

Academic Year/course: 2022/23

28440 - Food Hygiene, Inspection and Control

Syllabus Information

Academic Year: 2022/23

Subject: 28440 - Food Hygiene, Inspection and Control

Faculty / School: 105 - Facultad de Veterinaria

Degree: 451 - Degree in Veterinary Science

ECTS: 14.0

Year: 5

Semester: Annual

Subject Type: Compulsory

Module:

1. General information

1.1. Aims of the course

This course is included in the Hygiene, Technology and Food Safety module and its general goals are to ensure that students acquire the skills and abilities necessary to apply measures that guarantee the safety of human consumption of food throughout the entire food chain; the course also aims to ensure that students acquire the skills necessary to carry out the inspection of food and food industries with special consideration to food traditionally inspected by veterinary professionals (food of animal origin). Another aim is to make students be aware of self-control tools applicable in food companies and the official food control system at any level of food safety management (export, EU, national and regional).

These approaches and objectives are aligned with the following Sustainable Development Goals (SDGs) of the United Nations 2030 Agenda (<https://www.un.org/sustainabledevelopment/es/>), in such a way that the acquisition of the results of Subject learning provides training and competence to contribute to some extent to its achievement:

Goal 3: Good health and well-being

Goal 4: Quality education

Goal 6: Clean water and sanitation

Goal 9: Industry, innovation and infrastructure

Goal 12: Responsible consumption and production

1.2. Context and importance of this course in the degree

In the professional context, the skills acquired with this subject constitute one of the classic fields of the veterinary profession. From the point of view of professional development, Directive 2005/36/EC and Royal Decree 1837/2008 and Law 44/2003 on the Regulation of Health Professions establish what knowledge, skills and responsibilities veterinarians acquire in matters of food hygiene, inspection and control.

These professional requirements are reflected in the obligatory competences of the degree that appear in the Order ECI/333/2008 that regulates the requirements of the official university degree of veterinarian. Among others, in an exhaustive way in the mentioned Order, it is identified as a general objective of the veterinary study plans the one that the student acquires general competences on hygiene control, inspection and technology of the production and elaboration of food for human consumption from human production to the consumer as a necessary competence for the formation of an accredited veterinarian in accordance with the directives of the Community Directive. In the same way are identified as general competences related to the subject "knowledge and application of legal, regulatory and administrative provisions in all areas of the veterinary profession of public health and identification of emerging risks in all areas of the veterinary profession?".

1.3. Recommendations to take this course

In general, for this subject it is advisable to have previously studied basic training subjects programmed in the first year of the Degree. In particular, it is considered convenient that the student has achieved sufficient knowledge of basic subjects such as Microbiology, Parasitology and Toxicology and of applied subjects such as those related to diseases that affect income animals and that can cause zoonoses and other conditions transmitted by food or that serve as a basis for *antemortem* and *postmortem* inspection of butchery animals. Previous knowledge in Epidemiology and Biostatistics, Legal Veterinary and Animal Welfare are also basic. It is advised that students enroll to Food Technology as well when doing first enrollment.

2. Learning goals

2.1. Competences

Student's competencies after completing the course:

1. Substantiating the fitness for consumption of a food.
2. Identifying the causes of food contamination and alteration.
3. Applying the risk assessment tool in the context of food safety assurance.
4. Applying and implementing hygiene measures throughout the food chain to prevent risks from hazards in the food chain.
5. Establishing self-control plans in the food chain through the use of the Hazard Analysis and Critical Control Points (HACCP) tool.
6. Performing food inspection and establishing an opinion of suitability for consumption.
7. Counseling food business operators on food hygiene and control and on the implementation of traceability plans.
8. Performing *ante-* and *postmortem* inspection of butchery species (mammals, birds and wild game) on the basis of the knowledge acquired and in accordance with what is specified by current legislation.
9. Understanding the systematics of self-control and official control in the food industry.
10. Assessing the quality of food in order to advise, provide and audit commercial and health standards that protect the consumer and prevent fraud.
11. Ability to handle food legislation (Spanish, EU and international), interpreting it and applying it in the hygienic process, in food inspection and control.
12. In-depth knowledge of the principles of Food Safety applicable to the improvement and prevention of Public Health.

In addition, and in connection with other subjects, the student will be more competent to ?

1. Intervene in health promotion activities and rational food consumption
2. Advise on communication tasks and training in hygiene and food safety in the company.
3. Identify and assessing the hygiene problems associated with different foods and food industries and propose measures to solve them.
4. Draw up professional opinions on food hygiene, inspection and control.
5. Be capable of applying the knowledge acquired to the analysis of situations, problem solving and decision making in real contexts, through the use of critical reasoning skills (analysis, synthesis and evaluation)

The set of competences set out above are derived from the specific competences of Order ECI/333/2008 which are included in the Hygiene, Technology and Food Safety block for this subject in the Grade verification report and which are set out in the following list:

- Competence HTSA03: Changes, alterations and adulterations that food may undergo
- Competence HTSA04: Sanitary criteria and legal bases for inspection
- Competence HTSA05: Veterinary inspection *ante-* and *postmortem*
- Competence HTSA 06: Inspection of establishments and products
- Competence HTSA07: Good hygiene practices, hazard analysis and critical control points
- Competence HTSA08: Handling and treatments control
- Competition HTSA09: Food Safety and Public Health
- Competence HTSA10: Food risk analysis: risk assessment, risk management and risk communication
- Competence HTSA11: Investigation of foodborne outbreaks of toxoinfections
- Competence HTSA12: Dynamics and demography of infection and intoxication
- Competence HTSA13: Epidemiology and diagnosis
- Competence HTSA14: Monitoring and surveillance system

The specific competence of the Hygiene, Inspection and Food Control practicum contemplated in the ECI Order is:

? PTTFG01 competence: Pre-professional practices, in the form of a clinical rotary and with a final evaluation of competencies, in university veterinary hospitals, traveling clinics, farms, pilot plants, departments with devices for practical teaching in the veterinary degree, as well as stays in veterinary establishments, slaughterhouses, companies and organizations of the veterinary or related field.

? Knowledge and practical application of veterinary principles and methodologies, as well as the acquisition of knowledge and skills described in the general objectives of the degree.

Likewise, the development of the subject will allow students to acquire the transversal competences (T01 to T30) indicated in the curriculum document.

2.2. Learning goals

If students complete the course successfully, they should be able to

1. Recognize the characteristics that bromatologically identify foods in order to substantiate their edibility and fitness for human consumption.
2. Know and identify the causes of food contamination and alteration and to propose measures for their prevention and control.
3. Know the prerequisites and good hygiene practices applicable in the food chain and is able to develop hygiene plans in it.
4. Develop a Hazard Analysis and Critical Control Points (HACCP) model as the basis for the food industry's self-control system.
5. Know the fundamentals of the risk analysis tool through the process of real risk assessment of them, their management and communication, as a fundamental aspect in the process of food safety management, both at the level of the industry and at the level of the Administration.
6. Know how to apply hygienic and sanitary control standards and measures throughout the food chain in order to ensure the production, processing and marketing of food that is safe, nutritious and appealing to the consumer.
7. Understand and know the requirements of food safety, bromatological and commercial value in order to be able to inspect food and establish a judgement of its fitness for human consumption.
8. Know the hygienic requirements of food industries and processes in order to advise the operators of companies or exercise inspection and / or control of them.
9. Perform *ante-* and *postmortem* inspection of butchery species (mammals, birds and wild game) on the basis of the knowledge acquired and in accordance with what is specified by the legislation in force.
10. Assess the quality of food in order to advise, provide and audit trade and health standards that protect the consumer and prevent fraud.
11. Handle food legislation (Spanish, EU and international), interpret it and apply it in the hygienic process, in food inspection and control.
12. In-depth knowledge of the basis of food safety management systems and the principles of Food Safety applicable to the improvement and prevention of Public Health.

2.3. Importance of learning goals

Hygiene, Inspection and Food Control have as a common goal the knowledge of the measures carried out in the food chain to safeguard the safety of food intended for human consumption; it also intends that students acquire skills to carry out the inspection of food to rule on its suitability for consumption and that he knows the official food control system. The acquisition of skills, based on their learning results, contribute significantly to the performance of the veterinary profession as a guarantor of food safety, both at the level of the company and at the level of the official exercise.

3. Assessment (1st and 2nd call)

3.1. Assessment tasks (description of tasks, marking system and assessment criteria)

The student must demonstrate that has achieved the intended learning outcomes by means of the following types of exams.

1. Written exam (theory).

- Written exams account for 65% of the subject's overall grade (Learning outcomes to be assessed: 1 to 13).
- The midterm exam or global assessment will take place on the dates determined by the Centre and will consist on two type written exam: a) knowledge of basic terms and concepts through specific questions, and b) assessment of the degree of the subject understanding through questions that seek to demonstrate the acquisition of the proposed learning outcomes.

1.1. Midterm written exam.

The midterm examination will be carried out at the end of the teaching of the first four-month period and will evaluate the contents of the subject explained until the end of the first four-month period. This examination will be considered as a qualifying examination for those students who obtain a grade equal to or higher than 6 points out of 10. This grade is saved for the next two sessions of the same academic year.

1.2. Final assessment

The global assessment will evaluate the learning outcomes (1 to 13).

It will include all the subject topics for those students who opt for this modality or for those who have not passed the midterm exam as indicated in 1.1. The minimum grade to pass this exercise will be 5 points out of 10 and will be eliminatory in the same academic year.

For those students who have passed the midterm exam, the global assessment will cover the part of the subject not evaluated. The minimum mark is 4 out of 10 points for the average of the examinations and it will have an eliminatory character in the same academic year.

A fail in two or more modules and/or lack of response to them may mean not passing the subject.

Oral examination assessment modality: students may opt for the modality of oral examination evaluation in the global

assessment of the subject; if so they must request it to the coordinating teacher of the subject during the established period. The oral exam will be called in a period close to the date indicated for the celebration of the final written exam and the students will be called in alphabetical order, being able to be present in the exam of their classmates. These students must take the practical exams in the same way as the rest of the enrolled students.

1. Written exam (practice).

It will take place in the second four-month period at the end of the practical teaching, on the date determined by the Centre. The practical knowledge exam accounts for 35% of the subject's overall grade.

The minimum grade to pass this exercise will be 5 points out of 10 corresponding to the average grade obtained in the following evaluation exams:

2.1. Laboratory practices and seminars from subject 1 to 7: (Learning outcomes to be assessed: 1, 2, 3, 4, 7, 8, 10 and 12)

The learning results of practices 1 to 7 will be considered acquired with the attendance and active participation in them, admitting up to a total of 2 absences for justified reasons. In the case of unjustified absences from more than 2 laboratory practices or subject seminars, an evaluation exam will be carried out to verify whether the student has acquired the corresponding competences or not. The contents of the laboratory practices and seminars will be available in the ADD of the subject. The grade to obtain in this evaluation exam will have to be equal or superior to 5 to pass the subject. A few days before the final exam, a list will be published of those students who must take this additional exam, calling them to take it.

Students who for reasons of mobility (Erasmus, Americampus, etc.) have missed more than 2 practical sessions must specify with the coordinating teacher the evaluation system for them.

2.2. Evaluation of external Practices and seminars of practicum in slaughterhouse: (Results of learning to evaluate: 4, 8, 9 and 10).

The evaluation of the external practices carried out in the modality of practicum (practices and seminars of slaughterhouse) will have a value of 15% of the final mark of the subject.

It will consist of a written exam, in the global examination of practical knowledge by means of questions related to the subject matter developed in the practices and slaughterhouse seminars given.

This exam will have eliminatory character in the same academic year for those students who obtain a grade equal or superior to 5.

Attendance and participation in the practicum at the slaughterhouse is compulsory for all students enrolled in the subject, so that the subject will be considered non-evaluable in the case of unjustified absence from the practicum at the slaughterhouse. In this case, an additional exam will be carried out to verify the acquisition of the corresponding competences. The qualification to obtain in this exam will have to be equal or superior to 5 to pass the subject. A few days before the final exam, a list will be published of those students who must take this additional exam by calling them to take it.

Students who for reasons of mobility (Erasmus, Americampus, etc.) or other causes have justified absences from the practical slaughterhouse sessions must attend the slaughterhouse recovery practices organised in May and take the final practical knowledge exam in the same way as the other students enrolled.

2.3. Evaluation of Practicum in Pilot Plant and practices 8, 9 and 10 (Practical case of self-control based on the HACCP system): (Learning results to evaluate: 3, 4, 5, 6, 12 and 13).

From the activities carried out in the practicum modality that is developed in the Pilot Plant and in practices 8, 9 and 10 of the subject, each group of practices will develop a self-control model based on the HACCP system.

The evaluation of the practical case of self-control based on the HACCP system will have a value of 20% of the final grade of the course, consisting of the following evaluation exams:

- **Oral** exam: will take place on the date scheduled for practice 10 and will consist of the presentation of the self-control model developed. After the presentation, we will proceed to the discussion with the group of the model presented and its group evaluation.
- **Written** exam: individual assessment in the final exam of practical knowledge through questions related to the model developed.

The grade of this exam will be obtained from the average of the oral exam (50%) and the written exam (50%) and to pass it will require a minimum grade of 4 out of 10 in the written exam.

This evaluation will be eliminatory in the same academic year for those students who obtain a grade equal to or higher than 5.

In these exams the ability to solve problems will be evaluated based on the knowledge provided in the practical teaching, the ability to search for, analyse and process information and the ability to reason critically. Approaches that demonstrate a deep and/or conceptual lack of knowledge of the subject will be evaluated negatively.

The unjustified lack of attendance to practical classes, as well as the lack of interest and active participation of the student in the formative activities will be reason for his exclusion from the assigned work group, in which case he will have to develop individually a self-control model based on the HACCP proposed by the teacher and carry out the oral and written evaluation exams in the same way as the rest of the enrolled students.

Students who for reasons of mobility (Erasmus, Americampus, etc.) or other reasons have absences from the practicum sessions in the Pilot Plant and/or the practical sessions 8, 9 and 10 of the subject, for their evaluation, must develop and deliver a model of self-control agreed with the teacher in powerpoint format (50%), and take the final exam of practical knowledge (50%) like the rest of enrolled students.

Those works of evaluation in which evidence of plagiarism is detected will be considered with a grade of fail (0 out of 10).

3. Assessment criteria

3.1. For the final evaluation of the course the following general criteria will be followed:

Student's ability to acquire knowledge, written expression and writing in the written exercises will be assessed; the critical and application capacity of the knowledge acquired will also be assessed. In the practical exams, the student's participation in the same, his critical capacity and the ability to acquire skills related to the subject will be valued.

In both theory and practice evaluations, responses that demonstrate a deep and/or conceptual lack of knowledge of the subject will be evaluated negatively.

3.2. Single global assessment or assessment of non-attendance students

Any student will be able to opt for a unique global evaluation through the realization of a final examination that will understand the demonstration of having acquired the learning objectives and competences of the subject including the practical exams that are considered opportune. This modality also includes those students who opt for non-attendance teaching. The grade to be obtained in each of the exams must be equal to or higher than 5 in order to pass the subject.

However, and given that the specific competences related to *antemortem* and *postmortem* inspection in slaughterhouses must be acquired, those students who opt for non-attendance teaching must justify a minimum stay of 10 hours in slaughterhouses supervised by official veterinarians.

3.3. Final qualification of the subject

The final grade of the subject will be obtained by adding the grade obtained in the theoretical knowledge exams (they suppose 65% of the final mark) and the practical knowledge exams (they account for 35% of the final mark). Those students who have not reached minimum scores required in the theoretical and/or practical exams will be graded with a failing grade, being the final grade the minimum of those obtained in the evaluation exams that do not reach the minimum required value.

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The learning process of the course is based on theoretical exposition activities by the teacher, joint development of models of self-control and HACCP and laboratory practices to be done in discussion seminars or sessions. The specific practicum of the course is carried out in practical sessions related to the hygiene and the *antemortem* and *postmortem* inspection in slaughterhouses and cutting plants. Also, practical sessions related to the objectives of the course in pilot plant will be developed.

4.2. Learning tasks

A total of 90 hours of participatory lectures (9 ECTS) are scheduled.

A total of 30 hours of practice to be coordinated with the specific contents of the course syllabus and related to hygiene, inspection and food control are scheduled by the Centre.

Laboratory practices and seminars consist of ten sessions of 3 hours each, in the labs of Nutrition and Food Science Department of Animal Science and Production Food (Building of Animal Husbandry, street level) and Pilot Plant Science and Food Technology and in computer classrooms and other educational facilities of the Centre. These sessions include: Laboratory practices, seminars, case studies, cooperative work and work presentations.

The Practicum of Hygiene and Food Control Inspection has a content of 2 ECTS with a presentiality 60%, which implies a total of 30 hours of practice teaching. Learning activities include seminars, external practices in slaughterhouses, practices in the Pilot Plant Science and Food Technology and drafting reports. To carry out the slaughterhouse practicum, it is mandatory that each student has previously completed a comprehensive reading of the document on Occupational Risk Prevention provided by the company, available in the course's ADD.

Likewise, two hours per week are available for every student to develop an individual mentoring with the teachers to solve doubts and questions along the learning process. Moreover, all related to the ADD system would be used for virtual mentoring.

4.3. Syllabus

The program that the student is offered to help him achieve the expected results includes the following aspects:

1: Development of lectures

The exhibition part will be developed in a total of 33 lessons divided into two blocks according to the following schedule:

1st Part .- the general concepts of the subject and its objectives are defined, and the basics of prevention and control of food safety, food control and food inspection. This part is constituted by a total of 13 lessons:

Lesson 1.- Concept and content of Hygiene, Inspection and Food Control.

Lesson 2.- Concept and current status of Food Safety

Lesson 3.- Risk analysis of food hazards: assessment, management and communication. The precautionary principle.

Lesson 4.- Food legislation

Lesson 5.- General aspects of food contamination

Lesson 6.- Food hazards of biological origin.

Lesson 7.- Food hazards of abiotic origin.

Lesson 8.- The Hygiene in the food industry.

Lesson 9.- Self-control system: hygiene prerequisites.

Lesson 10.- Self-control system: HACCP

Lesson 11.- Self-control system: shelf life

Lesson 12.- Self-control system: traceability and management of food alerts

Lesson 13.- Sampling, inspection and official control of foodstuffs

2nd part .- It consists of specific modules dedicated to Hygiene, Inspection and Food Control of those foods which are direct responsibility in the veterinary profession. The block is divided into modules related to each type of food:

1st Module.- Hygiene, Inspection and Control of Meat and meat products

Lesson 14.- Fitness criteria for meat consumption

Lesson 15.- Hygiene in the meat production

Lesson 16.- Meat traceability

Lesson 17.- Veterinary inspection and official control in meat production

Lesson 18.- Hygiene, inspection and control in the meat processing chain

2nd Module.- Hygiene, Inspection and Control Milk and Dairy Products

Lesson 19. Fitness criteria for drinking milk

Lesson 20. Hygiene in the fresh milk production

Lesson 21.- Food safety management tools and self-control in milk production

Lesson 22.- Inspection and official control in the milk production and processing

Lesson 23.- Hygiene, inspection and control in the dairy products processing chain

3rd Module.- Hygiene, Inspection and Control of fish and fishery products. Idem of Shellfish

Lesson 24. Fitness criteria for seafood consumption

Lesson 25.- Hygiene in the seafood production and placing on the market

Lesson 26.- Official inspection and control of fresh and frozen seafoods

Lesson 27.- Hygiene, inspection and official control of processed seafoods

Lesson 28.- Hygiene, inspection and official control of shellfish

4th Module.- Hygiene, Inspection and Control of eggs and eggs products

Lesson 29.- Fitness criteria of table eggs

Lesson 30.- Hygiene, inspection and official control of consumption eggs

Lesson 31.- Hygiene, inspection and official control of egg products

5th Module.- Hygiene, Inspection and Control in the RTE. Processing industries prepared foods. Retailers of foods

Lesson 32.- Hygiene, inspection and official control of catering industries

6th Module.- Hygiene, Inspection and Control of other foods subjected to Veterinary inspection

Lesson 33.- Hygiene, inspection and official control of canned foods

2: Development of practical classes

Practice PL-1 (Cases study).- Food legislation searching and interpretation.

Practice PL-2 (Cases study).- Rules governing the exercise of food inspection and control. Labelling inspection. Official sampling.

Practice PL-3 (Laboratory).- Control of hygiene in the food industry: surface analysis in the industry. Water control in the food industry.

Practice PL-4 and PL-5 (Laboratory).- Food microbiological analysis: process hygiene criteria and food safety criteria.

Practice PL-6 (Cases study).- Studies of food shelf life. Study of food-borne outbreaks.

Practice PL-7 (Laboratory).- Identification of fish species and fish freshness assessment. Fish inspection. Identification of species of mollusks and crustaceans.

Practice PL-8 and PL-9 (Cases study).- Methodology for the development of a self-control plan (HACCP) in the food industry. Self-control development model.

Practice PL-10 (Work presentation).- Exhibition, discussion and evaluation of the HACCP model in the food industry.

3.-Practicum of the course (2 ECTS)

Slaughterhouse seminars (3 seminars of 3 hours each)

Seminar S-M1.- Performance of official inspections and controls on meat in the slaughterhouse

Seminar S-M2.- *Antemortem* and *postmortem* official inspection in the slaughterhouse

Seminar S-M3.- Official audits of HACCP-based procedures applied by slaughterhouse operators

Slaughterhouse practices (5 practices to develop in the slaughterhouse Mercazaragoza)

Practice PR-M1.- Documentation and laboratory control in slaughterhouse (3 hours).

Practice PR-M2.- Hygiene control in slaughterhouse (2.5 hours).

Practice PR-M3.- Animal protection responsibilities in the slaughterhouse (3.5 hours).

Practice PR-M4.- Official antemortem and postmortem inspection in the slaughterhouse (3 hours).

Practice PR-MM5.- Practical exercise of application of the official audit procedure of the self-control system in the slaughterhouse (3 hours).

Practicum in the Pilot Plant Science and Food Technology (2 practices of 3 hours each)

Activities related to these practices will be made in full at the Food Pilot Plant.

Practices PP1 and PP2.- (6 hours) Design, implementation and maintenance of good hygiene practices and HACCP system in the process of preparing food. Considering the facilities that are available in the pilot plant, different food processes related to the main food sectors will be proposed.

4.4. Course planning and calendar

Dates classroom sessions will be described in detail together with those of other subjects, along with the rest of subjects of the fifth year in the Degree of Veterinary Medicine, on the website of the Faculty of Veterinary Medicine (<https://veterinaria.unizar.es/academico/plan-estudios-grado-veterinaria>). This link will be updated at the beginning of each academic year.

Moreover, all ads related to the subject will be introduced in the ADD system in which the subject is developed.