Information about the subject

Degree: Bachelor of Sciences of Physical Activity and Sport

Faculty: Faculty of Physical Activity and Sport Sciences

Code: 280206 **Name:** Physiology of Exercise

Credits: 6,00 **ECTS Year:** 2 **Semester:** 2

Module: 2) Knowledge of Basic Discipline module.

Subject Matter: Biological and Mechanics Basis of Human Movement **Type:** Compulsory

Field of knowledge: Health and functional assessment

Department: -

Type of learning: Classroom-based learning

Languages in which it is taught: Spanish

Lecturer/-s:

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Module organization

2) Knowledge of Basic Discipline module.

Subject Matter	ECTS	Subject	ECTS	Year/semester
Science and Human Movement.	6,00	Learning and Motor Development	6,00	1/2
Manifestations of the human motor	12,00	Body Language	6,00	1/2
		Perceptual-Motor Skills	6,00	2/1
Applied basis o sports	36,00	Adapted Sport and Physical Activity with Specific Educational Needs	6,00	3/1
		Adversary Sports	6,00	3/2
		Collective Sports	6,00	2/2
		Individual Sports	6,00	2/1
		Local Games and Sports	6,00	2/2
		Sport in the Natural Environment	6,00	3/2
Biological and Mechanics Basis of Human Movement	18,00	Biomechanics of Physical Activity	6,00	3/2
		Kinesiology	6,00	2/1
		Physiology of Exercise	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 Acquiring basic theory knowledge.

R2 Searching information to personalize and increase theoretical contents of biomechanics.

R3 Learning to team-work and make decisions.

R4 Learning to carry out self-assessment about theory and practice work.

R5 Learning to take decisions on various possibilities given.

R6 Apply the lessons learned.

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		
CG2	Ability to apply information technology and communication (ICT)	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
CG8	Being able to recognise multicultural and diverse environment	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			
CG13	Being able to apply theoretical knowledge in practice				x
CG14	Use Internet well as communication and as a source of information	x			

CG15	Conveying the acquired knowledge both to specialists in the subject and to people who are not experts on it			x	
CG16	Understanding other specialists proposals and communicating with them both in the student's own language and in a foreign language	x			
CG18	Being able to assess themselves	x			
CG19	Developing habits aiming at obtaining excellence and quality at work		x		

SPECIFIC		Weighting			
		1	2	3	4
CE1	Knowing and understanding the contents within the scope of Physical Activity and Sports Science		x		
CE3	Knowing and understanding the physiological and biomechanical factors determining physical activity and sports				x
CE5	Know and understand the effects of the practice of body language and its manifestations in the personal development and health improvement			x	
CE8	Knowing and understanding the structure and function of different forms human motor function		x		
CE14	Assessing physical condition and prescribing physical exercises with a view to improve health		x		
CE19	Learn to apply the techniques of information and communication within the body expression			x	

Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R1, R4, R5, R6	70,00%	Written/oral and/or practical tests.
R3, R4, R5, R6	20,00%	Completion of a project.
R2, R4, R5, R6	10,00%	Attendance at interviews, seminars and practical activities.

Observations

To overcome the subject in the 1st enrolment will be essential:

·Overcome with at least 5 pts the theoretical- practical exam. In addition, in order to perform the oral test, the test must have been previously approved Overcome 5 pts between the various sections of the evaluation (except attendance)

·In the rest of competences, the student will be evaluated again in the extraordinary enrolment (repetition of the theoretical and practical exam and presentation of the team work).

·Students whose do not reach the minimum requirements in any assessment section but they reach the mean of 5 pts, they will be pointed with 4.5 pts. In this case, the skills overcome will be stored in the following calls, until the 5th call (not included).

·Only collect the work on the date set by the teacher.

·Those students who do not take the oral and test type tests, will be graded with a "not presented" (NP), regardless of having the other competencies approved.

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.

M5 Discussion in small groups.

M6 Practical lesson.

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, M6	R1, R2, R3, R4, R5, R6	26,50	1,06
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	R1, R2, 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	R4, R6	4,00	0,16
THEORETICAL CLASS: Presentation of content by the teacher. Competency analysis. Demonstration of skills, abilities and knowledge in the classroom. M1, M2, M5	R1, R2	27,50	1,10
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, R3, R4, R5	37,50	1,50
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, R3, R4, R5, R6	52,50	2,10
TOTAL		**90,00**	**3,60**

Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
BLOCK I	·Muscle contraction. ·Energy metabolism. Metabolism during the exercise. ·Responses and adaptations of the cardiovascular system to exercise. ·Answers and respiratory adaptations to exercise. Behavior of gases during exercise. ·Answers and hematological adaptations to exercise. ·Renal function: adaptation to exercise. ·Exercise and digestive responses. ·Answers and endocrine adaptations to exercise.
BLOCK II	·Rating ergometer, general principles. ·Oxygen consumption: concept, applications and physiological basis. ·Transition aerobic - anaerobic. Concept and Measurement of anaerobic threshold.
BLOCK III	·Physiological aspects in special populations: women in sport, in childhood, adolescence and the elderly. ·Physiological adaptations in different physical properties: strength, endurance, speed and flexibility. ·Adaptations of the organism to great heights and depths.
BLOCK IV	·Pathophysiological basis of fatigue. ·Treatment of the condition of fatigue: ergogenic aids.
BLOCK V	·Practice of the subject.

Temporary organization of learning:

Block of content	Number of sessions	Hours
BLOCK I	10,00	20,00
BLOCK II	8,00	16,00
BLOCK III	4,00	8,00
BLOCK IV	3,00	6,00
BLOCK V	5,00	10,00

References

BASIC BIBLIOGRAPHY:

Astrand, P. O. y Rodahl, K. (2010). Fisiología del Trabajo Físico. Médica Panamericana.

Barbany, J.R. (1990). Fundamentos de fisiología del ejercicio y del entrenamiento. Barcanova.

Calderón, F.J. y Teijón, J.M. (2001). Fisiología aplicada al deporte. Tébar.

Cheung, S. S., & Ainslie, P. N. (2021). Advanced environmental exercise physiology. Human Kinetics.

Córdova A. y Navas F. (2000) Fisiología Deportiva. Gymnos.

Fox, E. L. (1995). Fisiología del Deporte. Médica Panamericana.

Guyton, H. (2001). Tratado de Fisiología Médica. McGraw–Hill Interamericana.

Kenney, W. L., Wilmore, J., & Costill, D. (2015). Physiology of Sport and Exercise. 6th Edition. Human Kinetics.

López Chicharro, J. y Fernández Vaquero, A. (2006). Fisiología del ejercicio. Médica Panamericana.

MacDougall, J., Wenger, H. y Green, H. (2005). Evaluación fisiológica del deportista. Paidotribo.

McArdle W. D., Katch F. I. y Katch V. L. (2004). Fundamentos de Fisiología del Ejercicio. McGraw-Hill. Interamericana.

McArdle, W. D., Katch, F. I., & Katch, V. L. (2014). Exercise Physiology: Nutrition, Energy and Human Performance. Lippincott Williams & Wilkins.

Meri, A. (2005). Fundamentos de Fisiología de la Actividad Física y el Deporte. Medica Panamericana.

Mora-Rodríguez, R., Pallarés, J. y Ortega, J. (2020). Fisiología del deporte y el ejercicio Prácticas de campo y laboratorio. Médica Panamericana.

Mooren, F., & Völker, K. (Eds.). (2005). Molecular and cellular exercise physiology. Human Kinetics.

Silbernagl, S. y Despopolous, A. (2009). Fisiología: Texto y Atlas. Médica Panamericana.

Terreros J.L. y Navas F. (2003). Valoración funcional (Aplicaciones al entrenamiento deportivo). Gymnos.

Tresguerres, J.A.F. (1999). Fisiología Humana. McGraw–Hill Interamericana.

Wilmore, J.H. y Costill, D.L. (2007). Fisiología del esfuerzo y del deporte. Paidotribo.

RESEARCH ARTICLE JOURNAL:

·Medicine and Science in Sports and Exercise
·International Journal of Sport Nutrition and Exercise Metabolism
·Exercise and Sport Sciences Reviews
·Journal of Sport & Exercise Psychology
·Journal of Applied Physiology
·European Journal of Applied Physiology

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

[X] 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
X	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: