



IDENTIFYING DATA

Exercise physiology 1

Subject	Exercise physiology 1			
Code	P02G051V01102			
Study programme	Grado en Ciencias de la Actividad Física y del Deporte			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Basic education	1st	1st
Teaching language	Spanish			
Department				
Coordinator	González Matías, Lucas Carmelo			
Lecturers				
E-mail				
Web				
General description				

Training and Learning Results

Code	
B2	2.1 To 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 environments, contexts and types of activities for the entire population and with emphasis on special populations such as: the elderly, schoolchildren, people with disabilities and people with pathologies, health problems or similar (diagnosed and/or prescribed by a physician), taking into account gender and diversity.
B3	2.2 Identify, communicate and apply scientific anatomical-physiological and biomechanical criteria at an advanced level of skills in the design, development and technical-scientific evaluation of procedures, strategies, actions, activities and appropriate orientations; to prevent, minimize and/or avoid a health risk in the practice of physical activity and sport in all types of population.
C5	2.1 To 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 environments, contexts and types of activities for the entire population and with emphasis on special populations such as: the elderly, schoolchildren, people with disabilities and people with pathologies, health problems or similar (diagnosed and/or prescribed by a physician), taking into account gender and diversity.
C6	2.2 Identify, communicate and apply scientific anatomical-physiological and biomechanical criteria at an advanced level of skills in the design, development and technical-scientific evaluation of procedures, strategies, actions, activities and appropriate orientations; to prevent, minimize and/or avoid a health risk in the practice of physical activity and sport in all types of population.
C8	2.4 Articulate and display an advanced level of skill in the analysis, design and evaluation of tests for the assessment and control of physical fitness and physical-sports performance.
C11	3.1 Analyze, identify, diagnose, promote, guide and evaluate strategies, actions and activities that promote 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 overall health, well-being and quality of life, and with emphasis on special populations such as: elderly people (senior citizens), schoolchildren, people with disabilities and people with pathologies, health problems or assimilated (diagnosed and/or prescribed by a doctor) attending to gender and diversity.
C14	3.4 To promote education, dissemination, information and constant guidance to individuals and leaders on the benefits, significance, characteristics and positive effects of the regular practice of physical activity and sport 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 information, guidance and advice on the possibilities of appropriate physical activity and sport in their environment in any sector of professional intervention.
C15	3.5 Organize the promotion of policies, strategies and educational programs on aspects of public health, in relation to physical activity and sport (for the prevention of risk factors and diseases); as well as cooperate with other agents involved in the same: in any sector of professional intervention of physical activity and sport.

- C22 6.2 Analyze, review and select the effect and effectiveness of the practice of methods, techniques and resources of research and scientific work methodology, in solving problems that require the use of creative and innovative ideas.
- C23 6.3 Articulate and deploy with rigor and scientific attitude the justifications on which all acts, decisions, processes, procedures, actions, activities, tasks, conclusions, reports and professional performance are elaborated, supported, substantiated and justified in a constant and professional way.
- D5 2.1 To 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 environments, contexts and types of activities for the entire population and with emphasis on special populations such as: the elderly, schoolchildren, people with disabilities and people with pathologies, health problems or similar (diagnosed and/or prescribed by a physician), taking into account gender and diversity.
- D6 2.2 Identify, communicate and apply scientific anatomical-physiological and biomechanical criteria at an advanced level of skills in the design, development and technical-scientific evaluation of procedures, strategies, actions, activities and appropriate orientations; to prevent, minimize and/or avoid a health risk in the practice of physical activity and sport in all types of population.
- D8 2.4 Articulate and display an advanced level of skill in the analysis, design and evaluation of tests for the assessment and control of physical fitness and physical-sports performance.
- D11 3.1 Analyze, identify, diagnose, promote, guide and evaluate strategies, actions and activities that promote 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 overall health, well-being and quality of life, and with emphasis on special populations such as: elderly people (senior citizens), schoolchildren, people with disabilities and people with pathologies, health problems or assimilated (diagnosed and/or prescribed by a doctor) attending to gender and diversity.
- D14 3.4 To promote education, dissemination, information and constant guidance to individuals and leaders on the benefits, significance, characteristics and positive effects of the regular practice of physical activity and sport 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 information, guidance and advice on the possibilities of appropriate physical activity and sport in their environment in any sector of professional intervention.
- D15 3.5 Organize the promotion of policies, strategies and educational programs on aspects of public health, in relation to physical activity and sport (for the prevention of risk factors and diseases); as well as cooperate with other agents involved in the same: in any sector of professional intervention of physical activity and sport.
- D24 6.1 To know and understand the bases of the methodology of scientific work.
- D25 6.2 Analyze, review and select the effect and effectiveness of the practice of methods, techniques and resources of research and scientific work methodology, in solving problems that require the use of creative and innovative ideas.
- D26 6.3 Articulate and deploy with rigor and scientific attitude the justifications on which all acts, decisions, processes, procedures, actions, activities, tasks, conclusions, reports and professional performance are elaborated, supported, substantiated and justified in a constant and professional way.

Expected results from this subject

Expected results from this subject		Training and Learning Results	
New		C22	D24
		C23	D25
			D26
New	B2	C5	D5
	B3	C6	D6
		C22	D24
New	B3	C6	D6
		C11	D11
			D25
New		C11	D11
		C14	D14
		C22	D25
New	B3	C6	D6
		C14	D14
		C15	D15
New	B2	C5	D5
		C8	D8
		C11	D11
		C14	D14
New	B2 B3	C5	D5
		C6	D6
		C8	D8
		C15	D15

New	B2 B3	C5 C6 C8 C11 C14 C15	D5 D6 D8 D11 D14 D15
New	B2 B3	C5 C6 C8 C11 C14 C15	D5 D6 D8 D11 D14 D15

Contents

Topic	
(*)1. Fisioloxía celular e do sistema nervioso.	(*)1) Introducción, historia e aspectos xerais. Significado da Fisioloxía. 2) Membrana plasmática. Características funcionais e transporte. Fenómenos eléctricos de membrana. 3) Fisioloxía da neurona. Organización funcional do sistema nervioso. Comunicación Neuronal: a sinapsis. Neurotransmisores e neurotransmisión 4) Control motor. Sistema nervioso autónomo ou vexetativo
(*)2. Fisioloxía do músculo.	(*)5) Estrutura e función do músculo estriado. 6) Mecánica da contracción muscular
(*)3. Fisioloxía do sistema endocrino e metabolismo.	(*)7) Sistema endocrino. Neuroendocrinoloxía. 8) Control endocrino do metabolismo
(*)4. Sistemas enerxéticos e valoración fisiolóxica do exercicio.	(*)9) Metabolismo enerxético 10) Valoración fisiolóxica do exercicio

Planning

	Class hours	Hours outside the classroom	Total hours
Laboratory practical	30	30	60
Autonomous problem solving	0	18	18
Lecturing	19	48	67
Objective questions exam	1.5	0	1.5
Report of practices, practicum and external practices	0	1	1
Objective questions exam	1.5	0	1.5
Report of practices, practicum and external practices	0	1	1

*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

Methodologies

	Description
Laboratory practical	(*)Aplicación práctica dos temas estudados a nivel teórico. Realizaranse diversas prácticas en grupo, para unha maior fixación dos conceptos relacionados co sistema nervioso, a contracción muscular, as vías metabólicas e o control hormonal do exercicio, así como distintas probas de valoración do exercicio. As prácticas de simulación de procesos fisiolóxicos realizaranse na aula de informática. As prácticas e valoración Fisiolóxica do exercicio realízanse no laboratorio de fisioloxía do exercicio, nas pistas de atletismo ou noutras dependencias ou exteriores da Facultade
Autonomous problem solving	(*)Formulación, análise, resolución e debate dun problema ou exercicio relacionado cos temas teóricos vistos na aula. E o seu seguimento poderá realizarse a través da plataforma de teledocencia da Universidade. MOOVI: https://moovi.uvigo.gal/login/index.php/
Lecturing	(*)Exposición por parte do profesor dos contidos sobre a materia obxecto de estudo, bases teóricas e/ou directrices dun traballo, exercicio ou proxecto a desenvolver polo estudante

Personalized assistance

Methodologies	Description
Laboratory practical	
Lecturing	

Assessment

Description	Qualification	Training and Learning Results

Objective questions exam	(*)Parcial A. Probas para a avaliación das competencias adquiridas, que inclúen preguntas pechadas con diferentes alternativas de resposta (verdadeiro/falso, elección múltiple, emparellamento de elementos, etc.). Os alumnos seleccionan unha resposta entre un número limitado de posibilidades	40	B2 B3	C5 C6 C8 C11 C14 C15 C22 C23	D5 D6 D8 D11 D14 D15 D24 D25 D26
Report of practices, practicum and external practices	(*)O estudante presenta o resultado obtido na elaboración dun documento sobre a temática da materia. Elaboración dun documento por parte do alumno no que se reflicten as características do traballo levado a cabo. Os alumnos deben describir as tarefas e procedementos desenvolvidos, mostrar os resultados obtidos ou observacións realizadas, así como a análise e tratamento de datos	10	B3	C6 C8 C22 C23	D6 D8 D25 D26
Objective questions exam	(*)Parcial B. Probas para a avaliación das competencias adquiridas, que inclúen preguntas pechadas con diferentes alternativas de resposta (verdadeiro/falso, elección múltiple, emparellamento de elementos, etc.). Os alumnos seleccionan unha resposta entre un número limitado de posibilidades	40	B2 B3	C5 C6 C8 C11 C14 C15 C22 C23	D5 D6 D8 D11 D14 D15 D24 D25 D26
Report of practices, practicum and external practices	(*)O estudante presenta o resultado obtido na elaboración dun documento sobre a temática da materia. Elaboración dun documento por parte do alumno no que se reflicten as características do traballo levado a cabo. Os alumnos deben describir as tarefas e procedementos desenvolvidos, mostrar os resultados obtidos ou observacións realizadas, así como a análise e tratamento de datos	10	B3	C6 C8 C22 C23	D6 D8 D25 D26

Other comments on the Evaluation

Sources of information

Basic Bibliography

- Berne, Robert M.; Koeppen, Bruce M.; Stanton, Bruce A.; Levy, Matthew N., **Fisiología**, 978-84-9113-258-5, 7ª, Elsevier, 2018
- Boron, Walter F.; Boulpaep, Emile L., **FISIOLOGÍA MÉDICA**, 978-84-9113-125-0, 3ª, Elsevier, 2017
- McArdle, W. D. Katch, F. I. & Katch, V. L., **Fisiología del ejercicio : nutrición, rendimiento y salud**, 978-84-1600-470-6, 8ª, Wolters Kluwer Health, 2020
- Powers, Scott K. (Scott Kline), and Edward T. Howley., **Fisiología del ejercicio: teoría y aplicación a la forma física y al rendimiento**, 978-84-9910-435-5, 1ª, Paidotribo, 2014
- MacDougall, J. Duncan, Howard A. Wenger, and Howard J. Green, **Evaluación fisiológica del deportista**, 8480192364, 1ª, Paidotribo, 2015
- Guyton, Arthur C., John E. Hall, and John E. (John Edward) Hall., **Tratado de fisiología médica**, 978-84-9113-024-6, 13ª, Elsevier, 2016
- Benardot, Dan, **Nutrición deportiva avanzada ; cómo ajustar la ingesta de alimentos y líquidos para conseguir un entrenamiento y rendimiento óptimos**, 978-84-7902-947-0, 2ª, Tutor, 2013

Complementary Bibliography

- López Chicharro, José, Almudena Fernández Vaquero, and Francisco José Amaro Gahete., **Fisiología del ejercicio**, 978-84-9110-749-1, 4ª, Editorial Médica Panamericana, 2023
- Kenney, W. Larry, Jack H. Wilmore, and David L. Costill., **Fisiología del deporte y el ejercicio**, 978-0-7360-8772-8, 5ª, Editorial Médica Panamericana, 2012
- Wilmore, Jack H., and David L. Costill, **Fisiología del esfuerzo y del deporte**, 978-84-8019-916-2, 6ª, Paidotribo, 2010
- Pocock, Gillian, and Christopher D. Richards, **Fisiología humana: la base de la medicina**, 84-458-1479-6, 2ª, Masson, 2005
- Bear, Mark F. et al., **euociencia;; la exploración del cerebro**, 978-84-16353-61-3, 4ª, Wolters Kluwer, 2016

Recommendations

Subjects that are recommended to be taken simultaneously

Human anatomy for movement/P02G051V01104

(*)Kinesiología do movimento humano/P02G051V01107
