



Universitat de Lleida

# DEGREE CURRICULUM **PARASITOLOGY**

Coordination: MENTABERRE GARCIA, GREGORIO

Academic year 2021-22

## Subject's general information

<b>Subject name</b>	PARASITOLOGY			
<b>Code</b>	100383			
<b>Semester</b>	1st Q(SEMESTER) CONTINUED EVALUATION			
<b>Typology</b>	Degree	Course	Character	Modality
	Double bachelor's degree: Bachelor's Degree in Veterinary Medicine and Bachelor's Degree in Science and Production	2	COMMON	Attendance- based
<b>Course number of credits (ECTS)</b>	3			
<b>Type of activity, credits, and groups</b>	<b>Activity type</b>	PRALAB	PRAULA	TEORIA
	<b>Number of credits</b>	0.8	0.7	1.5
	<b>Number of groups</b>	6	2	1
<b>Coordination</b>	MENTABERRE GARCIA, GREGORIO			
<b>Department</b>	ANIMAL HUSBANDRY			
<b>Teaching load distribution between lectures and independent student work</b>	Hours present: 30 Hours not present: 45			
<b>Important information on data processing</b>	Consult <a href="#">this link</a> for more information.			
<b>Language</b>	English: 75% Spanish/Catalan: 25%			

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
MENTABERRE GARCIA, GREGORIO	gregorio.mentaberre@udl.cat	7,7	To be arranged through previous direct or email contact with the teacher.

## Subject's extra information

The academic year 2021-2022 may suffer changes due to exceptional circumstances.

## Learning objectives

The main objective of this subject is to make students aware of the main parasite-host relationships with veterinary interest, always keeping in mind the "one health" paradigm and the concept of "shared diseases". According to these, there is a direct relationship between animal, human and ecosystem health, with common diseases that can affect livestock, pets, wildlife and people (zoonoses).

### Specific objectives:

#### Students passing this subject must (learning outcomes / knowledge objectives):

1. Knowing the biological phenomenon of parasitism and the main parasite - host - environment relationships.
2. Knowing the morphological features, systematics and classification of the main protozoa, helminths and arthropods genera with veterinary interest.
3. Knowing the life cycle and isolation and/or identification techniques of the main parasite genera.
4. Having basic knowledge of the epizootiology and the pathogenesis of the main parasitic agents of animals.

#### Students passing this subjects should be able to (capability goals):

1. Isolate and identify parasites by means of diagnostic techniques and taxonomic tables.
2. Establish biosecurity and prevention programs aimed at the different parasites based on knowledge of their epizootiology.
3. Collaborate with the authorities and people responsible for (animal and human) health for the prevention and control of parasitic agents present in animal populations.

## Competences

### Strategic competences of the University of Lleida

1. Sound command of Information and Communication Technologies.
2. Respect and promote equality between men and women, human rights, peace and democratic values.

### Specific competences

1. Knowing the main parasite genera and species affecting animals, especially those with severe implications in both animal health and production and zoonoses.
2. Knowing the determining factors of parasites epizootiology in order to predict their future evolution and to design control strategies.
3. Knowing the techniques and tools necessary to isolate and identify parasites.
4. Be able to properly collect biological samples and accompanying information (report) for complementary parasitic analyses.
5. Ability to find specific resources on the treatments and control strategies to manage parasite infestations on

a basic knowledge basis.

### Transversal and/or basic competences of the degree

1. Acquire a proper understanding of oral and written English.
2. Understand and express yourself with the appropriate terminology.
3. Acquire essential notions of scientific thought, critical thinking and innovative spirit.
4. Interpret studies, reports and/or data, and be able to analyse them.
5. Ability to synthesize and decision-making to solve problems.
6. Improve skills in the use of information and communications technology.
7. Be able to work either alone or in a multidisciplinary team.
8. Analyse and evaluate the social and ethical implications of the professional activity.

The following veterinary competences are covered: CB1, CB2, CB5, CG1, CG2, CG3, CT2, CT3, CT5, CE2, CE3, CE9, CE12, CE14, CE16, CE17, CE22, CE23, CE32, CE38, CE40, CE41

## Subject contents

General concepts of parasitology and parasitism. Study of biology, morphology and life cycles of protozoa, helminths and arthropods affecting animals, including pets, livestock and wildlife, as well as those causing zoonoses. Study of the relationship between parasites and host environment.

### THEORY

#### Unit 1.-. Introduction to Parasitology:

1. Historical development, current and future status of animal parasitology.
2. The parasitism between biological associations.
3. Origin and evolution.
4. Adaptations to parasitism and study of biological cycles.
5. Parasites and hosts types, parasite-host relationship and environment
6. Systematics, taxonomy and nomenclature in parasitology

#### Unit 2. Protozoa. Definition, morphology, classification and biological cycles:

1. Sarcocystis (amoebas and flagellates): Sarcocystis and Mastigophora
2. Ciliates (ciliate)
3. Apicomplexa (coccidia and piroplasms): Eimeria, Isospora, Cryptosporidium, Toxoplasma, Neospora, Besnoitia, Sarcocystis and others.

#### Unit 3. Nematodes. Definition, morphology, classification and biological cycles

1. Adenophorea: Trichiuridae, trichinellidae, Capillaridae and Dioctophymatidae
2. Secernentea: Strongyloididae, Strongylidae, Chabertiidae, Ancylostomidae, Trichostrongylidae, Dictyocaulidae, Metastrongylidae, Protostrongylidae, Angiostrongylidae, Oxiuridae, Filariidae, Heterakidae, Ascaridae, Anisakidae, Spiruridae.

#### Unit 4. Platyhelminthes: Flukes. Definition, morphology, classification and biological cycles

1. Monogenean
2. Digenea: Schistosomatidae, Fasciolidae, Paramphistomidae, Dicrocoeliidae

#### Unit 5. Platyhelminthes: Cestoda. Definition, morphology, classification and biological cycles

1. Taeniidae
2. Diphylobothridae

#### Unit 6. Arthropods: Definition, morphology, classification and biological cycles

1. Mites: ticks, mange, etc.
2. Insects: lice, fleas, bedbugs, etc.
3. Miasis, hipodermosis, etc.

## PRACTICAL ACTIVITIES

### Lab practices:

1. Coprological Analysis. Identification of parasite eggs in feces.
2. Identification of larval stages from coprocultures and from grass areas.
3. Identification of different adult parasites. taxonomical tables

### Seminars:

Seminars on current topics, including (whenever possible) guest experts in parasitology related areas and webinars. Sessions where students will be requested to make presentations on parasite genera or species of interest and evaluated.

## Methodology

The teaching is structured in theory sessions, practices, seminars and presentations, according to the time schedule provided at the beginning of the academic course.

1. Theoretical classes. They are taught in English, and consist of master classes of approximately 2 hours (50 + 50 min) where the corresponding topics will be presented. However, the sessions are expected to be participatory, so that the students can ask for questions or express doubts at any time. If necessary, time will be reserved at the end of each class for students who may be interested in a summary and/or comment on doubts in Catalan or Spanish.

2. Practical classes. They consist of laboratory sessions preceded by an introductory explanation of the activity to be carried out. Each practice will have its corresponding guide note with the objectives or procedures to be carried out, which will be made available through the virtual campus.

3. Seminars and presentations. They consist of interactive practical sessions on current issues that will require previous work by the student, according to the indications they will receive during the development of the subject. There may be an invited conference or seminar, as well as the student must prepare a presentation to present in public, according to the instructions previously received.

The teaching materials will be provided as the course progresses in the corresponding space of the subject in the virtual campus (resources).

## Development plan

The practical and evaluation activities (exams) will preferably be on-site, except for changes imposed by exceptional situations.

## Evaluation

There will be two theory exams composed of questions with several answer options and only one valid (despite there may be more than one correct): a first (partial) one, which will count for 35% of the final grade and that will take place in the middle of the semester in the corresponding evaluation week (it may take place before this academic year 21-22 due to special circumstances); and a second partial one which will represent another 35% of the final grade. These exams may include questions related to the practices and seminars.

Attendance at practices is compulsory and will account for 15% of the final grade. The remaining 15% will be derived from group presentations and the entire group will receive the same grade.

The minimum mark for each theory exam must be 5. Otherwise, your final grade will be the weighted average of both exams, without accounting the grades of the practical activities. Remedial exam will be required if the final mark is lower than 5.

## Bibliography

### BIBLIOGRAFY

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- Eva M<sup>a</sup> Frontera Carrión... [et al.]. 2009. Patología parasitaria porcina : en imágenes. Zaragoza : Servet , cop.
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- Ishikura H.1998 Host response to international parasitic zoonoses : with 64 figures, including 38 in color Tokio : Springer, cop
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- Jaime Llena, Pedro Rodríguez. 2004. Parásitos externos en vacuno de cebo / [Zaragoza : s.n.], DL
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- Fernández-Rubio, Moreno, Soriano . 2008. Artrópodos en medicina y veterinaria. Madrid : Ministerio de Defensa, Secretaría General Técnica ,

**PARASITOLOGY WEBS**

<http://www.socepa.es/>

<http://pagines.uab.cat/parvet/>

<http://www.slideshare.net/Parasitismo/atlas-de-parasitologia-veterinaria>

<http://www.cdc.gov/parasites/>

<http://www.southampton.ac.uk/~ceb/Diagnosis/Vol1.htm>

<http://www.udel.edu/mls/dlehman/medt372/>

<http://www.southampton.ac.uk/~ceb/>