

**COURSE DATA****DATA SUBJECT****Code:** 34080**Name:** Parasitology**Cycle:** Undergraduate Studies**ECTS Credits:** 6**Academic year:** 2025-26**STUDY (S)**

Degree	Center	Acad. year	Period
1201 - Degree in Pharmacy	Facultat de Farmàcia i Ciències de L'alimentació	3	Second quarter
1211 - Double Degree in Pharmacy and Human Nutrition and Dietetics	Facultat de Farmàcia i Ciències de L'alimentació	3	Second quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1201 - Degree in Pharmacy	Parasitology	COMPULSORY
1211 - Double Degree in Pharmacy and Human Nutrition and Dietetics	Asignaturas obligatorias del PDG Farmacia-Nutrición Humana y Dietética	COMPULSORY

COORDINATION

BARGUES CASTELLO M DOLORES

SUMMARY

Parasitology is a core discipline that is taught in the second quarter of the third year of the Pharmacy Degree. This course covers the necessary basic training on the morphology and bionomics of the parasites and their host-parasite relationships in order to apply these concepts to the epidemiology, pathology, diagnosis, treatment, prevention and control of the major diseases they cause on humans. It comprises a detailed study of the biological cycles of the parasites, their modes of transmission, the ways of human infection, their geographical distribution and a basic study of symptoms and diagnosis of the diseases they cause. All these skills are listed in each issue together with the prevention and control of parasitic diseases and knowledge of the most appropriate drugs to treat them. Parasitology is analysed within the general context of science, with special emphasis on its current role in the study of the so-called neglected diseases, among which parasitic infections are particularly relevant. The course gives particular attention to the impact of these parasites and their relationships to health education and public health as well as to global and climate changes.

PREVIOUS KNOWLEDGE



RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

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

OTHER REQUIREMENTS

Previous complete courses of Human Anatomy and Physiology are recommended.

COMPETENCES / LEARNING OUTCOMES

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Act with autonomy in learning, making informed decisions in different contexts, issuing judgements based on experimentation and analysis, and transferring knowledge to new situations.

Apply the scientific method and acquire skills in handling the main bibliographic sources.

Collaborate effectively in work teams, assuming responsibilities and leadership roles and contributing to collective improvement and development.

Contribute to the design, development and implementation of solutions that respond to social demands, taking into account the Sustainable Development Goals as a reference.

Demonstrate critical and self-critical thinking in the field of the degree programme, considering aspects such as professional ethics, moral values and the social implications of the different activities carried out.

Develop skills to update knowledge and undertake further studies, including pharmaceutical specialisation, scientific research, technological development and teaching.

Have rational knowledge of the most appropriate medicines for the treatment of parasitic diseases.

Know and understand, within the field of the degree programme, gender inequalities in society; integrate different needs and preferences based on sex and gender into the design of solutions and problem solving.

Know how to apply knowledge specific to the field to the professional world.

Know how to communicate effectively, both orally and in writing, adapting to the characteristics of the situation and the audience.

Know how to interpret, evaluate and communicate relevant data in the different areas of pharmaceutical activity, using information and communication technologies.

Know the morpho-anatomy and life cycle of parasitic agents causing diseases in humans and domestic animals.

Know the nature and behaviour of parasites as infectious agents. Study the diseases they cause, basic symptoms and diagnosis.

Possess and understand knowledge in the different areas of study included in pharmacist training.



Propose creative and innovative solutions to complex situations or problems within the field of knowledge, to respond to diverse professional and social needs.

Relate the life cycle of parasites with epidemiology, geographical distribution and routes of infestation and transmission of parasites to humans.

Relate the life cycle of parasites with measures of prevention and control of parasitic diseases.

Transmit ideas, analyse problems and solve them with critical spirit, acquiring teamwork skills and assuming leadership when appropriate.

Understand and use basic scientific terminology related to the subject.

DESCRIPTION OF CONTENTS

1. General Parasitology

Concept and definition of Parasitology, parasitism, parasitosis, parasite and host.- Gradations or types of parasitism. Parasite specificity.- Anthroponoses and zoonoses.- Carrier and reservoir.

Biological cycles of parasites: direct and indirect evolution.- Concepts of definitive host and intermediate host.- Types of intermediate hosts. Vectors: types.

Host-parasite relationships.- Pathogenicity of parasites on their hosts. Anti-parasitic immunity.- Applications of the immune response to prophylaxis and diagnosis of parasitic diseases.

Scientific taxonomy and nomenclature.- The species concept in parasitology.- Introduction to the special part of Parasitology: zoological groups with parasite representatives.

2. Protozoology

Subkingdom Protozoa: characterisation.- Study of their morphology and life cycle. Protozoan parasites of human importance and parasitic diseases that they produce: epidemiology, transmission, symptoms, pathogenesis, diagnosis, treatment and prophylaxis.

Entamoeba and amoebic dysentery; Free living opportunistic parasitic amoebas and meningoencephalitis; Giardia and Giardiasis; Trichomonas and Trichomoniasis; Cryptosporidium and Cryptosporidiasis; Toxoplasma and Toxoplasmosis; Plasmodium and Malaria; Trypanosoma and sleeping sickness and Chagas disease; Leishmania and Leishmaniasis; Balantidium and Balantidiasis; Pneumocystis and Pneumocystiasis. Phylum Myxozoa and Phylum Microspora and AIDS relationships. Blastocystis hominis.

Trematodology: Subkingdom Metazoa. Phylum Plathelminthes.- Superclass Trematoda: characterisation and division.- Class Digenea: study of morphology and life cycle. Human digenean parasites and parasitic



3. Helmintology

diseases they produce: epidemiology, transmission, symptoms, pathogenesis, diagnosis, treatment and prophylaxis. Fasciola, Dicrocoelium, Opisthorchis, Clonorchis and hepatic distomatosis; Gastrointestinal distomatosis and causative fluke species; Paragonimus and lung distomatosis. Schistosoma and Schistosomiasis. Cercarial dermatitis caused by Schistosomatids.

Cestodology: Superclass Cercomeromorphae: characterisation and division.- Class Cestoda: morphology of larval and adult stages and biological cycle. Human cestodeparasites and parasitic diseases they produce: epidemiology, transmission, symptoms, pathogenesis, diagnosis, treatment and prophylaxis. Diphyllbothrium and Botriocefalosis; Esparganosis; Hymenolepis and Hymenolepiasis; Dipylidium and Dipylidiasis; Taenia and Taeniasis; Cysticercosis; Echinococcus and Hydatidosis and Alveococcosis.

Nematodology: Phylum Nematoda: general characterisation of their morphology and life cycle. -Human parasitic nematodes and parasitic diseases they produce: epidemiology, transmission, symptoms, pathogenesis, diagnosis, treatment and prophylaxis. Trichuris and Trichuriasis, Trichinella and Trichinosis; Capillaria and Capillariasis; Strongyloides and Strongyloidiasis; Ancylostoma / Necator and Ancylostomiasis; Ascaris and Ascariasis; Enterobius and Oxyuriasis; Onchocerca and Onchocercosis; Filariae and Filariasis, Dracunculosis or medina worm filariasis. Larva migrans.

4. Parasitic Arthropodology and Malacology

Phylum Arthropoda: general characterisation of their morphology and biology. Arthropod parasites, transmitters and vectors. Classification of the Arthropoda: Subphylum Chelicerata and Mandibulata. Class Arachnida: characterisation. Superclass Hexapoda, Class Insecta. Scabies and diseases transmitted by ticks. Pediculosis. Health importance of Triatominae bugs, lice and fleas. Diptera: vectorial role of Culicinae, Anophelinae Phlebotominae, Simuliidae, Ceratopogonidae and Tabanidae. Myiasis: concept, types and causative species of Diptera.

Phylum Mollusca: general characterisation of their morphology and biology. Gastropods of health interest as intermediate hosts of human diseases. Lymnaeids and Planorbids transmitting trematode diseases.

Use and calibration of binocular microscope for measuring and drawing of various parasitic forms at different magnifications.

Anatomical-morphological study of the main flukes (Trematodes: adult and larvae) that cause human diseases.

Anatomical-morphological study of the main Cestodes (adults and larvae) that cause human diseases.

Anatomical-morphological study of the major Nematodes (adults and larvae) that cause human diseases.

Characterisation of the major human parasitic helminths by means of their eggsexpelled together with faeces, urine or sputum.

Specific characterisation of intestinal and other open-cavity protozoa that cause human diseases. Comparison with non-pathogenic human species.

Specific characterisation of blood and tissue protozoa that cause human diseases.

Anatomical-morphological study of mites and non-dipteran insects (ticks, Siphonaptera and Hemiptera) of relevant interest in public health and analysis of their role as vectors of infectious agents.

Anatomical-morphological study of Dipteran insects (Nematocera, Brachycera -Tabanidae and Cyclorhapha) of relevant interest in public health and analysis of their role as vectors of infectious agents.



5. Laboratory training

Use and calibration of binocular microscope for measuring and drawing of various parasitic forms at different magnifications.

Anatomical-morphological study of the main flukes (Trematodes: adult and larvae) that cause human diseases.

Anatomical-morphological study of the main Cestodes (adults and larvae) that cause human diseases.

Anatomical-morphological study of the major Nematodes (adults and larvae) that cause human diseases.

Characterisation of the major human parasitic helminths by means of their eggsexpelled together with faeces, urine or sputum. Anatomical-morphological study of Gastropod Molluscs transmitting human parasitic diseases. Characterisation of Lymnaeids and Planorbids.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Tutorials	2,00
Theory	39,00
Seminar	2,00
Laboratory	17,00
Total hours	60,00

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	2,00
Individual or group project	5,50
Independent study and work	52,50
Preparation of lessons	25,00
Preparation for assessment activities	3,00
Resolution of case studies	2,00
Total hours	90,00

TEACHING METHODOLOGY

1.- The teaching is based on the individual study of the contents listed above, which are developed in lectures and reinforcing the organisation of tutoring. Prior to the date of tutoring, the student must have prepared activities to reinforce the learning of specific aspects of the program. The seminars will enable students to develop competences of teamworks, oral communications and knowledge of English.

During the first teacher lecture, a reduced systematic annex will be given to students. This annex will save the sterile storage of the large systematic lists, although all students are required to know the specific names of the parasite species affecting humans, since that annex only provides information up to genus level.



2.- Practical sessions will be developed in the laboratory, where the teacher will initially expose the content of the activity, resolve doubts and direct the execution of each practice. The student will be provided with a notebook-practices guide.

3.- In the tutorials, the student will receive the proposed subject or the problems to solve, that he should prepare within a group activity and present/expose at a fixed day.

4.-Self-work to be developed by students will be coordinated by the teacher who will advise on the objectives, methodology, bibliography and other aspects of interest for each seminar. The work will be exposed orally to the rest of their classmates.

Methods and Times: Seminars 2; Theory 36, Practical 17; Tutorials 2.

EVALUATION

A) Written examination for the evaluation of student's knowledge and understanding of the theoretical contents of the discipline contents (80%).

B) Evaluation of laboratory work by monitoring the work performed during the course and the ability to solve experimental problems; Making a written test to ensure knowledge and understanding of the practical content established for the area (15%).

C) Theoretical and practical evaluations should be independently overcome as an imperative to reach the minimum competence evaluation in the course.

D) The level of understanding of the contents of tutorials and seminars (5%) will be assessed. Attendance at seminars is mandatory.

Qualification criteria: Approved getting 5 out of the maximum of 10.

Contents of the theory test: All list of topics.

Type of exam: written, including questions for text answers and reasoning, tests, multiple answer questions, and so on.

Practical assessment:



Content: All list of topics.

Qualification criteria: We value the attendance (mandatory) and the students' knowledge will be assessed through examination of work practices (100% of the practices qualification). The exam will take place at the end of the practices and always before the theoretical exam. There will be a single exam for all practice groups. In the case of not approving the discipline in this course, the practice note (if approved whit 5 or higher), is saved only for 3 subsequent years.

To access the theoretical examination, practical assessment will be passed (according to qualification criteria mentioned above) and it is mandatory to pass the course.

Use of AI or any other form of copying or plagiarism: Evidence of copying or plagiarism in any of the assessable tasks will result in failure to pass the subject and in appropriate disciplinary action being taken. Please note that, in accordance with article 13. d) of the Statute of the University Student (RD 1791/2010, of 30 December), it is the duty of students to refrain from using or participating in dishonest means in assessment tests, assignments or university official documents.

In the event of fraudulent practices, the "**Action Protocol for fraudulent practices at the University of Valencia**" will be applied (ACGUV 123/2020): <https://www.uv.es/sgeneral/Protocols/C83sp.pdf>

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