



## Syllabus

### Subject

<b>Subject / Group</b>	11237 - Applying Biotechnology to Pest Diagnosis and Control / 1
<b>Degree</b>	Master's in Applied Biotechnology
<b>Credits</b>	5
<b>Period</b>	2nd semester
<b>Language of instruction</b>	English

### Professors

Lecturers	Office hours for students					
	Starting time	Finishing time	Day	Start date	End date	Office / Building
Claudia Caterina Paredes						
Esquivel						You need to book a date with the professor in order to attend a tutoring session.
<i>Responsible</i> <a href="mailto:claudia.paredes@uib.es">claudia.paredes@uib.es</a>						

### Context

Nowadays, parasitic diseases cause a high mortality in humans, with diseases like malaria affecting millions of people worldwide. Many of the diseases caused by parasites are considered emerging or reemerging due to globalization and climate change. The field of parasitology has been revolutionized by the arrival of modern techniques, increasing our understanding on behaviour, distribution, diagnosis, evolution and control of parasitic organisms and their hosts. This course will cover these aspects from protozoan to metazoan parasites of human and veterinary importance.

### Requirements

#### Essential

An good level in English language is recommended

### Skills

#### Specific

- \* - Learn basic concepts on biotechnology and its utility in Parasitology
- \* - Make a critical analysis of scientific studies of this field of research
- \* - Know the gaps and the future trends in the field of Parasitology



## Syllabus

### Generic

- \* - Understand scientific literature related to the course

### Transversal

- \* -Give a scientific presentation in the field of parasitology

### Basic

- \* You may consult the basic competencies students will have to achieve by the end of the Master's degree at the following address: [http://estudis.uib.cat/master/comp\\_basiques/](http://estudis.uib.cat/master/comp_basiques/)

## Content

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This course includes the following topics:

### Range of topics

- I. Review of basic concepts  
Basics concepts on epidemiology and biology of parasites and its vectors
- II. Diagnostic Parasitology I. Phylogenetics  
Molecular-based techniques to identify parasites and vectors. Application of phylogenetics concepts.
- III. Diagnostic parasitology II. Genomics  
Parasitology in the era of genomics
- IV. Host-parasite interactions  
Current knowledge in parasites and its interaction with their hosts.  
Changes in behaviour of parasitized hosts
- V. Vector control  
Genetic manipulation of vectors, insecticide resistance mechanisms
- VI. Population genetics of parasites and vectors  
Current trends, importance of applying evolutionary biology concepts in the understanding of parasitic diseases

## Teaching methodology

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In-class work activities (1.2 credits, 30 hours)

Modality	Name	Typ. Grp.	Description	Hours
Theory classes	Basic concepts in Parasitology	Large group (G)	Review of the basic concepts on this field of research	10

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Modality	Name	Typ. Grp.	Description	Hours
Seminars and workshops	Analysis of the scientific literature	Medium group (M)	Analysis of the scientific literature. A review of the high impact articles in Parasitology. State of the art of the different topics	12
Laboratory classes	Diagnostic parasitology	Medium group (M)	Morphological diagnosis of the most important parasitic diseases in the laboratory	8

At the beginning of the semester a schedule of the subject will be made available to students through the UIBdigital platform. The schedule shall at least include the dates when the continuing assessment tests will be conducted and the hand-in dates for the assignments. In addition, the lecturer shall inform students as to whether the subject work plan will be carried out through the schedule or through another way included in the Aula Digital platform.

### Distance education tasks (3.8 credits, 95 hours)

Modality	Name	Description	Hours
Individual self-study	Analysis of the scientific literature II	The students should give an oral presentation of a particular topic defined at the beginning of the course	40
Individual self-study		The students should present a written work on a particular topic	55

### Specific risks and protective measures

All material used during practicals is safe

### Student learning assessment

#### Frau en elements d'avaluació

In accordance with article 33 of Regulation of academic studies, "regardless of the disciplinary procedure that may be followed against the offending student, the demonstrably fraudulent performance of any of the evaluation elements included in the teaching guides of the subjects will lead, at the discretion of the teacher, a undervaluation in the qualification that may involve the qualification of "suspense 0" in the annual evaluation of the subject".

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### Basic concepts in Parasitology

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Modality	Theory classes
Technique	Objective tests ( <b>retrievable</b> )
Description	Review of the basic concepts on this field of research
Assessment criteria	Written exam of the different concepts reviewed during class. The lecturer will provided a list of selected topics.

Final grade percentage: 15%with a minimum grade of 5

### Diagnostic parasitology

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Modality	Laboratory classes
Technique	Short-answer tests ( <b>retrievable</b> )
Description	Morphological diagnosis of the most important parasitic diseases in the laboratory
Assessment criteria	Diagnostic parasitology under the microscope

Final grade percentage: 15%with a minimum grade of 4

### Analysis of the scientific literature II

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Modality	Individual self-study
Technique	Oral tests ( <b>non-retrievable</b> )
Description	The students should give an oral presentation of a particular topic defined at the beginning of the course
Assessment criteria	Oral presentation during classes

Final grade percentage: 40%

### Individual self-study

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Modality	Individual self-study
Technique	Papers and projects ( <b>non-retrievable</b> )
Description	The students should present a written work on a particular topic
Assessment criteria	Scientific abstract and written work on a particular topic

Final grade percentage: 30%

## Resources, bibliography and additional documentation

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### Basic bibliography

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MOLINEUX, DAVID. 2007. Control of Human Parasitic Diseases. Academic Press. London  
SCHMID-HEMPEL, PAUL (Review by: Andrea L. Graham). 2012Evolutionary Parasitology: The Integrated Study of Infections, Immunology, Ecology, and Genetics.The University of Chicago Press

### Complementary bibliography

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- Molecular parasitology: protozoan parasites and their molecules. Author(s) : Walochnik, J.;Duchêne, M. 2016
- Insect Molecular Genetics. Marjorie A. Hoy. 2013





## Syllabus

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Academic year	2019-20
Subject	11237 - Applying Biotechnology to Pest Diagnosis and Control
Group	Group 1

- Atlas of Tropical Medicine and Parasitology (Text with CD-ROM). 6th Edition. WALLACE, PETER.2007.

