COURSE DATA

DATA SUBJECT

Code: 34007
Name: Food Parasitology
Cycle: Undergraduate Studies
ECTS Credits: 6
Academic year: 2025-26

STUDY (S)

Degree	Center	Acad. year	Period
1103 - Degree in Food Science and Technology	Facultat de Farmácia i Ciències de L'alimentació	3	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1103 - Degree in Food Science and Technology	Food parasitology	COMPULSORY

COORDINATION

FUENTES FERRER MARIUS VICENT

SUMMARY

The course of Food Parasitology is a core subject in the third year of the Degree of Science and Food Technology, which is taught in the Faculty of Pharmacy, University of Valencia. In the current curriculum has 6 ECTS credits which are given on a quarterly basis.

The main objectives of the course are: 1) show the importance of food-borne parasites in general, and the most important food parasites (contaminating parasites, typical parasites of food and food-spoiling parasites) in particular; 2) to enable students to conduct sampling, diagnosis and identification of major parasites present in food; 3) to make known the sanitary measures for prevention and control of food-borne parasitic diseases.

Besides the food-borne transmission of parasites, the impact of the control and prevention of diseases aimed at reaching the Sustainable Development Goals (SDGs) of Agenda 2030 will also be reflected upon.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

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

OTHER REQUIREMENTS

To follow the course of Food Parasitology basic knowledge on biology and physiology imparted as a part of the basic module of this degree is required.

COMPETENCES / LEARNING OUTCOMES

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Analyze and evaluate food safety risks.

Be aware of the importance of foodborne parasitic diseases.

Capacidad de trabajar en grupo.

Conocer y manejar las fuentes de información básicas relacionadas con la Parasitología alimentaria.

Develop skills to undertake further study.

Habilidad para la exposición de temas y mejora de la exposición oral.

Know and understand the different types of biological cycles related to foodborne parasites.

Know food-spoiling parasites.

Know the basic concepts of parasitology.

Know the parasites causing water, fruit and vegetable contamination.

Know the parasites specific of meat products, fish products and by-products.

Know the specific concepts of food parasitology.

Manage food safety.

Master the techniques for sampling, diagnosing and identifying parasites in food.

Poseer y comprender los conocimientos en el área de Ciencia y Tecnología de los Alimentos.

DESCRIPTION OF CONTENTS

1. Introduction to Food Parasitology

Concepts of Parasitology. Extent and importance of food Parasitology. Parasite specificity. Types of

parasitic life cycles. Propagation and parasitic forms of parasite resistance. Parasites in food: parasitic contaminants, typical parasites of food and food-spoiling parasites. Systematic classification and outline of the biology of major food-related parasites.

2. Parasitic contaminants in food

Introduction to parasitic contamination. Fecal contamination by rodents and arthropods of water, vegetables, fruits and other foods. Food handlers as a source of parasitic contaminants. Preparation and handling of food for direct consumption.
Protozoa contaminants: cysts of amoebae, flagellates and ciliates; oocysts of coccidia.
Helminths contaminants: eggs and larvae of digenetic trematodes and cestodes, eggs, larvae and adults of free-living nematodes.
Arthropods pollutants: larval stages and adults. Myiasis producing infective stages. Adults as intermediate hosts of parasitic diseases

3. Parasites typically found in meat products and derivatives

The importance of parasites typically found in meat products and derivatives. The control and sanitary inspection of meat products (livestock, poultry and game species) as the main prophylactic measure.
Protozoa typical of meat: special interest of *Sarcocystis* spp. and *Toxoplasma gondii*.
Plathelminths typical of meat: digenetic trematodes producers of in transit parasitism; ciclophyllidean and pseudophyllidean cestodes; special interest of *Taenia saginata* and *T. solium*.
Nematodes typical of meat: special interest of *Trichinella* spp

4. Parasites typically found in fish products and derivatives

The importance of food-borne digenetic trematodes, pseudophyllidean cestodes and nematodes in fish products and derivatives.
Digenic trematodes typical of fish: special interest of liver and intestinal flukes.
Pseudophyllidean cestodes typical of fish: special interest of plerocercoid larvae as infective stages.
Nematodes typical of fish: special interest of some infective ascarids and anisakids.
Parasites typical of shellfish, mollusks and other invertebrates

5. Food-spoiling parasites

The importance of food-spoiling parasites. The decline in production and quality of food and animal and vegetable raw materials.
Parasites spoiling plant products and derivatives: protozoa, helminths and arthropods. Interest of plant parasites.
Parasites spoiling meat products and derivatives: protozoa, helminths and arthropods. Interest of parasites of domestic livestock, poultry and farm animals.
Parasites spoiling fish and seafood products: protozoa, helminths and arthropods. Interest of fish parasites.

6. Sampling techniques and diagnosis of food parasites

General techniques for sampling, detection and identification in food parasitology.
Sampling techniques for water vegetables, fruits, meat products, fish and other foods.
Diagnostic techniques (detection and identification) of protozoa, helminths and arthropods - contaminant, typical, and spoiling parasites of food.

7. Techniques of handling, preserving and processing foodstuffs in food parasitology

Prophylactic measures in the preparation of food for human consumption. Products and processes for conservation, transport and processing.
Treatment against food-borne parasites: sewage and drinking water, vegetable products, meat products, fish and invertebrates.

8. Epidemiological analysis of food-borne parasites

Interest in knowing the geographical origin of food and the life cycle of food-borne parasites. Transcendence of the pre-patent period, the onset of symptoms and the presence of asymptomatic carriers in the study of food-borne outbreaks.
Analysis of real food-borne outbreaks in different areas: cities, hospitals, residences, schools, restaurants, social and family gatherings

9. Labs

Diagnosis and identification of protozoa and helminths contaminants in water and vegetables. Diagnosis and identification of infective stages of protozoa and helminths in meat and fish by artificial digestion and samples of histological sections. Diagnosis and identification food-spoiling parasites. Techniques of assembly to microscopic diagnosis and identification of helmints.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Tutorials	2,00
Theory	38,00
Seminar	2,00
Laboratory	15,00
Total hours	**57,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	5,00
Independent study and work	14,00
Preparation of lessons	65,00
Preparation for assessment activities	5,00
Resolution of case studies	1,00
Total hours	**90,00**

TEACHING METHODOLOGY

The methodology of the subject is structured around four axes:

Theory sessions. The theory sessions will be distributed in 4 hours at week, through which the professor will explain the theoretical program, focusing on key concepts for understanding the subject, indicating further bibliographic resources recommended for further preparation of the subject in depth. All documentation necessary to track the classes and specific documentation contained in scientific articles and links of interest, will be accessible in the Virtual Classroom of the subject.

Laboratory practice sessions. Laboratory practices were developed over four days in sessions of 3-4 hours. In these practices students will acquire skills in the diagnosis and identification of parasites in food, through the application of both the knowledge that students have acquired in the lectures, as new ones acquired in the laboratory.

Presentation of collective reports. Collective reports will be prepared and presented by small groups of students, concerning a subject matter which has previously been agreed between students and faculty staff. The faculty staff will advise and guide the design and preparation work. The work will be presented at the classroom to other students, opening a debate on the issue raised, with the intervention of other students and the faculty staff.

Tutorial sessions in group. Tutorials are held in small groups. In them, the faculty staff will guide students both in terms of global approaches as certainly general in nature and other more specific issues, including the direction of work.

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EVALUATION

Continuous assessment of knowledge, competence and acquired skills is carried out along the entire period in which the subject is imparted by means of the evaluation of the following items:

- Preparation, presentation and discussion of individual or collective reports concerning topics related to Food Parasitology and which fit into the thematic unit of the subject. The level of understanding contents, as well as the skills for the presentation and discussion will be assessed. This item contributes 10%. Not participating actively in this activity will have negative repercussions on the final mark.

- Taking the written exam to evaluate the knowledge and understanding of the theoretical contents of the subject. This item contributes 70%. This mark should always be equal to or above 5 out of 10 in order to pass.

- Assessment of supervised laboratory work, the ability to solve experimental problems, writing skills to carry out detailed and well organized reports on experimental results and undertaking a diagnostic test. This item contributes 20%. This mark should always be equal to or above 5 out of 10 in order to pass.

Marks concerning report presentations and practice will remain valid, if necessary, until the second summoning.

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