1. OVERVIEW

Subject Area	Basic Sciences I
Degree	Bachelor's Degree in Veterinary Medicine
School/Faculty	Biomedical and Health Sciences
Year	First
ECTS	6 ECTS
Type	Core
Language(s)	Spanish
Delivery Mode	On-campus
Semester	First semester

2. INTRODUCTION

Basic Sciences I is a core subject area worth 6 ECTS, taught in the first semester of the first year of the Bachelor's Degree in Veterinary Medicine. This subject area and Basic Sciences II (taught in the second semester of the first year of the Bachelor's Degree in Veterinary Medicine, also worth 6 ECTS), comprise the broader subject area of Basic Sciences, worth a total of 12 ECTS.

This subject area aims to provide students with the chemical, physical and biochemical foundations to serve as the basis for understanding and acquiring knowledge in other subject areas of the Bachelor's Degree in Veterinary Medicine, as well as in their professional career.

3. SKILLS AND LEARNING OUTCOMES

Basic skills (CB, by its acronym in Spanish):

- CB1: Show knowledge and understanding of an area of study, building on the foundation of general secondary school education. At this level, and perhaps with the support of more advanced textbooks, students should be able to demonstrate awareness of the latest developments in their field of study (Knowledge Acquisition).

Cross-curricular skills (CT, by their acronym in Spanish):

- CT2: Independent learning. Employ appropriate strategies needed to search for, analyse, evaluate and manage information from different sources, and to learn and put into practice what has been learnt independently.
- CT3: Teamwork: Collaborate actively with other people, departments and/or organisations to reach common goals, value and incorporate contributions from the rest of the group members and create a good working environment.

General skills (CG, by their acronym in Spanish):

- CG2. Prevent, diagnose and treat animal diseases, particularly zoonoses, both individually and as part of a team.

Specific skills (CE, by their acronym in Spanish):

- CE1b: Knowledge and application of the principles and foundations of the physics, chemistry and biochemistry of biological processes and their applications in veterinary science.

Learning outcomes (RA, by their acronym in Spanish):

- RA1: Describe the basic principles of physics, of the biomechanics involved in fluid dynamics, and the pressure gradients as applied to veterinary medicine.
- RA2: Study the chemial basis of biological processes and the practical applications of chemistry in vets' professional practice.
- RA3: Outline the appropriate techniques and procedures in the design, use and evaluation of analytical reagents, methods and techniques.
- RA4: Assess the risks associated with the use of chemical substances and laboratory procedures.
- RA5: Analyse the foundations of biochemistry, proteins, enzymes and metabolic intermediates.
- RA6: Use basic equipment for the application of biochemical methods.

The following table shows how the skills developed in the subject area relate to the intended learning outcomes:

Skills (CE)	Learning outcomes (RA, by their acronym in Spanish)
CE1b	RA1
CE1b	RA2
CE1b	RA3
CE1b	RA4
CE1b	RA5
CE1b	RA6

4. CONTENT

The subject area is divided into 3 units:

- **UNIT 1: CHEMISTRY AND BIOCHEMISTRY**
- **UNIT 2: PHYSICS**
- **PRACTICALS**
- **THEORY AND PRACTICAL LESSONS**

- **WORKSHOP 1**. Scientific poster and group presentation

5. TEACHING/LEARNING METHODS (MD, by their Spanish acronym)

The types of teaching/learning methods are as follows:

- Lecture / Web conference.
- Problem-based learning.
- Collaborative learning.
- Learning through workshops/labs

6. LEARNING ACTIVITIES

The types of learning activities, plus the amount of time spent on each activity, are as follows:

On campus:

Learning activity	Number of total hours	Number of hours on campus
Master lectures	32	32
Group activities	6	2
Case studies and problem-solving	6	3
Group presentation	2	2
Independent working	69	0
Workshops and/or labs and/or simulation	16	16
Drafting reports or concept maps	7	0
Tutorials	10	3
Assessment tests	2	2
TOTAL	**150**	**60**

7. ASSESSMENT

The assessment methods, plus their weighting in the final grade for the course, are as follows:

On campus:

Assessment system	Weighting
On-campus theory exams	60%
Skills and abilities assessment	20%
Case study/problem	10%
Group presentation	10%

On the Virtual Campus, when you open the subject area, you can see all the details of your assessment tasks, including the deadlines and assessment procedures for each task.

Two on-campus theory exams will take place during the semester: one in the middle and one at the end of the semester. Both exams will have the same weighting for the final grade.

The partial exam is scheduled for the third week of November. Students who pass this exam will not need to be examined on this part of the subject matter during the ordinary or extraordinary exam period. These dates are approximate.
Lab work, synchronous workshops, complex simulations, case studies and theory exams take place on campus and attendance is compulsory.
At the professor's discretion, an oral exam may be arranged to make up for the justified absence of an exam.

8. BIBLIOGRAPHY

The works of reference for following up on the subject area are:

- Lehninger, "Principios de bioquímica". 6ª edición. MacMillan, 2014
- Chang & Goldsby, "Química". 11ª edición. McGraw-Hill, 2013
- Coll Cárdenas & Olivera, "Biofísica para estudiantes de Ciencias Veterinarias". Editorial de la Universidad de La Plata, 2018

Recommended supplementary bibliography:

- Najera, "Fundamentos de física para profesionales de la salud". Elsevier, 2014
- Piña, "La física en la medicina". Cegal, 2009
- Ronner, "Netter. Bioquímica esencial". Elsevier, 2019
- W. Baynes & Dominiczak, "Bioquímica médica". 5ª edición. Elsevier, 2019
- KANEKO, J. J, HARVEY, J. W. & BRUSS, M. L., (eds.), Clinical biochemistry of domestic animals., 6th ed. Ed. Academic Press, San Diego, 2008.
- Isaac Asimov. Breve historia de la química
- BERG, J.M., TYMOCZKO,J.L. & STRYER, L., Bioquímica: aplicaciones clínicas, 7ª ed., .Reverté, Barcelona, 2015
- Fernanda Coll Cárdenas y Daniela Olivera, "Biofísica para estudiantes de Ciencias Veterinarias". Libros de Cátedra. Editorial de la Universidad de La Plata, Edulp, 2015.