

Degree	Type	Year
2502445 Veterinary Medicine	OB	4

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Teaching groups languages

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Prerequisites

To successfully complete this subject, the competences acquired in the subject "Food Safety and Zoonoses", and especially these concerning the "Hazard Analysis and Critical Control Points (HACCP)" system, must be present. Besides, competences about food microbiology, anatomy of cattle, parasitic and infectious zoonoses, and anatomic pathology acquired in previous subjects will be useful.

Objectives and Contextualisation

At the end of the course the student will be able to:

- Assess the safety and quality of foods prepared in food-processing establishments and issue opinions on their suitability for human consumption
- Auditing the hygienic requirements that different food-processing establishments must fulfil
- Implement the self-control system in a food industry
- Design and apply the HACCP systems to the elaboration processes of food products and audit that it works properly
- Determine the suitability of animals for slaughter and the suitability for the consumption of the products obtained from these animals in the slaughterhouses

Competences

- Analyse, synthesise and resolve problems and make decisions.
- Demonstrate knowledge of the rights and duties of the veterinarian, with a special focus on ethical principles
- Perform ante mortem and post mortem inspection of livestock and properly identify the problems that affect the quality and safety of products of animal origin destined for human consumption.
- Perform risk analyses, including those of environmental and biosafety, and evaluate and manage them.
- Perform sanitary control of different types of catering and food companies and establishments, and implant and supervise quality management systems.

Learning Outcomes

1. Analyse, synthesise and resolve problems and make decisions.
2. Apply different inspection protocols to channels and organs, as well as other products of animal origin.
3. Apply different inspection protocols to live animals, from reception until slaughter.
4. Apply healthcare criteria and the legal bases of the inspection.
5. Apply suitable inspection protocols for each food establishment.
6. Apply suitable methodologies and tests to evaluate how salubrious a food is.
7. Apply the methodology recommended by the OIE for risk analysis in animals and products of animal origin.
8. Determine the efficiency of a self-supervision process and know what corrective measures to apply in case of error.
9. Distinguish the critical control points in each food preparation process.
10. Distinguish the different slaughter procedures applicable in each circumstance to different livestock species.
11. Evaluate the circumstances that imply that a food is not apt for human consumption and why.
12. Evaluate the influence of the intrinsic, extrinsic and implicit characteristics of foods in the presence or persistence of a danger.
13. Explain the operations of slaughterhouses of different animal species, their distribution, functions and healthcare aims.
14. Identify the main environmental risks related with the food industry and apply the most suitable measures for their control.
15. Implant and supervise the principles of good hygiene practices, danger analysis and critical checkpoints and other quality and safety management systems.
16. Recognise the changes, alterations and adulterations that foods can suffer.
17. Recognise the signs of disease or disorders that could condition fitness for human consumption and issue the corresponding judgements.
18. Use applicable food legislation in ante mortem and post mortem inspection.
19. Use applicable food legislation in health control and quality management systems.

Content

Section I

Role of the veterinarians in the implementations of the self-control plans, including HACCP, and the official control in the food industry: concepts of food hygiene, food inspection and control. The official control: competences, functions and obligations of the inspectors in the food factories. Legal bases.

Section II

The pre-requisite programs in the food industry

- Hygienic aspects of location, design and maintenance of food-processing facilities and equipment. Temperature control plan.
- Pests-Control plan, cleaning and disinfection and water control programs. Key aspects to be considered in their design.
- Supplier control program. Procedures to control allergens and substances that cause intolerance. Traceability program.
- Food-handlers control and design of training plans.
- Management of waste and by-products.
- Verification of the HACCP system and the pre-requisite programs. Types of audits and procedures.
- Good Hygienic Practices Guides. Official recognition and implementation process.

Section III

Specific hygienic requisites in the food industry

- Products of animal origin: meat and meat products, milk and dairy products, eggs and egg products, honey. Adulteration and fraud. Implementation of the HACCP system.
- Products of plant origin: classification and composition, freshness criteria; hazards, alterations and fraud. Edible mushrooms: Mycetisms.
- Catering: hygienic measures during preparation, transport and storage of meals. Application of the HACCP system.

Section IV

Inspection of fish and seafood

- Definition and classification of fish and seafood species: identification of edible species and prevention of fraud and poisoning. Quality criteria: determination of freshness. Role of veterinarians in the inspection and control at the fish market.
- Derived fishery products: salted, smoked, canned and semi-preserved products. Application of the HACCP system.
- Depuration and expedition facilities for crustacean and mollusc. Hygienic requisites and depuration procedures.

Section V

Hygienic requisites and inspection in slaughterhouses

- Role of the veterinarian in the slaughterhouse: audit and inspection.
- Hygienic requirements for the construction and operation of slaughterhouses. Types, services and circuits. Personnel requirements and material.
- Transport of animals to the slaughterhouse: considerations of animal welfare and impact on the quality of meat. Animal identification methods.
- The "ante mortem" inspection: techniques, criteria and decisions.
- Methods of sacrifice for domestic ungulates: methods of stunning and slaughter. Hygienic aspects during peeling, evisceration and finishing of carcasses.
- The "post mortem" inspection: organization and execution: techniques, criteria and decisions. Sanitary marking of carcasses and offal.
- Special features of the poultry and rabbit sacrifice process.
- Heterogeneous causes of seizing after carcasses and offal inspection.
- Procedures to search for parasites at the slaughterhouse: diagnostic methods, health criteria and decision.
- Control of microbiological contamination and detection of chemical residues at the slaughterhouse: procedure for collecting samples and delivering to the laboratory
- Classification and processing of animal by-products.
- Emergency slaughter outside the slaughterhouse: criteria during the "post mortem" inspection and decisions
- Inspection of game meat and meat from bullfights: hygienic requirements of meat and processing facilities. Inspection techniques, criteria and decisions.

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Laboratory practical sessions	10	0.4	6, 16, 19
Practical class at pilot-scale factory	1	0.04	
Slaughterhouse sessions	15	0.6	3, 2, 7, 17, 19
Theoretical classes	41	1.64	10, 13, 14, 16, 19, 12, 11
Workshops	8	0.32	4, 5, 8, 9, 15, 19
Type: Supervised			
Tutorials	4	0.16	1
Type: Autonomous			
Individual study	92	3.68	4, 7, 6, 8, 10, 9, 13, 14, 16, 17, 19, 12, 11
Practical case resolution	50	2	1, 5, 7, 8, 14, 15, 19

This subject applies the following methodology to achieve the corresponding competences:

- Theoretical classes, where the student will acquire basic knowledge
- Practical classes in laboratory, where the student will work on methods for the verification of the prerequisites, the HACCP and the prevention of fraud
- Practical classes in slaughterhouse, where the student will see the veterinarian's tasks during the slaughter of farm animals, the requirements and operation of the facilities and the management of the by-products and seizures.
- Seminars: small group working sessions where students will work over the resolution of practical cases
- Resolution of practical cases: self-learning activity where students will apply the knowledge acquired during theoretical and practical classes to solve cases based on real situations regarding the application of HACCP in food industries, or on the activities of official veterinarians in slaughterhouses

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Assessment

Continous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Exams	50 %	4	0.16	4, 3, 2, 5, 7, 6, 8, 10, 9, 13, 14, 15, 16, 17, 19, 18, 12, 11
Laboratory practical sessions	10 %	0	0	4, 5, 7, 6, 8, 9, 15, 16, 19

Practical case resolution	20 %	0	0	1, 5, 7, 8, 14, 15, 19, 18
Slaughterhouse sessions	20 %	0	0	3, 2, 5, 7, 10, 13, 15, 17, 19, 18

The achievement of competences will be evaluated based on the following activities:

- Exams: 2 partial exams will be carried out that will include questions referring to the theoretical and practical classes (laboratory and slaughterhouse) and to the practical cases resolved in the seminars.
- Resolution of practical cases: the grade will be obtained from that obtained in the different cases resolved by the student with respect to the total of cases raised
- Laboratory practical sessions: attendance will be assessed as well as the report on the activities carried out. In the case of non-attendance at any laboratory session, the proportional part of the grade will be subtracted.
- Slaughterhouse sessions: Attendance and the report on the activities carried out will be evaluated from both the Mercabarna and the Moianès slaughterhouses

Requirements to pass the subject

To pass the course students must fulfil the following requisites:

- To obtain a minimum grade of 5 points in each one of the partial exams
- To obtain a minimum score of 5 points once all the assessable activities have been evaluated
- To attend all the slaughterhouse practice sessions and to have passed the corresponding evaluations.

If any of these goals is not achieved the student will fail the subject. If the reason is to have failed one of the partial exams, the grade that will appear as final grade will be that of the failed exam, or the average of the exams if both have been failed. In any of these cases the grades of the other assessable activities will be considered to obtain the final grade.

The student who has not participated in the assessable activities that represent at least 15% of the final grade will be considered "non-evaluable"

Once the goals have been fulfilled, the following assessment criteria will be applied to obtain the final grade:

- Partial exams: they will have a value of 50% of the final grade
- Practical cases resolved: they will have a value of 20% of the final grade
- Slaughterhouse practices: they will have a value of 20% of the final grade
- Laboratory practices: they will have a value of 10% of the final grade

The marks obtained in the partial exams will not be saved for the next course, but the marks corresponding to the other evaluable activities will be saved, if the student so requests.

This subject does not include the single assessment system

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Software

No software is used in this subject

Language list

Name	Group	Language	Semester	Turn
(PAUL) Classroom practices	1	Catalan/Spanish	second semester	morning-mixed
(PAUL) Classroom practices	2	Catalan/Spanish	second semester	morning-mixed
(PAUL) Classroom practices	3	Catalan/Spanish	second semester	morning-mixed
(PLAB) Practical laboratories	1	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	2	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	3	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	4	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	5	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	6	Catalan	second semester	morning-mixed
(TE) Theory	1	Catalan/Spanish	second semester	afternoon
(TE) Theory	2	Catalan/Spanish	second semester	afternoon