Information about the subject

Degree: Bachelor of Sciences of Physical Activity and Sport

Faculty: Faculty of Physical Activity and Sport Sciences

Code: 281102 **Name:** Biochemistry and Human Physiology

Credits: 9,00 **ECTS Year:** 1 **Semester:** 1/2

Module: 1) Basic formation Module

Subject Matter: Biological and mechanical foundations of human motor skills. **Type:** Basic Formation

Field of knowledge: Ciencias de la Salud.

Department: -

Type of learning: Classroom-based learning

Languages in which it is taught: Spanish

Lecturer/-s:

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Module organization

1) Basic formation Module

Subject Matter	ECTS	Subject	ECTS	Year/semester
Biological and mechanical foundations of human motor skills.	36,00	Biochemistry and Human Physiology	9,00	1/2
		Biomechanics of Physical Activity	6,00	2/1
		Human Anatomy	9,00	1/2
		Kinesiology	6,00	2/1
		Physiology of Exercise	6,00	2/1
Behavioral and social foundations of human motor skills.	24,00	History and Sociology of Physical Activity and Sport	6,00	1/2
		Sport Psychology	6,00	1/2
		Statitics and Data Processing	6,00	2/2
		Technology Applied to Physical Activity and Sport	6,00	1/1

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 Identify, distinguish and apply the physiological processes that take place in the human body.

R2 Measure and interpret physiological parameters.

R3 Properly use bibliographic information sources (both in Spanish and English) related to human physiology.

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	Understand the scientific literature in English and in other languages ??of significant presence in the scientific field through proper information management.		x		
CG3	Develop skills to solve problems through decision making.				x
CG4	Convey any related information properly both in writing and orally.				x
CG5	Plan and organize any activity efficiently.		x		
CG6	Develop interpersonal relationship skills and teamwork, both in international and national contexts and in interdisciplinary as well as non-interdisciplinary teams.			x	
CG7	Be able to carry out critical reasoning using the knowledge acquired.				x
CG9	Know and act within the ethical principles necessary for proper professional practice.		x		
CG10	Develop skills for adaptation to new situations and for autonomous learning.				x
CG11	Develop skills for creativity, initiative and entrepreneurship.		x		
CG12	Develop leadership skills.	x			
CG13	Be able to apply theoretical knowledge in practice.				x
CG14	Use the internet properly as a means of communication and as a source of information.				x

SPECIFIC	Weighting			
	1	2	3	4
CE 2.1 Adapt the educational intervention to the individual characteristics and needs for the entire population and with emphasis on special populations such as: schoolchildren, the elderly (elderly), people with reduced mobility and Know how to guide, design, apply and technically-scientifically evaluate physical exercise and physical condition at an advanced level, based on scientific evidence, in different areas, contexts and types of activities for the entire population and with an emphasis on populations of a special nature such as: the elderly (elderly), schoolchildren, people with disabilities and people with pathologies, health problems or assimilated (diagnosed and / or prescribed by a doctor), taking into account gender and diversity. diversity.		x		
CE 2.2 Identify, communicate and apply anatomical-physiological and biomechanical scientific criteria at an advanced level of skills in the design, development and technical-scientific evaluation of procedures, strategies, actions, activities and guidelines adequate; to prevent, minimize and / or avoid a health risk in the practice of physical activity and sport in all kinds of population.				x
CE 2.4 Articulate and deploy an advanced level of skill in the analysis, design, and evaluation of assessment and control tests of physical condition and physical-sports performance.		x		
CE 3.1 Analyze, identify, diagnose, promote, guide and evaluate strategies, actions and activities that promote the adherence to an active lifestyle and the participation and regular and healthy practice of physical activity and sport and physical exercise in an adequate, efficient and safe way by citizens in order to improve their integral health, well-being and quality of life, and with emphasis on populations of a special nature such as: the elderly (elderly), schoolchildren, people with disability and people with pathologies, health problems or similar (diagnosed and / or prescribed by a doctor) attending gender and diversity.		x		

CE 3.4	Promote education, dissemination, information and constant orientation to people and leaders about the benefits, significance, characteristics and positive effects of the regular practice of physical and sports activity and physical exercise, of the risks and damages of an inadequate practice and of the elements and criteria that identify its adequate execution, as well as the information, guidance and advice on the possibilities of physical activity and appropriate sport in your environment in any professional intervention sector.			x
CE 4.3	Develop and implement the technical-scientific evaluation of the elements, methods, procedures, activities, resources and techniques that make up the manifestations of movement and processes of physical condition and physical exercise; having take into account the development, characteristics, needs and context of individuals, different types of population and spaces where physical activity and sports are carried out; in the various sectors of professional intervention and with an emphasis on populations of special character.	x		
CE 6.1	Know and understand the bases of the methodology of scientific work.		x	
CE 6.2	Analyze, review and select the effect and efficacy of the practice of research methods, techniques and resources and Scientific work methodology, in solving problems that require the use of creative and innovative ideas.		x	

Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R3	15,00%	Carrying out a project.
R1, R2	60,00%	Written / oral and / or practical tests.
R1, R2, R3	10,00%	Active participation.
R3	15,00%	Autonomous work.

Observations

·The student will be able to keep the evaluation instruments passed during the 3 years following the first enrollment.

·It is necessary to obtain 45% in all the instruments to pass the subject. If this criterion is not met, the student will be graded with a maximum of 4.5 in said call.

Learning activities

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

M2 Group dynamics and activities.

M3 Practical lesson.

M4 Presentation of content by the teacher.

M5 Laboratory practices.

M7 Small group discussion.

M8 Resolution of problems and cases.

IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
THEORETICAL CLASS: Presentation of contents by the teacher. Competency analysis. Demonstration of capabilities, skills and knowledge in the classroom. M2, M4, M7	R1, R2	82,00	3,28
PRACTICAL CLASS / SEMINAR: Group dynamics and activities. Resolution of problems and cases. Practical laboratories. Data search, computer room, library, etc. Meaningful construction of knowledge through interaction and student activity. M2, M3, M7, M8	R1, R2	4,00	0,16
EVALUATION: Set of oral and / or written tests used in the evaluation of the student, including the oral presentation of the final degree project. M2, M8	R1, R2, R3	4,00	0,16
TOTAL		**90,00**	**3,60**

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
GROUP WORK: Problem solving. Preparation of exercises, memoirs, to expose or deliver in classes and / or in tutoring. M2, M8	R1, R2, R3	30,00	1,20
SELF-EMPLOYED WORK: Study, individual preparation of exercises, works, memories, to expose or deliver in classes and / or in tutoring. Platform activities or other virtual spaces. M8	R1, R2, R3	105,00	4,20
TOTAL		**135,00**	**5,40**

Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
1 Introduction to Biochemistry	Introduction to Biochemistry
10 Main molecules of biological interest	2.1 Carbohydrates 2.2 Lipids 2.3 Proteins
3 Metabolism	3.1 Introduction to metabolism 3.2 Carbohydrate metabolism 3.3 Lipid metabolism
4 Enzymes	Enzymes
5 Integration of metabolism	Integration of metabolism
6 Flow of genetic information	Flow of genetic information
7 Clinical Biochemistry	Clinical Biochemistry
8 Vitamins	Vitamins
9 Membranes and transport systems	Membranes and transport systems
10 Physiology of the circulatory system	Physiology of the circulatory system
11 Physiology of the respiratory system	Physiology of the respiratory system
12 Physiology of the digestive system	Physiology of the digestive system
13 Physiology of the endocrine system	Physiology of the endocrine system

14 Physiology of the muscular system	Physiology of the muscular system
15 Physiology of the nervous system	Physiology of the nervous system
16 Physiology of the renal system	Physiology of the renal system

Temporary organization of learning:

Block of content	Number of sessions	Hours
1 Introduction to Biochemistry	1,50	3,00
10 Main molecules of biological interest	7,00	14,00
3 Metabolism	7,00	14,00
4 Enzymes	1,50	3,00
5 Integration of metabolism	1,50	3,00
6 Flow of genetic information	1,50	3,00
7 Clinical Biochemistry	1,50	3,00
8 Vitamins	1,50	3,00
9 Membranes and transport systems	1,50	3,00
10 Physiology of the circulatory system	4,50	9,00
11 Physiology of the respiratory system	2,50	5,00
12 Physiology of the digestive system	1,50	3,00
13 Physiology of the endocrine system	3,00	6,00
14 Physiology of the muscular system	4,00	8,00

15 Physiology of the nervous system	2,50	5,00
16 Physiology of the renal system	2,50	5,00

References

Abali, E., Cline, S., Franklin, D. y Viselli, S. (2021). Bioquímica (Lippincott Illustrated Reviews Series). (7ª ed). Wolters Kluwer.
Feduchi, E., Romero, C., Yáñez, E. y García-Hoz, C. (2021). Bioquímica. Conceptos esenciales. (3º ed). Elsevier.
Hall, J.E. y Hall, J.E. (2021). Guyton & Hall. Tratado de Fisiología Médica. Elsevier
Hall, S. y Stephens, J. (2020). Lo esencial en Anatomía y Fisiología. Elsevier
Calderón, F.J. (2019). Fisiología Humana. Aplicación a la actividad física. Editorial Médica Panamericana
Costanzo, L.S. y Costanzo, L.S. (2018). Fisiología. Elsevier
Derrickson, B. (2018). Fisiología Humana. Editorial Médica Panamericana
Koeppe, B.M. y Stanton, B.A. (2018). Berne y Levy. Fisiología. Elsevier
Tortora, G.J. y Derrickson, B. (2017). Principios de Anatomía y Fisiología (15ª ed.). Editorial Médica Panamericana
Teijón, J.M., Blanco, M.D., Olmo, R.M., Posada, P., Teijón, C. y Villarino, A. (2016). Fundamentos de bioquímica metabólica. Tébar Flores
Herrera, E., Ramos, M.P., Roca, P. y Viana, M.M. (2014). Bioquímica Básica. Elsevier