210929.pdf
Evaluation of certain veterinary drug residues in food. Seventieth report of the Joint FAO/WHO Expert Committee on Food Additives. World Health Organisation. World Health Organisation Tech. Rep. Ser. 2014. (988): 1-123.
Guide to good farming practices for animal production food safety. Food and agriculture organization of the United Nations. World organisation for animal health. Rome, 2009.

	<p>Breeding strategies for sustainable management of animal genetic resources. Food and agriculture organization of the United Nations. Rome, 2010.</p> <p>Breeding for disease resistance in farm animals. Ur. Axford R.F.E., S. C. Bishop, F. W. Nicholas, J. B. Owen; CABI Publishing, 2000.</p>
Optional literature	<p>Regulations EC related to food hygiene, food safety, official controls, EU regulations related to food hygiene, food safety, official controls, and implementing regulations: Commission regulation (EC) No 2073/2005 on microbiological criteria for foodstuffs Commission regulation (EU) No 142/2011 of 25 February 2011 Regulation (EC) No 178/2002 of the European parliament and of the Council laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety Regulation (EC) No 852/2004 of the European parliament and of the Council on the hygiene of foodstuffs Regulation (EC) No 853/2004 of the European parliament and of the Council laying down specific hygiene rules of food of animal origin Regulation (EU) 2017/625 of the European Parliament and of the Council of 15 March 2017 on official controls and other official activities performed to ensure the application of food and feed law, rules on animal health and welfare, plant health and plant protection products Regulation (EU) 2019/627 of 15 March 2019 laying down uniform practical arrangements for the performance of official controls on products of animal origin intended for human consumption in accordance with Regulation (EU) 2017/625 of the European Parliament and of the Council Regulation (EC) No 1069/2009 of the European parliament and of the council of 21 October 2009 EFSA Scientific Opinions on the public health hazards (https://www.efsa.europa.eu/en/publications) White Paper on Food Safety (2002) FAO Food and Nutrition Paper No 14/9, FAO Roma, Manual of Food Quality Control. ISO standards</p> <p>Council Directive 98/58/EC of 20 July 1998 concerning the protection of animals kept for farming purposes Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption Regulation (EC) No 1069/2009 of the European Parliament and of the Council of 21 October 2009 laying down health rules as regards animal by-products and derived products not intended for human consumption and repealing Regulation (EC) No 1774/2002 (Animal by-products Regulation) Regulation (EU) No 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products</p> <p>Commission Directive 2006/130/EC of 11 December 2006 implementing directive 2001/82/EC of the European Parliament and of the Council as regards the establishment of criteria for exempting certain veterinary medicinal products for food-producing animals from the requirement of a veterinary prescription. Commission Directive 2009/9/EC of 10 February 2009 amending Directive 2001/82/EC of the European Parliament</p>

and of the Council on the Community code relating to medicinal products for veterinary use (Official Journal L 44, 14/2/2009 pp. 10-61).

BEDI J.S., VIJAY D., DHAKA P. (2022): Textbook of Zoonoses. Wiley-Blackwell.
 HUI Y.H., SATTAR S.A., K.D. MURELL, W.K. NIP, STANFIELD P.S. (2000): Foodborne Disease Handbook, Second Edition: Volume 2: Viruses: Parasites: Pathogens, and HACCP. CRC Press.

OBJECTIVES AND LEARNING OUTCOMES

Course objectives

FOOD HYGIENE AND TECHNOLOGY

Dates of veterinary public health in the wider sense of the word can be defined as a veterinary practice in the protection of human health (or as in veterinary public health). In the administrative, however, the sense of veterinary public health can be defined as a veterinary practice in the implementation of regulations in the field of veterinary and health surveillance of foods, especially with regard to the protection of human health against diseases of animals and their raw materials and products can be transmitted to humans. The main task of Veterinary Public Health is coordinating the participation of veterinary medicine in the practice of public health and preventive medicine. Security strategy in function of processing and transport and quality control of foods is possible on the basis of the HACCP concept (Engl. Hazard Analysis Critical Control Points), ie, risk assessment and critical control points. In the context of ensuring safety and quality of food is particularly important role of good manufacturing practice (GMP concepts) within the SQA-concept, which includes the quality, safety and acceptability of foods on the market. In the management of product safety priority should be given to the active mediation before the inspection. To familiarize students with facilities for processing meat and other foods, as well as storage systems, cooling and freezing for the purpose of education in the field of health and safety factors and improving the quality of food of animal origin. The aim of veterinary-sanitary control is the protection of human health, preventing the spread of infectious and parasitic diseases of animals and the protection of the economic interests of consumers. The goal of the veterinary-sanitary control in the production, processing, storage and transport of foods eliminated from consumers dangers that may arise eating rotten and health harmful, or faulty medical supplies. Foods are an ideal environment for the proliferation of microorganisms and can be carrier of various diseases, particularly zoonoses, but also those that are just transferred store. May include specific causes of bacterial poisoning people and the microorganisms that its biochemical activity can lead to the creation of various toxic substances. It follows that the hygienic quality of the total valuation basis foodstuffs. The aim is to familiarize students with the regulations governing the proper conduct of veterinary-sanitary activities in this segment (Veterinary Act, Food Act, Consumer Protection Act and the regulations which are based on these laws).

ANIMAL HUSBANDRY

Getting acquainted with modern methods used in evaluation of sustainability of certain production systems.
 Gathering knowledge about genetic basis of characteristics that are most important for quality of animal products.

Gathering knowledge about the possibilities of changing genetic basis which is responsible for the animal product quality characteristics.

NUTRITION

Explain the influence of chemical composition and amount on characteristics of animal products. Define approved possibilities of manipulation with the quality of animal products by interventions in feeding. Inform students with EU legislative concerning the using of feedstuffs and feed additives. Feed additives in Croatian legislative (NN 26/98). The concept of food chain in modern world. Explain which deleterious substances could enter food chain and adversely affect human health. Inform students with current scientific advances in GMO field.

ANIMAL HYGIENE, ENVIRONMENT AND ETHOLOGY

Adverse impact of certain factors (the way of accommodation, size of space, rough handling during transfer, inadequate way of separating calves from their mother, cutting tails and teeth, inadequate transport, etc.) on the welfare of animals in group systems (occurrence of stress, pain, suffering) and measures and methods for their prevention. Health aspects related to microbiological contamination of water - hydro infection, inorganic and organic compounds, occurring in water disinfection, MDK. Modern processes and alternative methods of disinfection; effective environmentally acceptable disinfectants new generation, the basic rules of disinfection and factors affecting performance. Treatment and disposal of the waste and animal fecal matter in order to prevent and control diseases, particularly zoonoses. The use of modern insecticides to combat pests that molest and transmitters of a number of infectious and parasitic diseases, particularly zoonoses. Mechanical and physical measures to prevent the entrance of rodents in enclosed rooms. Choice of means to combat rodents. Precautions against possible contact and the harmful effects of toxins in foods of animal origin.

ZOONOSES

Gaining knowledge about the importance of zoonotic foodborne. Repetition of previously acquired knowledge in general epidemiology. Understanding the specifics of the spread of infectious diseases through products and raw materials of animal origin depending on their agent. Gaining knowledge about the basics of diagnosis of infectious diseases, as well as the implementation of measures to prevent the spread and prevention of zoonoses spreading food.

PARASITOLOGY

Parasitology and parasitic diseases enables students for understanding the biology, morphology and determination of endoparasites as a ethiological factor of foodborn zoonoses. The student will be capable: to distinguish and make identification of each group of parasites and each parasite and their developmental stages among the group; understanding the epidemiology of parasitic diseases and pathogenesis caused by parasites and parasitic developmental stages; developing laboratory and diagnostic skills in the preparation and examination of a range of specimens for diagnosis and identification of parasites and their developmental stages; demonstrate knowledge and practical skills in therapy and control of foodborn parasitic diseases.

	<p>PHARMACOLOGY and TOXICOLOGY</p> <p>Residues of veterinary drugs (pharmacologically active substances) in food animals, milk, eggs and honey. Determination of withdrawal time following the procedure (algorithm): NOEL (no observable effect level), ADI (acceptable daily intake), MRL (maximum residue limits) and dynamic of depletion of residues from target tissue. Categorisation of pharmacologically active substances and auxiliary materials in two groups (regarding MRL). Residua and sublethal effects of xenobiotics and some essential compounds. Laboratory instrumental analysis in the context of veterinary public health, contaminants and residues of chemicals, monitoring and validation of methods. Legislation.</p>
Learning outcomes	<p>Acquired knowledge and skills are deepened until the specialist knowledge in the field of food security and enable students to work independently in the control and monitoring of biological, chemical and physical contaminants in raw materials and products and in the food chain. In addition, students are introduced to the concepts of production control (HACCP) and prerequisite programs. Also, students connect knowledge in the field of animal hygiene, animal husbandry and nutrition, and put them in the context of the food chain. Special attention is given to zoonosis control and monitoring of residues of veterinary drugs in the food of animal origin.</p>

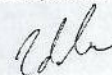
GRADING SCHEME

<i>Points</i>	<i>Grade</i>
Up to 59	1 (F)
60-68	2 (E)
69-76	2 (D)
77-84	3 (C)
85-92	4 (B)
93-100	5 (A)

Course leader:



Head of Department/Clinic:



Note: The course leader is required to submit a Course Syllabus to all teachers and associates pertaining to the Course.