

**COURSE DESCRIPTION****COURSE DETAILS**

Title (of the course): **HIGIENE ALIMENTARIA**

Code: 101487

Degree/Master: **GRADO DE VETERINARIA**

Year: 4

Name of the module to which it belongs: HIGIENE, TECNOLOGÍA Y SEGURIDAD ALIMENTARIA

Field: HIGIENE Y SEGURIDAD ALIMENTARIA

Character: OBLIGATORIA

Duration: FIRST TERM

ECTS Credits: 6.0

Classroom hours: 60

Face-to-face classroom percentage: 40.0%

Study hours: 90

Online platform: <https://moodle.uco.es/m2324/>

## COURSE DESCRIPTION

### LECTURER INFORMATION

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### PREREQUISITES AND RECOMMENDATIONS

#### Prerequisites established in the study plan

B1 Certificate of English language is required

#### Recommendations

It is recommended to have done subjects of General Pathology, General Pathological Anatomy, Systematic



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## COURSE DESCRIPTION

Pathology Anatomy, Infectious Diseases, Parasitic Diseases and Food Technology and Biochemistry.

This subject is taught as itinerary completely in English in an optional way according to the requirements of the Plan for the Promotion of Multilingualism of the University of Córdoba 2014-2017.

([https://www.uco.es/poling/pdf/Plan\\_Fomento\\_Plurilinguismo\\_UCO\\_14\\_17.pdf](https://www.uco.es/poling/pdf/Plan_Fomento_Plurilinguismo_UCO_14_17.pdf)).

It is recommended that students who enroll in the English group have a B2 level of English.

## INTENDED LEARNING OUTCOMES

CE62	Qualities and characteristics of food.
CE65	Biological/non-biological food contamination
CE66	Good hygiene and health and safety practices
CE67	handling and treatment control
CE68	Study of food born outbreaks

## OBJECTIVES

The objective of this subject is student's acquisitions of the necessary knowledge about general concepts of food hygiene in accordance with the competences in this field and the necessary skills and abilities for its application in Food Safety, including the objectives recommended by the World Animal Health Organization about training of Veterinarians in the following sections:

- Study of the chemical, physical and biological hazards that can affect the food chain.
- Development of the principles of hygiene in food establishments and food handling.
- Bases of the hygiene of the staff, processes and products.
- Application of the legislation on food hygiene.
- Development of prerequisite programs of food hygiene and good hygienic practices.
- Description of the Hazard Analysis and Critical Control Points (HACCP).

## CONTENT

### 1. Theory contents

#### THEORETICAL CONTENTS (30 h + 3 h. test)

#### CHAPTER I.- GENERAL CONCEPTS (3 hours)

- Food hygiene concept. Food edibility and quality. Loss of food edibility.
- Natural toxins in foods.
- Food hygiene regulations.

#### Chapter II. BIOTIC CONTAMINATION OF FOOD (9 hours)

- Microbial contamination of food. Sources of primary and secondary pollution.
- Microbial ecology of food. Factors influencing microbial activity.
- Food poisoning. Importance and prevention. Sources of contamination. Foods involved.
- Food intoxications of bacterial origin. Sources of contamination. Foods involved.
- Food poisoning of fungal origin: mycotoxicosis. Contamination of food by moulds. Conditions for mould development.
- Food-borne infections: bacterial and viral infections transmitted by food. Foodborne parasites.
- Microbiological reference values. Concept and principles.
- Microbiological criteria.

#### Chapter III. ABIOTIC CONTAMINATION OF FOOD (9 hours)



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- Pollution and contaminants. Food contaminants. Causes leading to the contamination of the food chain. Major contaminants of chemistry and physics nature.
- Heavy metals. Contamination of the food chain. Types of pollution. Levels in food. Tolerances. Preventive measures. Legal regulations.
- Pesticides. Polychlorinated biphenyls. Dioxins. Contamination of the food chain. Types of pollution. Levels in food. Tolerances. Preventive measures. Legal regulations.
- Drugs for veterinary use. Antibiotics and medicated debris. Maximum levels permitted in foods. Preventive measures. Legal regulations.
- Hormones and growth stimulators. Waste of anabolic agents in the flesh. B-agonists. Finalizers. Preventive measures. Legal regulations.
- Food additives. Main groups of additives. Mechanisms and factors affecting toxicity. Positive lists. Legal regulations.
- Packaging and packing materials. Polymeric materials. Macromolecular compounds, vinyl chloride. Toxicological aspects. Legal regulations.
- Radioactive contamination of food. Types of radioactive contamination. Sources of contamination of the food chain. Decontamination systems. Control of irradiated food. Legal regulations.

### Chapter IV.- Hygiene in food production (9 hours)

- Food safety management model. The principle of responsibility; self-control. The dietary risk analysis. Traceability of food.
- The system of self-control in the food chain. Prerequisites of food hygiene. Hazard analysis and critical Control (HACCP) points.
- Supply of drinking water, cleaning, disinfection and pest control; basic requirements of food hygiene.
- Hygienic handling of food chain. Training of food handlers. Guides of good practices of food hygiene.
- Hygienic design of food establishments. Other elements of food security; alert system and management of food crises

## 2. Practical contents

Laboratory: (11 hours).

- Hygienic evaluation of food processes, staff and facilities/surfaces. Microbiological control of the environment. (3 hours)
  - Microbiological analysis of food (4 hours)
  - Determination of pollutants abiotic in food (4 hours)
- Seminars (16 hours)
- Microbiological Criteria (3 hours).
  - Application of predictive microbiology on food hygiene (3 hours).
  - Investigation of foodborne outbreaks (3.5 hours).
  - Food shelflife (2.5 hours)
  - Preparation, presentation, and discussion of topics (4 hours)

Application of research in teaching

The PAIDI research group to which the teaching staff involved in the subject belong (AGR-170) developed research work along the following lines:

- Prediction models of microbial growth in foods.
- Heavy metals in food and environment.
- Development of food quality management, prediction and control software.
- Advice on food self-control systems for companies. Development of General Hygiene Plans and Critical Control Points.
- Food safety. Control of pathogenic microorganisms in food.
- Microbiology of new fermented dairy products.



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- Food hygiene. HACCP / HACCP system in food industries.
- Proposed shelf life for food: use of packaging in modified atmospheres (MAP).
- Microbial ecology of the products of the hive

The application of the research results in teaching this subject takes place through the exhibition of examples during theoretical and practical classes (seminars and laboratory).

## SUSTAINABLE DEVELOPMENT GOALS RELATED TO THE CONTENT

Good health and well-being

## METHODOLOGY

### Methodological adaptations for part-time students and students with disabilities and special educational needs

Each case shall be considered in particular

#### Face-to-face activities

Activity	Large group	Medium group	Small group	Total
<i>Assessment activities</i>	3	-	-	3
<i>Lab practice</i>	-	-	11	11
<i>Lectures</i>	30	-	-	30
<i>Seminar</i>	-	16	-	16
<b><i>Total hours:</i></b>	<b>33</b>	<b>16</b>	<b>11</b>	<b>60</b>

#### Off-site activities

Activity	Total
<i>Group work</i>	14
<i>Information search</i>	16
<i>Self-study</i>	60
<b><i>Total hours</i></b>	<b>90</b>

## WORK MATERIALS FOR STUDENTS

Dossier  
Oral presentations  
References

### Clarifications

All documentation will be available in the virtual classroom or photocopies will be provided

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### EVALUATION

Intended learning	Document Analysis	Exams	Placement reports
CE62	X	X	X
CE65	X	X	X
CE66	X	X	X
CE67	X	X	X
CE68	X	X	X
<b>Total (100%)</b>	<b>10%</b>	<b>65%</b>	<b>25%</b>
<b>Minimum grade</b>	<b>5</b>	<b>5</b>	<b>5</b>

(\*)Minimum mark (out of 10) needed for the assessment tool to be weighted in the course final mark. In any case, final mark must be 5,0 or higher to pass the course.

#### Attendance will be assessed?:

No

#### General clarifications on instruments for evaluation:

Partial theoretical tests are not performed.

80% of practices and seminars must be completed, not just assistance.

If the practical session content is passed, this qualification will be permanently valid without repeating the practices.

All the evaluation instruments will be used in the continuous evaluation, valuing both the activities carried out in person and not, also teaching with videoconferences.

The final grade of the seminar and laboratory activities (25%) and the various activities in class or non-attendance (10%) must exceed a minimum of 5 on a scale of 10 to be considered in the final evaluation. It will weigh 65% in the final grade.

The contents taught in large and small groups will be evaluated in the face-to-face final exam and must exceed a minimum of 5 on a scale of 10 to be considered in the final evaluation and will have a weight of 65% in the final grade.

Students of second or higher enrolment will bear all the note's weight in the final exam if they have previously completed 80% of the practical sessions.

The validity time of each evaluation method explained will depend on whether you are a first-time or repeater.

#### Clarifications on the methodology for part-time students and students with disabilities and special educational needs:

Each special case shall be deemed.

#### Clarifications on the evaluation of the extraordinary call and extra-ordinary call for completion studies:

The evaluation of repeaters in both exams will be 100% of the weight in the final exam, having taken 80% of the practical sessions in previous years.

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First-time students in the extraordinary exam will be subject to what is stated in the general clarifications.

### Qualifying criteria for obtaining honors:

*Haber obtenido las mejores notas finales del grupo, siempre superior a 9 de 10 de acuerdo con la normativa vigente, y alta participación, interés y calificaciones en las actividades académicas en clase.*

## BIBLIOGRAPHY

### 1. Basic Bibliography

1. Bibliografía básica:

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Adams, M.R. y Moss M.O. (1997). Microbiología de los alimentos. Editorial Acribia. ISBN-10: 8420008303/ISBN-13: 9788420008301.

Buncic, S. (2006) Integrated Food Safety and Veterinary Public Health. CABI Publishing. ISBN-13: 978-0851999081

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Codex Alimentarius (2012). Norma general del Codex para los aditivos alimentarios. CODEX STAN 192-1995. Disponible en: [http://www.codexalimentarius.net/gsfaonline/docs/CXS\\_192s.pdf](http://www.codexalimentarius.net/gsfaonline/docs/CXS_192s.pdf).

Doyle, M. and Buchanan, R. (2012). Food Microbiology : Fundamentals and Frontiers (4th Edition) . Ed. ASM Press . ISBN: 9781555816261

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Fehlhaber, K., Janetschke, P. (1995). Higiene vegetariana de los alimentos. Editorial Acribia. ISBN 9788420007793.

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Johns, N. (1999). Higiene de los Alimentos. Directrices para profesionales de Hostelería, Restauración y Catering. Acribia Managing Food Hygiene. Macmillan Education Ltd. London.

Leieveld, H.L.M., Mostert, M.A., Holah, J. (2005). Handbook of hygiene control in the food industry. Woodhead Publishing Series in Food Science, Technology and Nutrition. ISBN-10: 1855739577/ISBN-13: 978-1855739574.

Martínez Calderón, M.C. (2012). Seguridad e higiene en la manipulación de alimentos (2ª ed.). Editorial Paraninfo SA. ISBN: 978-84-995892-4-4.

Moll, M y Moll N. (2006). Compendio de Riesgos Alimentarios. Editorial Acribia. ISBN 84-200-1068-5.

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### 2. Further reading

Se citará en el Moodle de la asignatura

## COORDINATION CRITERIA

Common evaluation criteria

Joint activities: lectures, seminars, visits ...

Tasks deadlines

Tasks performance

## SCHEDULE

Period	Assessment activities	Lab practice	Lectures	Seminar
1# Fortnight	0,0	0,0	4,0	3,0
2# Fortnight	0,0	3,0	4,0	0,0
3# Fortnight	0,0	0,0	4,0	4,0
4# Fortnight	0,0	3,0	4,0	3,0
5# Fortnight	0,0	0,0	5,0	2,5
6# Fortnight	0,0	5,0	5,0	0,0
7# Fortnight	3,0	0,0	4,0	3,5
<b>Total hours:</b>	<b>3,0</b>	<b>11,0</b>	<b>30,0</b>	<b>16,0</b>

The methodological strategies and the evaluation system contemplated in this Course Description will be adapted according to the needs presented by students with disabilities and special educational needs in the cases that are required.