

**Animal Physiology**

Code: 101952  
ECTS Credits: 6

Degree	Type	Year	Semester
2500890 Genetics	OB	1	2

## Contact

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## Teaching groups languages

You can check it through this [link](#). To consult the language you will need to enter the CODE of the subject. Please note that this information is provisional until 30 November 2023.

## Teachers

Mariana Teles Pereira

Elisenda Sanz Iglesias

## Prerequisites

Those required for the access to the degree.

All students enrolled in this subject are recommended to review the concepts of general biology, cell biology and histology previously treated (during the first semester of this Degree or in previous studies).

It is strongly recommended to take the course "Integrated Laboratory II" in parallel, where a practical module of Animal Physiology is taught.

English skills are recommended.

## Objectives and Contextualisation

Physiology is the scientific discipline devoted to the study of the functioning of living beings. Animal Physiology, therefore, studies the functioning of animals from all points of view. Animal Physiology is considered a basic and essential discipline within the training in biomedical sciences.

The general objective of Animal Physiology is the acquisition by the students of integrated knowledge related to the functioning of the organism, from the molecular to the systemic-organic levels, including the ability to apply this knowledge in practical situations, both in the professional context and in everyday situations .

Specific objectives of Animal Physiology as a teaching subject are that the student:

1. Acquires knowledge of organic functions and how they are regulated.
2. Applies the knowledge acquired in other subjects, taken prior to the concepts that are taught within this program, and establishes the appropriate cross-relations.
3. Knows the experimental techniques that have allowed the development of Physiology as a science and becomes familiar with some in particular.
4. Interprets data relative to real or experimentally induced situations from a physiological perspective.
5. Knows the appropriate bibliographic sources related to the subject.
6. Recognizes Physiology as a professional field, from research and teaching perspectives.

Within the Degree in Genetics, Animal Physiology is a basic, compulsory subject, taught in the second semester of the first year. The activities of this subject are complemented by laboratory activities, as they are described in the corresponding practical course (Integrated Laboratory II). It is recommended, therefore, that both courses are taken simultaneously.

Animal Physiology aims to give students an integrated view of the functioning of living organisms and their integrated control, the ultimate result of the mechanisms of genetic regulation in individuals. This knowledge is also necessary to understand the systemic/organic consequences derived from genetic alterations.

## Competences

- Act with ethical responsibility and respect for fundamental rights and duties, diversity and democratic values.
- Be able to analyse and synthesise.
- Be able to organise and plan.
- Be sensitive to environmental, health and social matters.
- Describe the diversity of living beings and interpret it evolutionally.
- Design experiments and interpret the results.
- Know and interpret the metabolic and physiological bases of organisms.
- Take account of social, economic and environmental impacts when operating within one's own area of knowledge.
- Take sex- or gender-based inequalities into consideration when operating within one's own area of knowledge.

## Learning Outcomes

1. Act with ethical responsibility and respect for fundamental rights and duties, diversity and democratic values.
2. Be able to analyse and synthesise.
3. Be able to organise and plan.
4. Be sensitive to environmental, health and social matters.
5. Describe the basic mechanisms of cell and tissue physiology.
6. Describe the diversity of physiological mechanisms in animals.
7. Describe the function and characteristics of the different components of blood.
8. Describe the function and mechanisms for regulating the different systems of the organism.
9. Describe the function and mechanisms for regulating the endocrine and reproduction systems.
10. Describe the macro- and microscopic structure and the functioning of the nervous system.
11. Design experiments and interpret the results.
12. Explain the functions of the nervous system.
13. Take account of social, economic and environmental impacts when operating within one's own area of knowledge.

14. Take sex- or gender-based inequalities into consideration when operating within one's own area of knowledge.

## **Content**

### **LECTURES (Theoretical classes)**

This part of the course content will be delivered as master lectures, complemented with teaching materials prepared for this purpose and accessible to students in the Moodle Classroom of the subject (via UAB Virtual Campus). Students should prepare for these sessions in advance as part of their independent work (45-60 minutes of self-study per session), using the provided material.

The following thematic blocks will be covered:

Introduction to Physiology

Physiological Principles

Excitable Cells and Tissues

Nervous Control Systems

Endocrine Control Systems

Blood

Cardiovascular

Respiratory

Renal

Gastrointestinal System

Reproductive System

A detailed program of contents will be provided in the Moodle Classroom of the subject.

### **SEMINARS**

Seminars are combined activities of self-learning and supervised work in which topics not covered in the theoretical classes are addressed or specific aspects of some topics are expanded. In some cases, they involve practical exercises (case studies) and/or problems that students will perform and submit for evaluation prior to the seminar discussions (according to the schedule found in the Moodle Classroom). They may also include exercises and/or questionnaires to be completed in the classroom, which will be submitted to the teacher for correction. All activities contribute to the student's continuous evaluation process. These activities are not recoverable under any circumstances.

### **TUTORIALS**

Individual or small group sessions for resolving doubts related to the subject. This type of activity will be carried out upon request by students (individually or in groups) or may be proposed voluntarily by the teacher. Therefore, it is an activity that will not be considered in the count of hours included in this teaching guide.

## **Methodology**

The content of the subject "Animal Physiology" aims to provide students with a general introduction to the physiology of organ systems. As a whole, the scheduled activities are aimed at integrating knowledge in order to provide students with tools to address practical problems with professional implications from a physiological context. The planned training activities include directed learning time and self-learning time.

**Lectures:** This part of the course content will be delivered as master lectures, complemented with teaching materials prepared for this purpose and accessible to students in the Moodle Classroom of the subject (UAB Virtual Campus). Students should prepare for these sessions in advance as part of their independent work, using the provided material. This activity is complemented by the student's personal work outside of class hours and personalized tutorials according to the requirements considered appropriate by the student and the teacher.

**Seminars:** They are combined exercises of directed teaching (individual or group) and supervised work in which topics not covered in the theoretical classes are addressed or expanded. They are practical exercises that the student will perform and submit during the class. The seminars will be feedback activities from the teacher, including discussions (correction) of the work done and/or specific continuous assessment exercises.

**Tutorials:** Time for discussion and resolution of doubts/problems that arise during self-learning time, and guidance by the teacher in the learning process. They will be carried out individually or in small groups depending on the requirements and areas of the questions to be discussed. The location and schedule will be mutually agreed upon by the teacher and the interested student(s). It will be timely recommended to hold at least one group tutorial before each exam for doubt resolution.

**Self-learning:** Autonomous training activities (individual or group) in which the student works and delves into the material presented in the theoretical classes, or seeks, analyzes, and integrates complementary information.

**Annotation:** Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

## Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Lectures	34	1.36	1, 14, 13, 4, 5, 10, 6, 9, 8, 7, 12, 2, 3
Seminars	15	0.6	4, 5, 10, 6, 9, 8, 7, 11, 12, 2, 3
Type: Supervised			
Problem resolution and analysis of data	10	0.4	1, 14, 13, 4, 5, 10, 6, 9, 8, 7, 11, 12, 2, 3
Tutorials	2	0.08	1, 14, 4, 5, 10, 6, 9, 8, 7, 12, 3
Type: Autonomous			
Selfstudy	75	3	5, 10, 6, 9, 8, 7, 12, 2, 3

## Assessment

### CONTINUOUS ASSESSMENT

Final grade depending on:

Partial Exam 1 (40% of the grade)

Partial Exam 2 (40% of the grade)

Assignments and activities carried out in the seminars (20% of the grade)

Partial Exams 1 and 2:

Multiple-choice questions (40-50 questions with 4 options), with a penalty of 4:1.

Two controls (partial exams) will be held during the course on dates communicated in advance and set by the coordination of the Degree. The scoring of these exams will represent 40% of the final grade (depending on the content of each exam).

Only averages will be calculated with a grade for the partial exams  $\geq 4.5$ .

Re-sit Exam:

Students who have not obtained a grade  $\geq 4.5$  (and therefore cannot average) in any of the partial exams or seminars must participate in the recovery. To participate in the recovery, students must have previously been evaluated in a set of activities that account for a minimum of 50% of the evaluable activities.

THEORY: Multiple-choice questions (40-50 questions with 4 options), with a penalty of 4:1.

SEMINARS: 10 questions with 4 options), with a penalty of 4:1.

The theory grade will represent 80% of the grade and the seminars grade will represent 20%.

Only averages will be calculated with a grade  $\geq 4.5$ .

Seminars:

Not completing a seminar is equivalent to obtaining a grade of 0.0 for the respective activity.

The cases/problems and evaluable classroom activities are not recoverable.

Calculation of the final grade:

$(\text{Partial Exams 1 and 2 / Recovery Exam}) \times 0.8 + \text{Seminars} \times 0.2$

The subject is considered passed ONLY if the final grade is  $\geq 5.0$ .

Only averages will be calculated with a grade  $\geq 4.5$  in the corresponding section of the partial exams/recovery exam.

Not Evaluable:

The grade "Not Evaluable" will be obtained when the number of evaluation activities carried out is less than 50% of the scheduled activities.

Repeat Students:

The grade for approved parts (theory or seminars) will be maintained during one academic year.

### SINGLE ASSESSMENT

Students opting for single assessment will be evaluated based on the theoretical content and seminars, representing 100% of the subject grade.

The single assessment test will be carried out coinciding with the same date fixed in the calendar for the last partial assessment test and the same re-sit system will be applied as for the conventional assessment

## Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Activities in seminars	20 %	8	0.32	1, 14, 13, 4, 5, 10, 6, 9, 8, 7, 11, 12, 2, 3
End-term test	40 %	3	0.12	1, 14, 13, 4, 5, 10, 6, 9, 8, 7, 11, 12, 2, 3
Mid-term test	40 %	3	0.12	1, 14, 13, 4, 5, 10, 6, 9, 8, 7, 11, 12, 2, 3

## Bibliography

### Basic references

- Koeppen, B.M., Stanton, B.A. Berne y Levy - Fisiología 7a ed. Elsevier Mosby, 2018
- Pocock, G., Richards C.D. Fisiología humana: La base de la medicina, 2a ed. Masson 2005.
- Tresguerres, J.A.F. Fisiología Humana: La base de la medicina. 4ª ed. Interamericana McGraw-Hill. 2010
- Tortora, Derrickson. Principios de Anatomía y Fisiología, 11ava ed. Médica Panamericana, 2007
- Raff H, Levitzky M. Fisiología Médica. Un enfoque por aparatos y sistemas. McGrawHill - Lange, 2013

### Complementary references

- Fox, S.I. Fisiología Humana. 14a ed. McGraw-Hill Interamericana, 2016
- Ganong. Fisiología médica. 25a ed. McGraw-Hill - Lange, 2016
- Guyton, A.C., Hall, J.E.. Manual de Fisiología Médica. 13a ed. Elsevier España, 2017
- Johnson MH, Essential Reproduction. 8ª ed. Blackwell Publishing, 2018
- Martín Cuenca E, Fundamentos de Fisiología Thomson 2006
- Silverthorn, Fisiología Humana. Un enfoque integrado 6ª ed. Panamericana 2014
- Vander, Sherman, Luciano. Fisiología Humana. McGraw-Hill 1999

### Related Web pages

- <http://www.telmeds.org/AVIM/index2.htm> (atlas virtual de medicina)
- <http://virtual.ujaen.es/atlas/> (atlas d'histologia virtual)
- <http://www.medicine.mcgill.ca/physio/vlab/> (Laboratori virtual de fisiologia)
- <http://neocortex.med.cornell.edu/VL-Physio/> (enllaços amb recursos d'interés en fisiologia)

### On line courses - MOOCs

<https://www.coursera.org/learn/physiology>

Bibliography in digital format:

Several of the proposed texts are available in digital version through the UAB Library Service. It is recommended to follow the following guide for the location of digital texts:  
<https://ddd.uab.cat/pub/guibib/224929/bibrecdigitals.pdf>

## **Software**

This course does not use any specific software.