VNIVERSITAT DE VALÈNCIA

Course Guide
34009 Food Hygiene

COURSE DATA

Data Subject	
Code	34009
Name	Food Hygiene
Cycle	Grade
ECTS Credits	4.5
Academic year	2020 - 2021

Study (s)

Degree	Center	Acad. year	Period
1103 - Degree in Food Science and Technology	Faculty of Pharmacy and Food Sciences	4	First term

Subject-matter

Degree	Subject-matter	Character
1103 - Degree in Food Science and Technology	21 - Food hygiene	Obligatory

Coordination

Name	Department
FERRER GARCIA, EMILIA	265 - Prev. Medicine, Public Health, Food Sc.,Toxic. and For. Med.
IRANZO RODENAS, MARIA	275 - Microbiology and Ecology
VALERO ALEIXANDRE, MARIA ADELA	21 - Cellular Biology and Parasitology

SUMMARY

The subject of Food Hygiene (33954) is an obligatory subject of the fourth year part of the Degree in Food Science and Technology, imparted at the Faculty of Pharmacy of University of Valencia. This subject, according to the current curriculum, is awarded a total of 4.5 ECTS credits, imparted on a six-month basis.

Fundamental aims are:

i)To provide the necessary knowledge to students in food safety so that they know the principles and common responsibilities to achieve a high level of protection of life and health in humans;

ii) To protect consumer interests applying correct practices in the food trade;

iii) Bearing in mind, when applicable, the well-being of animals, phytosanitary aspects and the environment.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

In order to participate, basic concepts of food Microbiology, food Parasitology and food Toxicology are required and it is anticipated that the students have already acquired this knowledge. The above-mentioned concepts form part of the contents of the subjects imparted during previous courses along the Degree.

OUTCOMES

1103 - Degree in Food Science and Technology

- Capacidad de interpretar datos relevantes.
- Manage food safety.
- Realizar tareas de formación de personal en higiene alimentaria.
- Provide scientific and technical advice to the food industry and consumers.
- Poseer y comprender los conocimientos en el área de Ciencia y Tecnología de los Alimentos.
- Desarrollo de habilidades para emprender estudios posteriores.
- Analyze and evaluate food safety risks.
- Know the basics of hygiene in food, processes and products.
- Know the hygiene and preventive measures applicable to the major alterations in food products caused by toxic substances and chemicals originated during food processing.
- Know the hygiene and preventive measures against major parasite-induced alterations in food.
- Know the hygiene and preventive measures against major microorganism-induced alterations in food.
- Understand the use of guides to good hygiene practice as a tool to ensure the proper handling of food.

- Know and interpret the results obtained in the hazard analysis and critical control points (HACCP).
- Conocer y manejar las fuentes de información básicas relacionadas con la Higiene alimentaria.

LEARNING OUTCOMES

- Knowledge of the basic concepts of food hygiene, processes and products
- Knowledge of hygienic and preventive measures of the principal alterations of food produced by toxic substances, chemical products in the course of food processing;
- Knowledge of hygienic and preventive measures of the principal alterations of food caused by parasites;
- Knowledge of the hygienic and preventive measures of the principal alterations of food caused by microorganisms;
- Knowledge of the guidelines on the correct practices of hygiene as a tool to assure the correct handling of food;
- Knowledge and interpretation of the results obtained in the analysis of hazards and critical points of control (HACCP).
- Knowing and handling the basic sources of information related to food hygiene;
- Aptitude to prepare and expose a project publicly in a clear and precise manner;
- Aptitude to establish good relations with other members of the group and team-work;
- Awareness of the importance of active participation in one's own intellectual and scientific development;
- To have a receptive attitude, understanding the meaning of the knowledge transmitted.

DESCRIPTION OF CONTENTS

1. Introduction to food hygiene

Definition. Concepts. Spanish Agency of food safety and nutrition (AESAN). Food Codex. Food Security: Definition. Control of microbiological, parasitological and toxicological food safety. Instruments of food safety management: good manufacturing practices (GMP), good hygiene practices (GHP) and hazard analysis and critical control points (HACCP). Principles and definitions of hygiene and traceability requirements (HATR) and hazard analysis and critical control points (HACCP). Directives for its application. Analysis of hazards. Control of critical points and limits (physical and chemical parameters

measurable in real time). Quality management. Training. Control and auditing.

2. Specific quality regulation in the alimentary sector

Definitions contemplated in food legislation. General and specific principles. Voluntary standards. Standards required by consumers.

3. Cleanliness and disinfection

Definitions. Types of dirt. Process of cleanliness. Waste. Characteristics of the chemical products used in food establishments. Elements of cleanliness: detergents and disinfectants. Desirable properties of a detergent. Types of detergents. Desirable properties of a disinfectant. Types of disinfectants. Cleanliness and effective disinfection scheme. Heat application cleanliness, dry cleaning or in situ (CIP). Mechanized cleanliness. Cleanliness with foam. Evaluation of the cleanliness and disinfection scheme. Environmental sampling techniques. Sampling techniques of microorganisms on surfaces. Control and confirmation of the efficiency of cleanliness and disinfection.

4. Food handlers

Education in food hygiene. Initial and continued training of food handlers. Personal hygiene of food handlers. Health and personal hygiene. Good and bad work practices. Workwear.

5. Facilities and equipment

Facilities: hygienic foundations of industrial design and food establishments. Choice of materials and construction. Areas of work and gadgets. Equipment: general hygienic characteristics of equipment in food processing establishments and industry. Installation and maintenance.

6. Preparation and handling of food

Food processing. Cross-contamination. Disinfection of vegetables. Non suitable food for human consumption. Cooking methods. Boiling and reheating. Temperature. Cooking systems. Keeping heated food. Systems of heat treatment.

7. Plague control

Rodents. Treatment against rodents. Insects: flies, cockroaches, ants and others. Treatment against insects. Control and surveillance. Taking control measures.

8. Control of pathogens and toxic substances

Control of bacteria, viruses, parasites and toxic substances. Control, surveillance and taking measures.

9. (Perishable) goods

(Perishable) goods. Suppliers. Sanitary records of industries. Transport and receipt of (perishable) goods. Control, surveillance, irregularities and taking control measures. Storage of goods. Packing and wrapping. Dry storage, refrigeration and freezing. Defrosting of food.

10. Drinking water

Drinking water. Hazards and control. Periodic analyses. Legionella: control, surveillance and taking control measures. Hyperchloration

11. Food management in emergencies

Food management in emergencies. Measures to be followed in an emergency (of fire, water being cut-off, power cuts, floods etc.) to guarantee conservation conditions of goods. Food scares. Procedures to be followed in case of food poisoning. Declaration of food scares.

12. Laboratory sessions

1. CONTROL OF DISINFECTANT IN WATER: Determination of active chlorine (total residual chlorine) in water, by two methods:

1.1. Orthotolidine method.
1.2. Titrimetric determination by n, n-diethyl-pfenilendiamonium (DPD) reagent.

2.CONTROL OF CLEANING AND DISINFECTION OF FOODS BY BIOLUMINISCENCE METHOD: detection of Adenosin Triphosphate (ATP).

3.DETECTION OF TRICHINELLA IN THE MEATS: METHODS OF REFERENCE OF THE EU

4.ANALYSIS OF STAPHYLOCOCCUS AUREUS CARRIERS

5.MICROBIOLOGICAL ANALYSIS OF SURFACES

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	24,00	100
Laboratory practices	15,00	100
Seminars	2,00	100
Tutorials	2,00	100
Development of group work	8,00	0
Development of individual work	1,00	0
Study and independent work	7,00	0
Readings supplementary material	3,00	0
Preparation of evaluation activities	4,50	0
Preparing lectures	39,00	0
Preparation of practical classes and problem	5,00	0
TOTAL	**110,50**	

TEACHING METHODOLOGY

The development of the subject will be structured in the following way:

Theoretical classes will Include 2 weekly hours in which the teacher provides a global vision of the topic to the students along with the necessary information to understand the contents of the subject. In the above-mentioned classes the student is induced to search incidental or complementary information, orientating him/her in the use of necessary bibliographical sources. It is recommendable for students to check previously the material that the teacher leaves in the virtual classroom as follow-up of the class.

Specialized tutorials in small groups. The purpose is orienting students and determining the follow-up of the course. It is a suitable way for the students to raise doubts or questions arising from the development of the curriculum.

Practical laboratory classes. They will be imparted in small groups, attendance is obligatory. The work of the student is monitored step by step, to achieve the required manual skills in the laboratory and solve problems by him-/herself.

Seminars/projects. A project will have to be carried out in groups on a topic raised by the teacher to be later to be presented to the rest of the class and to generate a posterior debate. A résumé will have to be delivered in writing before the presentation to the class as a whole. The group is supervised personally by the teacher regularly and provides orientation when looking for bibliographical sources and in the critical analysis of the information found in the above-mentioned sources. The teacher advises on the general presentation of the project, thus promoting the students' capacity to work, synthesize and of research.

EVALUATION

Continuous assessment of knowledge, competence and skills will take place along the course.

Seminars attendance will be obligatory and contributes 10% to the final mark. The lack of participation will be negatively reflected in the final mark. Failure to attend the seminars will result in the rating of 0 in this section (seminars: 10% of the total mark).

The evaluation of the practical classes will contribute 20 % to the final mark in. Attendance is indispensable to pass the subject, and a report with the methodology and results obtained will have presented at the end. To pass the subject, a minimum of 40 % of the maximum mark of this part in the final exam will have to be obtained.

70 % of the final mark will be obtained in the examination corresponding to theoretical knowledge. To pass the subject a qualification equal to/above 4.0 points out of ten in the content of the theoretical examination will have to be obtained.

Those students who do not pass the subject in first time, the corresponding mark of seminars will kept until the second summons.

REFERENCES

Basic

- Felipe Tablado C, Felipe Gallego J. 2004. Manual de higiene y seguridad alimentaria en hostelería. Ed. Thomson, Paraninfo, Madrid
- Forsythe SJ, Hayes, PR. 1999. Higiene de los alimentos. Microbiología y HACCP. Editorial Acribia, S.A., Zaragoza.
- Hobbs BC, Roberts D. 1993. Higiene y toxicología de los alimentos. Editorial Acribia, S.A., Zaragoza.
- Hui YK, Sattar SA, Murrell KD, NIP WK, Stanfield PS edit., 2000.- Foodborne Diseases Hadbook, Second Edition. Volume 2: Viruses, Parasites, Pathogens, and HACCP. Marcel Dekker Inc., News York, 515 pp.
- Marriott, N.G. 1999. Principios de higiene alimentaria. Editorial Acribia, S.A., Zaragoza
- Mortimore S, Wallace C. 1994. HACCP. Enfoque práctico. Editorial Acribia, S.A., Zaragoza
- Murrell KD, Fried B edit., 2008.- World Class Parasites, Vol. 11, Food-Borne Parasitic Zoonoses, Springer, USA.
- Organización mundial de la salud, 1988.- Lucha contra Vectores y Plagas urbanos. Informe de un Grupo Científico de la OMS, Serie de Informes Técnicos nº 767, Ginebra, 88 pp.
- Ortega YR, 2006.- Foodborne Parasites. Springer, 289 pp.
- Palumbo F, Ziglio G, Van der Beken A edit., 2002.- Detection methods for algae, protozoa, and helminths in fresh and drinking water. John Wiley & Sons, Ltd., Chichester, 225 pp.

Additional

- http://www.aetox.es. Asociación Española de Toxicología
- http://busca-tox.com. Portal de búsqueda de información toxicológica.
- http://www.aesan.msps.es/
- http://europa.eu/agencies/community_agencies/efsa/index_es.htm
- http://www.sp.san.gva.es/
- http://www.dpd.cdc.gov/dpdx/html/image_library.htm

ADDENDUM COVID-19

This addendum will only be activated if the health situation requires so and with the prior agreement of the Governing Council

2. Volume of work and temporary planning of teaching

Theoretical classes:

The teaching guide establishes 24 hours of theory classes in the classroom. Theory classes will take place in the classroom. If this is not possible, the class schedules will be maintained and taught by synchronous videoconference (Virtual Classroom - Black Board Collaborate).

Laboratory practicals:

The teaching guide establishes 15 hours of practical classes in the laboratory.

In the laboratory, the student must leave his/her bench place and move around the laboratory on numerous occasions, such as: transfer of material to the incubators, microscope observation, use of side sinks, etc.

For this reason, if the security regulations are maintained due to CoVid19, the content and the development of the practicals could be modified to ensure the distance between students and teacher.

Tutorials and seminars: Maintenance of the teaching planning in both days and hours of seminars and face-to-face tutoring, and if not possible by synchronous videoconference (Virtual Classroom - Black Board Collaborate).

3. Teaching methodology

The materials for the theoretical classes, practices, tutorials and seminars will be available in the virtual classroom (slides, notes, homework, etc.).

Tutorial system: The virtual tutorial programed are maintained (attention by email and always with the university's email address).

Face-to-face tutorials are also maintained, at established times and dates. If tutorials cannot be face-to-face, they will be carried out by BBC videoconferences at established hours.

Classroom seminars and tutorials: Use of the virtual classroom questionnaire tool and / or Kahoot, Socrative, etc. Resolution of face-to-face doubts and if it is not posible, by BBC videoconference at established hours.

Combination of BBC videoconferences, didactic videos and exercises proposed through the “Task” option in the virtual classroom for practical sessions at the established time if attendance at the laboratory is not possible.

4. Evaluation

The percentage of practices at 20% will be kept.

The percentage of coordinated seminar at 10% will be kept.

The percentage of theory at 70% will be kept.

The final evaluation test will be based on an exam with multiple-choice questions and short questions at classroom. If face-to-face are not possible, the final evaluation will be in the virtual classroom.

The minimum of 4 out of 10 in each of the parts (seminars, practices and theory) to be able to compensate with the rest will be kept.