

Academic Year/course: 2022/23

66856 - Methodology for the risk assessment in foodstuffs

Syllabus Information

Academic Year: 2022/23

Subject: 66856 - Methodology for the risk assessment in foodstuffs

Faculty / School: 105 - Facultad de Veterinaria

Degree: 617 - Master's in Global Health: Integration of Environmental, Human and Animal Health

ECTS: 3.0

Year: 1

Semester: Second semester

Subject Type: Optional

Module:

1. General information

1.1. Aims of the course

The subject and its expected results respond to the following approaches and objectives:

The aim of the course is the specialisation of the student in a more professional profile in Public Health; therefore it has an eminently practical character.

In the lectures it will be explained the concept of Risk Analysis, Risk Assessment, Risk Management and Risk Communication as well as the most recent methodologies for the assessment of biotic and abiotic risks associated with food consumption.

Students are also provided with sources of information for the identification and characterization of food hazards.

In the practical sessions students work individually on the resolution of exercises and problems related to theoretical aspects and in groups of two or individually they carry out a practical case through autonomous work.

These approaches and objectives are aligned with the following Sustainable Development Goals (SDGs) as part of the United Nations Agenda 2030 (<https://www.un.org/sustainabledevelopment/>). Accordingly, the acquisition of the learning goals in the subject provides skills and competences to contribute to some extent to its achievement:

Goal 3: Good Health and Well-being

Goal 4: Quality Education

Goal 12: Responsible Consumption and Production

1.2. Context and importance of this course in the degree

Within the University Master in One Health, this optional subject is part of the specialization module in Public Health, with a dedication of 3 ECTS.

The subject of "Methodologies for the evaluation of food risks" completes the set of knowledge of the subject of food safety together with the subject of "New tools in food safety". In turn, it is directly related to the subject of "Emerging Diseases with Impact on Public Health" integrated in the same specialization module.

In the context of shared threats at the human-animal-environment interface, this subject takes a scientific approach to human health risk assessment, differentiating between biological and chemical risks associated to food consumption.

1.3. Recommendations to take this course

This subject is optional and is linked to the teaching of the subject "Methodology for evaluation of food risks" in the University Master's in Food Quality, Safety and Technology.

Students are recommended to have advanced knowledge of Food Microbiology, Toxicology and Hygiene, as well as Food Technology and those other undergraduate subjects related to Food Safety.

2. Learning goals

2.1. Competences

On successful completion of this course, students will be able to:

CE01 - Understand the One Health concept, its history and its importance in addressing current public health issues.

CE02 - Working on health and disease field from a multidisciplinary perspective.

CE03 - Understand the models of infection and disease that alter collective health in the One Health context.

CE04 - Identify, classify and evaluate the essential environmental and anthropological determinants of Global Health.

CE05 - Understand and apply European and national regulations in matters of Public Health and health research and general response strategies.

CE9 - Understand and be able to apply basic research tools in global health (human/public, animal and environmental)

CE12 - Apply and analyse the bibliographic resources and those available on the web to obtain the necessary information for the approach of the research work and the discussion of the results.

CE13 - Apply the theoretical and practical knowledge acquired, to a real research problem in the health field.

CE16 - Interpret the results obtained in an experimental work and use the critical sense to discuss them with those of other studies related to the topic.

In addition to the previous competences, the student will be able to:

1. Acquire a systematic and rigorous knowledge of the procedure for evaluating biotic and abiotic risks of food origin and apply it to risks associated with the consumption of food in real situations.
2. Interpret the information and communicate the conclusions contained in the risk assessment work of national and international food safety agencies.
3. Apply the knowledge acquired to a research objective in the field of food safety.

2.2. Learning goals

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

- Understand and interpret information derived from the risk assessment work of food safety agencies.
- Plan and apply the methodology in order to assess risks for biotic and abiotic hazards in the diet in real-life scenarios.
- Apply the scientific foundations and procedures of risk assessment to food safety research models.

2.3. Importance of learning goals

Risk assessment is the scientific knowledge of the probability and severity of risks associated with the food consumption, which is necessary to address effective legislative management, to provide assurance of quality and safety within the food industry itself and to provide the greatest possible transparency in the risk communication process. Likewise, knowledge of risk assessment methodologies for hazards of biotic and abiotic origin is a very important and fundamental part in the development of the scientific method for applied research in Food Safety.

Competences acquired with this subject are relevant to any food safety research, as well as to any strategy for implementing control measures, which must be done as part of the prior assessment of health risks.

This fact is increased in the case of emerging risk management and in food alert situations.

The learning of this subject provides the basis to be able to perform risk assessment actions applied to different real scenarios as a basis for decision making in food risk management.

3. Assessment (1st and 2nd call)

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

The student will prove that he/she has achieved the expected learning results by means of the following assessment:

Continuous assessment:

- Oral presentation of the food risk assessment exercise proposed by the professor, although the student may suggest the topic that is of interest to him/her in relation to his/her master's dissertation, Doctoral Thesis project or professional activity. This activity will be run by one of the professors teaching the subject. The overall grade of the exercise will be from 0 to 10 points and will represent 75 % of the final grade of the course.

Evaluation criteria: written presentation, structure and content of the work, scientific rigour of the work and bibliographic review, structure and clarity in the presentation and defence of the work, ability to present and interpret the information.

- Group discussion of the conclusions of the food risk assessment exposed by each student, as well as preventive

strategies for its control. The grade of each student will depend on their answers in the group discussion and will be from 0 to 10 points and will represent 25 % of the final grade of the course. Evaluation criteria: critical capacity and interpretation of the risk evaluations and the conclusions obtained.

It is necessary to obtain a minimum final score of 5 points to pass the subject. The continuous assessment will only be taken into account if 80% of the proposed activities have been carried out.

Global assessment:

Students who have not chosen the continuous assessment may be assessed by means of a comprehensive test consisting of performance, written submission and oral presentation of an individual food risk assessment paper agreed with the teacher. The work will be evaluated by the course teachers and will have a score between 0 and 10 points and it is necessary to obtain a minimum final score of 5 points. Evaluation criteria: written presentation, structure and content of the work, scientific rigour of the work and bibliographic review, structure and clarity in the presentation and defence of the work, ability to present and interpret the information.

Marking system: According to the national regulation Law 1025/2003, 5th of September which lays down the European system of credits and marking system for the university degree.

- 0-4.9: FAIL.
- 5.0-6.9: PASS
- 7.0-8.9: GOOD (NT)
- 9.0-10: EXCELLENT (SB)

As the article 158 of the Statutes of the University of Zaragoza lays down, provisional grades will be displayed at least for 7 days and students will be able to review them on the date, time and place provided for that purpose

Students with a grade over 9.0 might be awarded with honours.

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The methodology followed in this course is oriented towards achievement of the learning objectives. Lectures present theoretical contents for food risk assessment. Different information sources will be used in the practical sessions where students will work with case applied studies in order to assess biological and chemical hazards, guided by the teacher.

In the practical sessions students will be encouraged to participate actively and interpret in a critical way during the oral presentations.

4.2. Learning tasks

The course is offered to help students achieving expected results and includes the following learning tasks:

1.- Lectures. (4 face to face hours) Explanation of the fundamental concepts of risk analysis and methodology for assessment of biotic and abiotic hazard associated with food consumption, and databases and sources of information for the development of models of food risk assessment.

2.- Practical sessions. (16 face to face hours) Students apply the theoretical knowledge and search for information to solve cases and problems under the direct supervision of teachers, and they present an evaluation model of a food hazard related to biotic and abiotic origin.

3.- Paper preparation. (5 mentoring hours) Students, based on specialized literature and under the teacher guidance, prepare a paper on a risk assessment model applied to different real scenarios to facilitate decision-making in the food hazard 3. 4. 5. 1. 2. 3. 4. management.

4.- Seminars. (5 face to face hours). Students, individually or in pairs, present their papers. In these sessions, the students participation will be encouraged, them to make a critical interpretation of the findings derived from each exercise.

5.- Individual or group tutorials through an individual interview but no attendance based tutorial should be done for the work preparation related to risk assessment Clarification of the methodology for the development of risk assessment, mentoring the students, and, if it is necessary, the solving of any doubts on the course contents.

4.3. Syllabus

The course will address the following topics:

Lectures (4 hours of two-hour sessions). Brief description of the contents

- Introduction to Risk Analysis. Assessment, management and communication of risk. Current status of risk assessment systems. Databases and information sources for the development of models of food risk assessment.
- Biological hazard assessment methodology associated with food consumption. Application of epidemiology. Qualitative, semiquantitative and quantitative assessments. Scientific information for the identification and hazard characterization. Predictive microbiology. Risk calculation models. Risk characterization models.
- Abiotic hazard assessment methodology associated with food consumption. Qualitative and quantitative evaluation.

Collecting information to identify and characterize hazards. Dose-response characterization. Methods for the exposure quantification. Factor which determine the estimation of exposure dose. Risk characterization for non cancer effect. Risk characterization for cancer effect. Uncertainty characterization and variability.

Practical sessions (16 hours of 2 -4 hours sessions). Brief description of the contents

- Problems and cases resolution with the risk assessment procedure.
- Theoretical and practical presentation of a model risk assessment related to biotic and abiotic hazard.
- Exercises identification and hazard characterization.
- Exercises of exposure calculation related to hazards in food.
- Exercises of risk calculation associated with food consumption.

Paper preparation

The teacher will propose a work, which can be done individually or in pairs, on risk assessment. Besides, the students can choose or suggest a topic of interest. The work will be supervised by teachers of the course and submitted following the appropriate format and in the set date.

Seminars (10 hours of sessions lasting 2 or 4 hours each)

Work preparation through attendance-based tutorials (students and teacher)

Presentation of their paper work individually or in groups during 20 minutes.

Analysis and group discussion.

4.4. Course planning and calendar

Further information concerning the timetable and lectures and work presentations concerning to dates and important events related to the subject are in details described in the Faculty of Veterinary Science website: (<http://veterinaria.unizar.es/>).

Coordinator

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Tutorials:

The tutoring hours will be set on the start day of the subject in each academic year.

4.5. Bibliography and recommended resources

Updated bibliographic information and recommended resources will be available in the ADD.