UNIVERSITY OF ZAGREB
FACULTY OF VETERINARY MEDICINE
Heinzelova 55
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Division: VETERINARY PUBLIC HEALTH AND FOOD SAFETY
Organisational unit: Hygiene, Technology and Food Safety
E-mail of the course leader: nzdolec@vef.hr
Register No of the organisational unit:
Zagreb, 25/08/2023

COURSE SYLLABUS

Course name: Food Hygiene and Technology

Academic year 2023/2024

Course leader: prof. Nevijo Zdolec, PhD
Deputy course leader: prof. Željka Cvrtila, PhD

Teachers: prof. Željka Cvrtila,PhD, prof. Nevijo Zdolec, PhD, assist. prof. Tomislav Mikuš, PhD, Marta Kiš, DVM

First day of classes: 04/10/2023
Last day of classes: 09/01/2024

Activities - Food Hygiene and Technology (1/4)

Start Dat	Start Tim	End Time	Subject	Group	Instructor	Room	Length
04/10/2023	12:00	13:30	p1 Introduction to VPH	9E-1, 9E-2	Mikuš T.	P_farmakologija	1:30
09/10/2023	8:15	9:45	p2 Food Microbiology	9E-1, 9E-2	Zdolec N.	P_mikrobiologija	1:30
09/10/2023	12:15	15:15	v2 Food microbiology	9E-1, 9E-2	Kiš M., Zdolec N.	V_higijena namirnica	3:00
10/10/2023	12:15	13:45	v1 Food sampling, sensorial analysis	9E-1, 9E-2	Cvrtila Ž., Mikuš T.	V_higijena namirnica	1:30
10/10/2023	14:00	15:30	p3 Alimentary infections and intoxications	9E-1, 9E-2	Zdolec N.	P_fizika	1:30
11/10/2023	8:15	9:45	p4 Meat biochemistry	9E-1, 9E-2	Cvrtila Ž.	P_mikrobiologija	1:30
13/10/2023	12:00	14:15	v3 Microbiological cleanliness	9E-1, 9E-2	Kiš M., Zdolec N.	V_higijena namirnica	2:15
16/10/2023	14:15	16:30	v4 AM and PM examination-constructional practicals	9E-1, 9E-2	Kiš M., Mikuš T.	V_higijena namirnica	2:15
17/10/2023	14:15	16:30	v5 Microbiological constructional	9E-1, 9E-2	Kiš M., Mikuš T.	V_higijena namirnica	2:15

Activities - Food Hygiene and Technology (2/4)

Start Dat	Start Tim	End Time	Subject	Group	Instructor	Room	Length
19/10/2023	14:00	15:30	p5 Animal welfare at slaughter	9E-1, 9E-2	Mikuš T.	P_mikrobiologija	1:30
20/10/2023	14:15	16:30	v6 Water holding capacity; pigments+constructional practicals	9E-1, 9E-2	Cvrtila Ž., Kiš M., Mikuš T.	V_higijena namirnica	2:15
24/10/2023	8:00	13:15	t01 Field course slaughterhouse	9E-1, 9E-2	Kiš M., Zdolec N.		5:15
31/10/2023	13:00	14:30	p6 Slaughter processing of ungulates	9E-1, 9E-2	Zdolec N.	P_mikrobiologija	1:30
06/11/2023	8:00	13:15	t02 Field course slaughterhouse	9E-1, 9E-2	Kiš M., Zdolec N.		5:15
08/11/2023	13:00	15:15	v7 Meat freshness	9E-1, 9E-2	Cvrtila Ž., Mikuš T.	V_higijena namirnica	2:15
09/11/2023	8:00	13:15	t03 Field course slaughterhouse	9E-1, 9E-2	Kiš M., Mikuš T.		5:15
13/11/2023	12:00	13:30	p7 Slaughter processing of poultry and game	9E-1, 9E-2	Mikuš T.	P_mikrobiologija	1:30
14/11/2023	14:00	15:30	v8 Fat quality; minced meat	9E-1, 9E-2	Cvrtila Ž., Mikuš T.	V_higijena namirnica	1:30

Activities - Food Hygiene and Technology (3/4)

Start Dat	Start Tim	End Time	Subject	Group	Instructor	Room	Length
16/11/2023	10:00	11:30	p8 Meat inspection	9E-1, 9E-2	Zdolec N.	P_mikrobiologija	1:30
20/11/2023	12:00	13:30	p9 Risk-based meat inspection	9E-1, 9E-2	Zdolec N.	P_mikrobiologija	1:30
23/11/2023	12:00	13:30	p10 Meat assessment	9E-1, 9E-2	Zdolec N.	P_mikrobiologija	1:30
27/11/2023	12:00	13:30	p11 Meat quality; Conservation	9E-1, 9E-2	Cvrtila Ž.	P_mikrobiologija	1:30
28/11/2023	14:00	15:30	p12 Carcass cutting and carcass quality	9E-1, 9E-2	Mikuš T.	P_fiziologija	1:30
29/11/2023	10:00	11:30	p13 Additives; Meat processing	9E-1, 9E-2	Cvrtila Ž.	P_mikrobiologija	1:30
01/12/2023	12:00	14:15	v11 Meat inspection-necropsy hall	9E-1, 9E-2	Zdolec N.	S_patologija	2:15
05/12/2023	9:00	10:30	p14 Thermally treated meat products	9E-1, 9E-2	Mikuš T.	P_farmakologija	1:30
12/12/2023	13:30	15:00	p15 Thermally non treated meat products	9E-1, 9E-2	Cvrtila Ž.	P_mikrobiologija	1:30

Activities - Food Hygiene and Technology (4/4)

Start Dat	Start Tim	End Time	Subject	Group	Instructor	Room	Length
14/12/2023	12:00	15:00	v12 Meat inspection-necropsy hall	9E-1, 9E-2	Kiš M.	S_patologija	3:00
18/12/2023	13:00	14:30	v9 Aditives, spices, minced meat - constructional practicals	9E-1, 9E-2	Cvrtila Ž., Mikuš T.	V_higijena namirnica	1:30
19/12/2023	13:00	15:15	v9 Thermally non-treated meat products+constructional practicals	9E-1, 9E-2	Cvrtila Ž., Kiš M., Mikuš T.	V_higijena namirnica	2:15
09/01/2024	11:00	14:00	v10 Thermally treated meat products+constructional practicals	9E-1, 9E-2	Cvrtila Ž., Kiš M., Zdolec N.	V_higijena namirnica	3:00
Total: 31							67:30

STUDENT OBLIGATIONS

Lecture attendance	Classes are held during 60 hours of lectures. In order to achieve a minimum of 3 points, a student should attend 30 hours of lectures (15 h in IX. semester and 15 h in X. semester). Attendance at one hour of lectures is scored with 0.1 points (a maximum of 6 points can be collected, or 60 hours x 0.1 points).
Seminars attendance	-
Practicals attendance	Classes are held through 105 hours of exercises (28 hours of special clinical exercises, 20 field course, 38 laboratory exercises and 19 construction exercises). In order to achieve the minimum number of points (8), the student should be present in 73 hours of exercises (42 h in IX. Semester and 31 h in X. semester). The maximum number of points that can be collected during 105 hours of exercises is 12.
Active participation in seminars and practicals	The maximum number of points that a student can collect is 10. To achieve this, he/she must collect a maximum of 5 points per semester for preparation for the exercise and positive answers during field and laboratory exercises (each activity is 2.5 points). The minimum number of points that a student should collect per semester is 2.5.
Final exam	The final exam includes all the results of monitoring activities during classes. The exam is oral. At the oral exam, the student answers 10 questions, with each correct answer being scored with 4 points. The maximum number of points for the oral exam is 40. The minimum number of points is 24, and for a student to achieve them, he/she must answer at least 6 questions (24 points) correctly.
Examination requirements	Student requirements are defined in the Regulations on the Integrated Undergraduate and Graduate Study of Veterinary Medicine. 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 and 30 % of the exercises.

GRADING AND EVALUATING STUDENT WORK

Continuous knowledge-checking (mid-terms)	The student must attend the first organized term of the test. In case of justified absence (medical proof), the student can access the remedial test. The first preliminary test (end of the IX sem) covers teaching units referring to veterinary control in meat production (4 questions) and lab exercises (4 questions). The second preliminary test (X sem) covers veterinary inspection, control and examination of milk, fish, eggs, honey and other foodstuffs and technological processing in production of milk, fish, eggs, honey and other foodstuffs (4 questions) and lab exercises (4 questions).
Final exams (dates)	9.11.,14.12.2023.,06.02.,16.02.2024.
Form of final exam	Oral exam

LITERATURE

Obligatory literature	**Kozačinski et al.** (2021): Handbook of laboratory practicals in Food Hygiene and Technology. Faculty of Veterinary Medicine, UNIZG. In press. **Ninios, N., J. Lunden, H. Korkeala, M. Fredriksson-Ahoma** (2014): Meat inspection and control in the slaughterhouse. Wiley Blackwell. **D.S. Collins, R. J. Huey** (2015): Gracey's Meat hygiene. 11th edition. A John Wiley & Sons, Ltd., Publication, 2015. **Ray, B., A. Bhunia** (2014): Fundamental Food Microbiology. 5th edition. CRC Taylor & Francis, USA. **Borda. D., A. I. Nicolau, P. Raspor** (2018): Trends in Fish Processing Technologies. CRC Taylor & Francis, USA. **Chandan, C.R., A. Kilara, N. P. Shah** (2008): Dairy Processing & Quality Assurance. A John Wiley & Sons, Ltd., Publication, 2008. **G.C. Mead** (2004): Poultry meat processing and quality. CRC Press. 2004. **Sutherland J. P., A. H. Varnam, M. G. Evans** (1986): A colour Atlas of food quality control. A Wolfe Science Book. **Zdolec, N.** (2017): Fermented Meat Products: Health Aspects. CRC Taylor & Francis, USA.
Optional literature	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 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

OBJECTIVES AND LEARNING OUTCOMES

Course objectives	In addition to the general aim and tasks, the education of future Doctor of Veterinary Medicine has a special aim. It is the task of lecturers to teach the students how to perform independently all expert activities, and to apply the scientifically verified standards of hygiene and technology within the frameworks of the veterinary inspection and evaluation of food safety and quality. Of course, this is possible only by means of education in the field of application of process methods (technology) in the production of food products of high quality and hygiene standards, all in the context of improvement of veterinary public health.
Learning outcomes	By the completion of the course students should be able to: - explain the structure, purpose and methods of veterinary inspection, control and monitoring of production, processing and distribution of food of animal origin - identify hazards and risks in the production and distribution of food of animal origin - interpret the results of food quality assessment and food safety - distinguish the type of food according to the production process - define acceptability factors of food for human consumption - incorporate legislation in the preparation and analysis reports in the field of hygiene and technology of food of animal origin - evaluate production hygiene procedures in the facility and process control indicators

GRADING SCHEME

Points	*Grade*
Up to 59	1 (F)
60-76	2 (D,E)
77-84	3 (C)
85-92	4 (B)
93-100	5 (A)

Course leader

Head of organizational unit:

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