Information about the subject

Degree: Bachelor of Sciences of Physical Activity and Sport

Faculty: Faculty of Physical Activity and Sport Sciences

Code: 281003 **Name:** Biochemistry

Credits: 6,00 **ECTS Year:** 1 **Semester:** 1

Module: 1) Common Basic Training Module.

Subject Matter: Biochemistry **Type:** Basic Formation

Field of knowledge: Basic Sciences

Department: Functional Health and Assessment

Type of learning: Classroom-based learning

Languages in which it is taught: Spanish

Lecturer/-s:

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Module organization

1) Common Basic Training Module.

Subject Matter	ECTS	Subject	ECTS	Year/semester
Psychology	12,00	Basic Psychology	6,00	1/1
		Sports Psychology	6,00	2/1
Biochemistry	6,00	Biochemistry	6,00	1/1
Human Physiology	6,00	Human Physiology	6,00	1/2
Statistics	6,00	Statistics	6,00	1/2
Sociology	6,00	Sociology. Sports Sociology	6,00	2/2
History of physical activity	6,00	History of Physical Activity	6,00	2/2

Learning outcomes

At the end of the course, the student must be able to prove that he/she has acquired the following learning outcomes:

R1 Understanding and assimilation of the concepts including in the content of the subject .

R2 Ability to write an understandable and organized text over different aspects of biochemistry.

R3 To be able to search bibliographic information from different sources and analyzes it with critical and constructive spirit.

R4 Capacity to work in a biochemistry laboratory, performing correctly the basic operations and observing the corresponding norms of security. As well as a correct understanding of the planning, development and purpose of the experience.

R5 Collaboration with the lecturer and the companions throughout the learning process: Attendance to theoretical, practical, or tutoring sessions; Teamwork; Respect in dealing; Observing of the rules in the organization of the subject to the benefit of all.

Competencies

Depending on the learning outcomes, the competencies to which the subject contributes are (please score from 1 to 4, being 4 the highest score):

GENERAL		Weighting			
		1	2	3	4
CG1	Understanding scientific literature in English and other important languages widely used in the scientific field achieving a good management of information			x	
CG3	Develop skills to solve problems through decision-making		x		
CG4	Transmit any information regarding the contents of body expression both in writing and orally				x
CG5	Plan and organize any activity efficiently				x
CG6	Develop interpersonal skills and teamwork, both international and domestic contexts and in interdisciplinary teams and non-interdisciplinary		x		
CG7	Be capable of critical reasoning using the knowledge gained				x
CG9	Knowing and complying with the professional ethics necessary to work				x
CG10	Develop skills to adapt to new situations and autonomous learning				x
CG11	Develop skills for creativity, initiative and entrepreneurship				x
CG14	Use Internet well as communication and as a source of information				x
CG18	Being able to assess themselves		x		

SPECIFIC		Weighting			
		1	2	3	4

CE1	Knowing and understanding the contents within the scope of Physical Activity and Sports Science		x	
CE2	Acquiring the basic scientific knowledge to different areas of Physical Activity and Sports and understanding literature in the field of physical Activity sports in English and in the other important languages widely used in the scientific field achieving a good management of information		x	
CE11	Promote and evaluate various expressive forms		x	
CE18	Select and know how to use the most appropriate teaching materials and resources for each type of activity			x

Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2, R4, R5	70,00%	Written/oral and/or practical tests.
R5	10,00%	Active participation.
R2, R3, R4, R5	20,00%	Attendance at interviews, seminars and practical activities.

Observations

Criteria for granting a grade of A with honors:
According to the general rules, a distinction may be granted to students with a score equal to or greater than 9. The number of registrations of honor shall not exceed 5% of the students enrolled in a course for the academic year (every 20 students), with the exception of the case of groups of less than 20 students in total, in which a registration may be.
*A minimum qualification of 4.5 is required to make the average with the rest of assessment tools.
To pass the subject in the 1st enrolment will be essential:
Those students having a portion of the suspended evaluation approved average, will crash you rating 4.5 until the portion is exceeded.

Learning activities

The following methodologies will be used so that the students can achieve the learning outcomes of the subject:

M1 Exhibition of contents by the teacher.

M2 Dynamics and group activities.

M3 Resolution of problems and cases.

M4 Laboratory practices.

M5 Discussion in small groups.

M7 Internship assistance.

IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
PRACTICAL /SEMINAR CLASS: Dynamics and group activities. Resolution of problems and cases. Laboratory practices. Data search in a computer room, library... Meaningful construction of knowledge through the interaction and activity of the student M2, M3, M5	R2, R3, R4, R5	16,00	0,64
TUTORY: Learning supervision, evolution. Discussion in small groups. Resolution of problems and cases. Presentation of results before the teacher. Presentation of schemes and indexes of the proposed works. M5	R2, R3, R5	2,00	0,08
EVALUATION: Set of oral and / or written tests used in the evaluation of the student, including the oral presentation of the final project. M2, M3	R1, R2, R3, R4, R5	2,00	0,08
THEORETICAL CLASS: Presentation of content by the teacher. Competency analysis. Demonstration of skills, abilities and knowledge in the classroom. M1, M2, M5	R1, R4, R5	40,00	1,60
TOTAL		**60,00**	**2,40**

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
GROUP WORK: Problem solving. Preparation of exercises, works, memories, to exhibit or deliver in classes and / or in tutoring. M2, M3	R1, R2, R3, R4, R5	20,00	0,80
AUTONOMOUS WORK: Study, Individual preparation of exercises, works, memories, to exhibit or deliver in classes and / or in tutoring. Platform activities or other virtual spaces. M3	R1, R2, R3, R4, R5	70,00	2,80
TOTAL		**90,00**	**3,60**

Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
DIDACTIC UNIT I: STRUCTURE OF BIOMOLECULES AND CATALYSIS	SUBJECT 1. Introduction to the chemistry of the life. Cellular, chemical and genetic background. Evolutionary foundations.SUBJECT 2. The water.SUBJECT 3. Amino acids, peptides and proteins. Structure. Properties. Classification. Functions. Methods of separation and purification. Methods of quantification.SUBJECT 4. Enzymes. Kinetic enzymatic. Mechanisms. Regulating enzymes.SUBJECT 5. Carbohydrates. Structure. Classification. Functions.SUBJECT 6. Lipids. Structure. Classification. Functions.SUBJECT 7. Nucleic nucleotides and acids.SUBJECT 8. Vitamins and coenzymes.SUBJECT 9. Biological membranes and transport.
DIDACTIC UNIT II: BIOENERGETICS AND METABOLISM	SUBJECT 10. Principles of cellular bioenergetics. ATP.SUBJECT 11. Catabolism and production of the energy of the phosphate bond.SUBJECT 12. Biosynthesis and use of the energy of the phosphate bond.
DIDACTIC UNIT III: THE GENETIC INFORMATION FLOW	SUBJECT 13: Replication, transcription and translation of the genetic information.

Temporary organization of learning:

Block of content	Number of sessions	Hours
DIDACTIC UNIT I: STRUCTURE OF BIOMOLECULES AND CATALYSIS	10,00	20,00
DIDACTIC UNIT II: BIOENERGETICS AND METABOLISM	16,00	32,00
DIDACTIC UNIT III: THE GENETIC INFORMATION FLOW	4,00	8,00

References

BASIC BIBLIOGRAPHY:

Alberts, B., Johnson, A., Lewis, J., Raff, M., Roberts, K., Walter, P. (2010). *Biología Molecular de la Célula. Editorial Omega,* S. A. UK.

Baynes, J., Dominiczak, M. (2015). *Bioquímica médica*. Cuarta Edición. Editorial Elsevier. Madrid.

Berg, J.M., Stryer L., Tymoczko, J.L. (2007). *Bioquímica.* Editorial Reverté, S.A. Barcelona.

Herrera, E. Ramos, M.P., Roca, P., Viana, M. (2014). *Bioquímica Básica.* Primera Edición. Editorial Elsevier. Madrid.

Meisenberg, G., Simmons, W. (2018). *Principios de bioquímica médica*. Cuarta Edición. Editorial Elsevier. Madrid.

Holde, K. E., Matthews, C.K. (2002). *Bioquímica.* Tercera Edición. Editorial McGraw-Hill-Interamericana.
Lehninger, A., Nelson, D. y Cox,

Addendum to the Course Guide of the Subject

Due to the exceptional situation caused by the health crisis of the COVID-19 and taking into account the security measures related to the development of the educational activity in the Higher Education Institution teaching area, the following changes have been made in the guide of the subject to ensure that Students achieve their learning outcomes of the Subject.

Situation 1: Teaching without limited capacity (when the number of enrolled students is lower than the allowed capacity in classroom, according to the security measures taken).

In this case, no changes are made in the guide of the subject.

Situation 2: Teaching with limited capacity (when the number of enrolled students is higher than the allowed capacity in classroom, according to the security measures taken).

In this case, the following changes are made:

1. Educational Activities of Onsite Work:

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject will be made through a simultaneous teaching method combining onsite teaching in the classroom and synchronous online teaching. Students will be able to attend classes onsite or to attend them online through the telematic tools provided by the university (videoconferences). In any case, students who attend classes onsite and who attend them by videoconference will rotate periodically.

In the particular case of this subject, these videoconferences will be made through:

[X] Microsoft Teams

[ ] Kaltura

Situation 3: Confinement due to a new State of Alarm.

In this case, the following changes are made:

1. Educational Activities of Onsite Work:

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject, as well as the group and personalized tutoring, will be done with the telematic tools provided by the University, through:

[X] Microsoft Teams

[ ] Kaltura

Explanation about the practical sessions:

2. System for Assessing the Acquisition of the competences and Assessment System

ONSITE WORK

Regarding the Assessment Tools:

[X] The Assessment Tools will not be modified. If onsite assessment is not possible, it will be done online through the UCVnet Campus.

[ ] The following changes will be made to adapt the subject's assessment to the online teaching.

Course guide		Adaptation	
Assessment tool	Allocated percentage	Description of the suggested changes	Platform to be used

The other Assessment Tools will not be modified with regards to what is indicated in the Course Guide.

Comments to the Assessment System: