VNIVERSITAT DE VALÈNCIA

Course Guide
33950 Food Parasitology

COURSE DATA

Data Subject	
Code	33950
Name	Food Parasitology
Cycle	Grade
ECTS Credits	6.0
Academic year	2021 - 2022

Study (s)

Degree	Center	Acad. year	Period
1205 - Degree in Human Nutrition and Dietetics	Faculty of Pharmacy and Food Sciences	3	First term

Subject-matter

Degree	Subject-matter	Character
1205 - Degree in Human Nutrition and Dietetics	15 - Food parasitology	Obligatory

Coordination

Name	Department
TRELIS VILLANUEVA, MARIA	358 - Pharmacy, Pharmaceutical Technology and Parasitology

SUMMARY

Food parasitology (33950) is a subject of the third course in the Degree of Human Nutrition and Dietetics, which is taught in the Faculty of Pharmacy, University of Valencia. In the current curriculum has 6 ECTS, and it is taught during the first quarter.

Parasitic diseases, especially intestinal, have a negative effect on cognitive and physical development of the people associated with nutritional deficiencies, especially iron and vitamin A. The binomial parasite-malnutrition is the most important, common and persistent health problem in developing countries.

The main objective is to show students the importance of the relationship between parasites and malnutrition, learning about the mechanisms by which parasitic infections can affect human growth and nutritional status through the study of basic knowledge about the taxonomic groups of parasites and harmful actions related to parasitic. Likewise, together with the study of a parasitic disease orgroups of parasitic diseases, we will reflect on the impact of the control and prevention of thesediseases in the achievement of the Sustainable Development Goals (SDG) and the goals of the2030 Agenda.

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 study Food parasitology the students would need to have basic knowledge of General Biology and General Physiology taught in the basic module of this degree

COMPETENCES (RD 1393/2007) // LEARNING OUTCOMES (RD 822/2021)

1205 - Degree in Human Nutrition and Dietetics

- Communicate effectively, both orally and in writing, with people, with health or industry professionals and with the media, knowing how to use information and communication technologies, especially those related to nutrition and lifestyles.
- Know, judge and know how to use and apply the sources of information related to nutrition, food, lifestyles and health.
- Acquire basic training for the research activity, be able to formulate hypotheses, collect and interpret information for problem solving using the scientific method, and understand the importance and the limitations of scientific thought in the field of health and nutrition.
- Capacidad de trabajar en grupo.
- Know the basic concepts of parasitology.
- Know the specific concepts of food parasitology.
- Know and understand the different types of biological cycles related to foodborne parasites.
- Have an adequate knowledge of food-spoiling and food-contaminating parasites.
- Know the parasites specific of meat products, fish products and by-products.
- Know parasitic groups with an impact on growth and human nutritional status.
- Know and understand the epidemiology of foodborne microbial diseases.
- Master the techniques for sampling, diagnosing and identifying parasites in food.
- Be familiar with the hygiene and health measures for the prevention and control of foodborne parasitic diseases.

LEARNING OUTCOMES (RD 1393/2007) // NO CONTENT (RD 822/2021)

1. Knowledge of the basics of Parasitology.

2. Knowledge of the specific concepts of Food Parasitology.

3. Knowledge and understanding of the biological cycles of parasites of interest in human nutrition, food-related transmission and actions harmful parasites.

4. Knowledge of the groups of parasites with the growth and impact on human nutritional status.

5. Knowledge and understanding of the epidemiology of the parasite groups of interest in human nutrition.

6. Knowledge of prevention and control of parasitic diseases impact on human nutrition.

7. Knowledge and ability to manage basic information sources related to food Parasitology.

8. Ability to prepare and submit a job in public in a clear and precise.

9. Ability to establish good relations with other group members and work together.

10. Ability to handle information in a foreign language.

11. Be aware of the importance of active participation in their own intellectual and scientific development.

12. Have an open mind, realizing the significance of knowledge to be transmitted.

DESCRIPTION OF CONTENTS

1. FOOD PARASITOLOGY INTRODUCTION

Basics of Parasitology. Concept and significance of parasitic infections in human nutrition. Concept of parasitism, parasites, parasite and host. Gradations or patterns of parasitism.
Specifics of Parasitology. Parasitic specificity. Anthroponoses and zoonoses. Carrier and reservoir. Types of hosts.
Harmful actions of parasites and diseases associated with parasitic infections. Diarrhea, malabsorption, liver dysfunction, duct obstruction, loss of appetite, anemia.
Impact of parasitism on growth and human nutritional status.
Classification and general study of parasites of importance in human nutrition.

2. PROTOZOAN PARASITES AND NUTRITIONAL DISORDERS

Classification, Epidemiology, Morphology, Biology and prophylaxis of human protozoan parasites of importance in human nutrition.

Harmful actions and Pathologies related to human protozoan parasites of importance in human nutrition.
Impact of parasites:
- Bowel dysfunction: diarrhea (types), nutrient loss, malabsorption syndrome.
- Liver disease: ectopic foci.
- Anemia of parasitic origin

3. HELMINTHIASIS: FLUKES AND NUTRITIONAL DISORDERS

Classification, Epidemiology, Morphology, Biology and prophylaxis of helminthes, human flukes, important parasites in human nutrition.

Harmful actions and Pathologies associated with important flukes in human nutrition. Impact of parasites.
- Bowel dysfunction: diarrhea (types), loss of nutrients.
- Liver disease: cell damage, compression and obstruction of ducts. Ectopic foci.
- Anemia of parasitic origin.

4. HELMINTHIASIS: CESTODIASIS AND NUTRITIONAL DISORDERS

Classification, Epidemiology, Morphology, Biology and prophylaxis of helminthes, cestodes, important in human nutrition.

Harmful actions and Pathologies related to cestodes parasites of importance in human nutrition. Impact of parasites:
- Gastrointestinal dysfunction: loss of nutrients (competition) and diarrhea.
- Liver disease: compression and obstruction of ducts.
- Anemia of parasitic origin.

5. HELMINTHIASIS: NEMATODIASIS AND NUTRICIONAL DISORDERS

Classification, Epidemiology, Morphology, Biology and prophylaxis of helminthes, nematodes, parasites of importance in human nutrition.

Harmful actions and Pathologies related to nematodes of importance in human nutrition. Impact of parasites:
- Gastrointestinal dysfunction: diarrhea and nutrient loss (local irritation, cell damage, malabsorption syndrome, lactose intolerance). Obstruction. Lack of appetite. Appendicitis.
- Liver disease: obstruction of ducts.
- Anemia of parasitic origin.

6. ARTHROPODS OF INTEREST IN HUMAN NUTRITION

Classification and general characterization of the morphology and biology of arthropods important in human nutrition.

- Arthropod vectors of parasitic diseases of importance in human nutrition.

- Arthropod parasites responsible of human nutritional disorders. Myasis.

7. LABORATORY PRACTICS

- CLASSIFICATION AND ANATOMICAL - MORPHOLOGIC STUDY OF THE ARTHROPODS OF IMPORTANCE IN HUMAN NUTRITION;
- CLASSIFICATION AND ANATOMICAL - MORPHOLOGIC STUDY OF THE TREMATODOS AND CESTODOS OF IMPORTANCE IN HUMAN NUTRITION;
- CLASSIFICATION AND ANATOMICAL - MORPHOLOGIC STUDY OF THE NEMATODOS OF IMPORTANCE IN HUMAN NUTRITION;
- CLASSIFICATION AND ANATOMICAL - MORPHOLOGIC STUDY OF THE PROTOZOOS OF IMPORTANCE IN HUMAN NUTRITION

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	38,00	100
Laboratory practices	15,00	100
Seminars	2,00	100
Tutorials	2,00	100
Development of group work	17,00	0
Study and independent work	60,00	0
Readings supplementary material	3,00	0
Preparing lectures	10,00	0
TOTAL	**147,00**	

TEACHING METHODOLOGY

Theory sessions. Distributed in four hours a week in which the teacher will explain the theoretical program, focusing on key concepts to understand the contents of the subject. In these classes the students themselves are encouraged to conduct the search for accessory or additional information, guiding the use of bibliographical sources needed. The student is recommended to review the material previously available in the virtual classroom.

Laboratory sessions. They develop over four days in 4-hour sessions in small groups, and attendance is mandatory. He goes step by step the student's work, to make acquire dexterity in the laboratory and solve for himself the problems that are raised.

Group tutoring sessions. Organized in small groups of students in order to guide students and determine the functioning of the course. It will be the ideal means for students to raise questions or issues they arise throughout the development agenda. Attendance is mandatory at the first registration.

Seminars / jobs. There will be a small group working on an issue raised by the teacher in order to expose the rest of the class and generate further debate. Be given in writing prior to the show a script for approval by the teacher. The group is supervised and assisted in the production and preparation of the work personally by the teacher on a regular basis so that it stimulates the work capacity of synthesis and research students. Also, the teacher guides them in finding literature sources and critical analysis of the data found in these sources.

EVALUATION

The evaluation of the knowledge, skills and abilities acquired, were done continuously throughout the period of delivery of the subject by assessing the following sections:

- Make a **written test** to ensure knowledge and understanding of the **theoretical** set by the subject. This section will contribute to the final with a rate of **70%**. The note of this section will be equal to or greater than 5 on a total of 10 to overcome it and make half with seminars and laboratory.

- Evaluation of **laboratory work** by monitoring the work of the same, the ability to solve experimental problems encountered and the ability to perform detailed and organized results. This section will contribute to the final with a **20%** share. Attendance is mandatory to get fit and practices that account. The written test for the assessment will be the last day of practice. There will be an extra written test to recover practices before the exam. It will not be possible repeat the test to raise note. The note of this section will be equal to or greater than 5 on a total of 10 to overcome it and make half with theory and seminars.

- Implementation, report presentation and discussion groups (**seminars**) on topics related to the contents explained in class. It assessed the level of understanding of the content and the presentation and discussion skills. This section will contribute to the final with a rate of **10**%. It is mandatory to attend all the seminars of the course. The note of this section will be equal to or greater than 5 on a total of 10 to overcome it and make half with theory and laboratory.

- Credit will be given the student's **attitude** in lectures, laboratory work and tutorials. This evaluation will consider the attendees participated in discussions raised, ability to raise questions and problem solving, critical thinking and attitude of respect for others.

- To the students who do not overcome the 1ºconvocatoria, we will keep the note corresponding to seminars and practices up to their 2ºconvocatoria.

- Students who fail the course will keep the note for practical up to two years.

REFERENCES

Basic

- ASH (L.R.) & ORIHEL (T.C.), 2010.- Atlas de parasitología humana. 5ª edición. Editorial Médica Panamericana, Buenos Aires, 540 pp.
- BOGITSH (B.J.), CARTER (C.E.) & OELTMANN (T.N.), 2012.- Human parasitology, 4ª edición. Elsevier Academic Press.
- GÁLLEGO BERENGUER (J.), 1998.- Manual de Parasitología: Morfología y Biología de los Parásitos de Interés sanitario. Edicions de la Universitat de Barcelona, Barcelona, 490 pp.
- BECERRIL (M.A.), 2008.- Parasitología Médica. 2ª edición. McGraw Hill, 329 pp.
- MARKELL (E.K.), JOHN (D.T.) & PETRI (W.A.), 2006.- Markell & Voges Medical Parasitology. 9ª edición. Saunders Elsevier, St Louis, 463 pp.
- MEHLHORN (H.) & PIEKARSKI (G.), 1993.- Fundamentos de Parasitología. Parásitos del hombre y de los animales domésticos. Editorial Acribia, S.A., Zaragoza, 391 p.
- http://www.dpd.cdc.gov/dpdx/html/image_library.htm
- http://www.fao.org/docrep/006/w0073s/W0073s05.htm
- http://apps.who.int/tdr/

Additional

- MURELL (K.D.) & FRIED (B.) edit., 2007.- Food-borne parasitic zoonoses. Fish and plant-borne parasites. World Class Parasites: Volume 11. Springer, New York, 429 pp.
- MURELL (K.D.) & FRIED (B.) edit., 2008.- World Class Parasites, Vol. 11, Food-Borne Parasitic Zoonoses, Springer, USA.
- ORGANIZACIÓN MUNDIAL DE LA SALUD, 1987.- Prevención y Control de Infecciones parasitarias Intestinales. Informe de un Grupo Científico de la OMS, Serie de Informes Técnicos nº 749, Ginebra, 94 pp.
- ORGANIZACIÓN MUNDIAL DE LA SALUD, 1995.- Lucha contra las Trematodiasis de Transmisión alimentaria. Informe de un Grupo de Estudio de la OMS, Serie de Informes Técnicos nº 849, Ginebra, 176 pp.
- ORTEGA (Y.R.), 2006.- Foodborne Parasites. Springer, 289 pp.

ADDENDUM COVID-19

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

3. Teaching methodology

THEORY: The master class will be replaced by BBC synchronous videoconference.

TUTORING: a questionnaire will be uploaded to the virtual Classroom to obtain an individual grade, and by synchronous BBC videoconference the exercises and the doubts about them will be solved.

PRACTICES: For the introductory part of each practice, a video recorded in the laboratory will be uploaded to the virtual classroom and students will be provided, through a virtual classroom, a practical script with supplementary information and exercises to solve.

SEMINARS: the procedure will be the same set out in the teaching guide but the coordination will be by emails and the presentation and defense by BBC synchronous videoconference.

4. Evaluation

THEORY: objective tests (test type) in a virtual classroom for all students and an oral exam via videoconference to upload a grade.

TUTORING: objective tests (test type) in virtual classroom.

PRACTICES: objective tests (test type) in virtual classroom.

SEMINARS: assessment test through academic papers (memory and Power Point) and, presentation and defense through videoconference.