

## Food Safety and Zoonosis

Code: 102631  
ECTS Credits: 6

**2025/2026**

Degree	Type	Year
Veterinary Medicine	OB	4

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### Teaching groups languages

You can view this information at the [end](#) of this document.

### Prerequisites

Students will have to apply the knowledge acquired to the following subjects of the veterinary curriculum:

- Food Science (2nd year)
- Food technology (2nd year)
- Microbiology (1r year)
- Microbiology and applications (2nd year)
- Parasitology (1r year)
- Epidemiology and statistics (2nd year)
- Animal Health (3r year)
- Health Policy and Diseases of Legal Importance (3rd year)

## **Objectives and Contextualisation**

The aim of this subject is to provide an introduction to the tasks of veterinarians that works in Public Health issues, such as the control of transmissible diseases from animals to humans and the implementation of measures to assure food safety from both the point of view of the public health administration and food companies.

On successfully completing this subject, students will be able to:

- Collect and interpret information concerning the zoonotic and/or food-borne pathogenic agents in order to assess their risk
- Apply the working principles of Food Risk Analysis: assessment, management and communication
- Apply their knowledge to investigate food-borne outbreaks and to apply preventing measures

This subject also provides students with a grounding in the implementation of food safety management systems, and especially in the Hazard Analysis and Critical Control Points (HACCP) principles.

All these aspects will be completed during the Food Hygiene and Inspection subject of the eighth semester, in order to achieve the corresponding competences.

## **Competences**

- Analyse, synthesise and resolve problems and make decisions.
- Demonstrate knowledge of English to communicate both orally and in writing in academic and professional contexts.
- Demonstrate knowledge of the rights and duties of the veterinarian, with a special focus on ethical principles
- Diagnose different individual and collective animal diseases, and know about prevention measures, with emphasis on zoonoses and notifiable disease.
- Draft and present satisfactory professional reports, always maintaining the required confidentiality.
- Have basic knowledge of the profession, and in particular of the organisation and functions of professional practice.
- Perform risk analyses, including those of environmental and biosafety, and evaluate and manage them.
- Seek and manage information related with professional activity

## **Learning Outcomes**

1. Analyse, synthesise and resolve problems and make decisions.
2. Apply food risk monitoring and surveillance systems.
3. Apply research procedures to outbreaks of foodborne diseases.
4. Apply the methodology recommended by the OIE for risk analysis in animals and products of animal origin.
5. Demonstrate knowledge of English to communicate both orally and in writing in academic and professional contexts.
6. Describe the main characteristics of the most frequent zoonoses in our geographic field.
7. Design strategies for prevention and control of the most frequent and important zoonoses based on knowledge of the methods of transmission between animals and people, and the epidemiological situation in a region or country.
8. Draft and present satisfactory professional reports, always maintaining the required confidentiality.
9. Evaluate the influence of the intrinsic, extrinsic and implicit characteristics of foods in the presence or persistence of a danger.
10. Have basic knowledge of the profession, and in particular of the organisation and functions of professional practice.
11. Identify the aspects of food safety that affect public health.
12. Recognise the dangers that could be present in a food and evaluate the risk for different consumers.

13. Recognise the procedures for managing and communicating food risk.
14. Relate the problem of foodborne diseases with the responsible etiological agents.
15. Seek and manage information related with professional activity

## Content

### Section 1: Non-foodborne zoonotic diseases

- Situation of non-foodborne zoonotic disease in Catalonia, Spain and Europe. Consequences to public health. Prevention and control procedures.
- Description of the non-foodborne zoonotic bacteria.
- Description of the non-foodborne zoonotic viruses.
- Mycoses, non-foodborne parasites and zoonotic agents transmitted by arthropods
- Emergent /re-emergent zoonosis

### Section 2: Foodborne and waterborne diseases

- Epidemiology of foodborne diseases. Concepts of foodborne illness and foodborne outbreak: assessing and monitoring procedures.
- Description of main foodborne and waterborne bacteria and viruses. Epidemiology, characteristics and control measures.
- Description of main foodborne and waterborne parasites. Epidemiology, characteristics and control measures.
- Other foodborne and waterborne pathogens: chemical contaminants and natural toxins. Epidemiology, characteristics and control measures.
- Allergies and intolerances of food origin. Epidemiology, characteristics and control measures.

### Section 3: Food safety management

- Principles and procedures for the management of food safety and risk analysis: components and importance to public health and food industry. Role of national and international organisms in their implementation.
- Food risk assessment: Identification and characterization of the hazards and determination of the exposure. Procedures and tools to perform the risk assessment.
- Risk assessment in the food industry; factors affecting the growth of microorganisms and their effects on food safety. Safety considerations and tools to determine shelf-life of food-stuffs.
- Food riskmanagement: Role of administrations and food industries. Main standards to guarantee food safety and quality in food establishments.
- Introduction to the principles of the Hazard Analysis and Critical Control Points system
- Other dispositions to guarantee food safety and quality: food defense and food fraud prevention
- Food risk communication: Social perception of risks related to food. The food alert procedures. Information addressed to consumers. Food labelling.

Depending on the restrictions applied by public health authorities due to the evolution of the COVID-19 pandemics, reductions or prioritizations of subject contents may apply

## Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Computer practices	6	0.24	1, 2, 15, 11, 12, 13, 14, 9

Lectures	42	1.68	1, 3, 2, 4, 6, 7, 11, 12, 13, 14, 10, 9
Seminars	2	0.08	1, 3, 2, 4, 15, 6, 7, 11, 12, 13, 14, 10, 9
Type: Supervised			
Tutorials	2	0.08	1, 3, 2, 4, 15, 6, 7, 11, 12, 13, 14, 9
Type: Autonomous			
Self-learning study	68	2.72	1, 3, 2, 4, 15, 6, 7, 11, 12, 13, 14, 10, 9
Teamwork	26	1.04	1, 3, 2, 4, 15, 6, 7, 11, 12, 13, 14, 10, 9

To achieve the established objectives this subject applies the following methodology:

- Theoretical classes: presentation-based classes with ICT support will serve to introduce fundamental concepts of the syllabus. At the discretion of each teacher, gamification activities can be introduced with tools such as Kahoot or Wooclap to consolidate learning and stimulate participation.
- Workshops: working in small groups to solve practical cases or explain specific procedures based on practical examples
- Practical classes (computer room): to teach using computer tools to assess food risk
- Autonomous activities: students must solve two practical cases using the methodology and tools taught during theoretical or practical classes. Students could solve the cases individually or in groups.
- In some cases, students could be required to present the solution of the cases during the seminar sessions.

For this subject, the use of Artificial Intelligence (AI) technologies is allowed exclusively in support tasks, such as bibliographic or information search, text correction or translations. The student will have to clearly identify which parts have been generated with this technology, specify the tools used and include a critical reflection on how they have influenced the process and the final result of the activity. Non-transparency of the use of AI in this assessable activity will be considered a lack of academic honesty and may result in a partial or total penalty in the grade of the activity, or greater penalties in cases of seriousness

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
Bloc I self-learning	6.6	0	0	1, 3, 2, 4, 15, 5, 11, 12, 13, 8, 14, 10, 9
Blocs II-III self-learning	20	0	0	1, 4, 15, 5, 6, 7, 8, 10
1st partial	26.4	2	0.08	4, 6, 7, 10
2º partial	46.6	2	0.08	3, 2, 4, 11, 12, 13, 14, 10, 9

The activities assessment will be done as follows:

- Two partial exams:

- 1st partial exam: corresponding to Section I of the syllabus.
- 2nd partial exam: corresponding to the Section II and III of the syllabus.
- Cases:
  - Case about non-foodborne zoonosis, corresponding to Section I of the syllabus (DA).
  - Case about food safety (safety), corresponding to Section II and III of the syllabus.

To obtain final grade of the course:

- The assessment of the activities corresponding to Section I of the syllabus will represent 1/3 of the final grade:

80% of this grade will correspond to the partial exam, and the remaining 20% to the resolution of the corresponding case (DA).

- The assessment of the activities corresponding to Sections II and III will be 2/3 of the final grade:

80% of this grade will correspond to the partial exam, and the remaining 20% to the resolution of the corresponding case.

Assessment of teaching in English (DA): this will comprise only at the level of the mark obtained in the activity carried out in this language (Identified as DA). The qualification will be a maximum bonus of an extra 20% of the mark obtained in the activity.

For this bonus, the following general criteria are established:

- Does not receive bonus: low or very limited communicative ability (oral and / or written) in English. Your vocabulary is poor and you do not understand or understand very hardly what you want to express.
- 10% of the note on contents: reasonable communicative ability in English. It is understood what he wants to explain although he makes many mistakes and his vocabulary is limited.
- 20% of the note on contents: good communicative ability in English.

Requirements to pass the course:

- Students must fulfil every one of the following requirements:

To have carried out all the assessable activities, including the attendance to seminars/workshops and practical classes

To obtain at least 5.0 points out of 10 in each one of the two partial exams

To obtain a final grade of 5.0 points out of 10, once all the assessable activities have been evaluated

In the event that one of the two partial exams is not passed, the subject will be recorded as failed and the grade that will be recorded in the transcript will be that of the part not passed.

In the event that one of the two partial exams is not taken, the subject will be recorded as not assessed ("no available")

- The grade obtained after applying the aforementioned evaluation criteria, and as long as the final result implies passing the subject (obtaining a grade equal to or greater than 5.0 out of 10), could be increased by a maximum of 0.5 points depending on the student's participation in the activities proposed in the classroom during theoretical classes and/or seminars. However, the application of this criterion will be at the discretion of the professor according to the possibilities of objective assessment of participation.

- To participate in the reassessment, students must have been previously evaluated in a set of activities whose weight is equivalent to a minimum of two thirds of the total grade of the subject.

- In case of not passing the subject, if one of the two blocks (zoonosis or food safety) has been approved, the grade for this block will be kept for the following course. The notes corresponding to the self-study activities will also be saved for the following course, if requested by the student.

Single Assessment (SA):

- In the event that the student has applied for SA, on the same day that the second partial exam has been scheduled, the student must take the two exams (corresponding to the first and second partial), as well as the following activities:

- An oral presentation, preferably in English, of the self-study activity proposed for seminar 1 (zoonosis case).
- Resolution of a food safety case using computer tools to predict the behavior of pathogenic microorganisms and/or risk assessment in food, shown in seminars 2, 3 and 4..
- To pass the subject it will be necessary:
  - Have carried out all the evaluable activities
  - Obtain a minimum final grade of 5.0 points out of 10, once all the activities have been evaluated.
  - Obtain a minimum of 5.0 points out of 10 in each of the two partial exams.

## Bibliography

### ZOONOSIS BOOKS:

M. Martin, J. Segales, L Darwich, E Mateu, J Casal (2019). Enfermedades emergentes en porcino. Ed. Servet  
 Acha N.P. (2003). Zoonosis Y Enfermedades Transmisibles Comunes al Hombre y a los Animals. Organización Panamericana de la Salud

### FOOD SAFETY BOOKS:

Bello, J., M<sup>a</sup>.I. García-Jalón, A. López (2000) Fundamentos de seguridad alimentaria. Ediciones Eunate.

Costa, R., K. Kristbergsson, (2009) Predictive modelling and risk assessment. Springer, nova York.

ICMSF. (2004) Microorganismos de los alimentos. 6, Ecología microbiana de los productos alimentarios . Zaragoza: Acribia

ICMSF. (2004) Microorganismos de los alimentos. 7, análisis microbiológico en la gestión de la seguridad alimentaria. Zaragoza: Acribia

Jay, J.M. (2000) Microbiología moderna de los alimentos. Acribia, Zaragoza

Koopmans, M., D.O. Cliver, A. Bosch (2008) Food-borne viruses. Progress and challenges. ASM Press, Washington.

Lawley, R., L. Curtis, J. Davis (2008) The food safety hazard guidebook. RSC Publishing, Cambridge

Losada Manosalvas, S. (2001). La gestión de la seguridad alimentaria. Barcelona: Ariel.

Luning, P. A., Devlieghere, F., & Verhé, R. (2006). Safety in the agri-food chain. Wageningen:Wageningen Academic.

McElhaton, A, R.J. Marshall.(2007). Food Safety. A practical and case study approach. Springer, Nova York

Polledo, J.F. (2002) Gestión de la seguridad alimentaria. Mundi-Prensa, Madrid

WHO (2009) Risk characterization of microbiological hazards in food. Microbiological risk assessment series nº 17. WHO, Ginebra.

### URLs FOOD SAFETY

OMS sobre seguretat alimentaria: <http://www.who.int/fsf>

Servei de seguretat i inspecció alimentària de la USDA americà: <http://www.fsis.usda.gov/>

International Food Safety Council: <http://www.foodsafetycouncil.org/>

FDA (Food and Drug Administration) : <http://www.fda.gov/Food/default.htm>

Codex Alimentarius: <http://www.codexalimentarius.net>

Autoridad Europea de Seguridad Alimentaria: <http://www.efsa.eu.int>

Agencia Española de Seguridad Alimentaria y Nutrición: <http://www.aesan.msc.es>

Agència catalana de Seguretat Alimentària: <http://www.gencat.cat/salut/acsa/>

Food Safety Agency: <http://www.food.gov.uk/>

La seguridad alimentaria en Europa: [http://ec.europa.eu/food/food/index\\_es.htm](http://ec.europa.eu/food/food/index_es.htm)

## Software

ComBase (<https://www.combase.cc/>)

RiskRanger (<https://www.foodsafetyportal.eu/riskranger/>)

## Groups and Languages

Please note that this information is provisional until 30 November 2025. You can check it through this [link](#). To consult the language you will need to enter the CODE of the subject.

Name	Group	Language	Semester	Turn
(PAUL) Classroom practices	1	Catalan/Spanish	first semester	morning-mixed
(PAUL) Classroom practices	2	Catalan/Spanish	first semester	morning-mixed
(PAUL) Classroom practices	3	Catalan/Spanish	first semester	morning-mixed
(SEM) Seminars	1	Catalan/Spanish	first semester	morning-mixed
(SEM) Seminars	2	Catalan/Spanish	first semester	morning-mixed
(SEM) Seminars	3	Catalan/Spanish	first semester	morning-mixed
(SEM) Seminars	4	Catalan/Spanish	first semester	morning-mixed
(SEM) Seminars	5	Catalan/Spanish	first semester	morning-mixed
(SEM) Seminars	6	Catalan/Spanish	first semester	morning-mixed
(TE) Theory	1	Catalan/Spanish	first semester	afternoon
(TE) Theory	2	Catalan/Spanish	first semester	afternoon