



## Information about the subject

**Degree:** Bachelor of Sciences of Physical Activity and Sport

**Faculty:** Faculty of Physical Activity and Sport Sciences

**Code:** 282047 **Name:** Fitness and Physical Conditioning

**Credits:** 6,00 **ECTS** **Year:** 4 **Semester:** 1

**Module:** 4) Optional Module.

**Subject Matter:** Professional Itinerary Electives **Type:** Elective

**Field of knowledge:** Health Sciences

**Department:** Physical Preparation and Conditioning

**Type of learning:** Classroom-based learning

**Languages in which it is taught:** Spanish

### Lecturer/-s:

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## Module organization

### 4) Optional Module.

Subject Matter	ECTS	Subject	ECTS	Year/semester
Inclusive Activities and Practices	4,50	Inclusive Activities and Practices in the Areas of Education and Leisure Time	4,50	3, 4/2
Anthropology.	12,00	Anthropology	6,00	3/1
		Science, Reason and Faith	6,00	3/2
Collective Sports	22,50	Basketball	4,50	4/2
		Football	4,50	4/2
		Handball	4,50	3, 4/2
		Hockey	4,50	This elective is not offered in the academic year 25/26
		Volleyball	4,50	
Adversary Sports	18,00	Fencing	4,50	This elective is not offered in the academic year 25/26
		Judo	4,50	
		Paddle	4,50	
		Tennis	4,50	



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Sports in the Natural Environment	4,50	Sports in Nature: Specific Techniques	4,50	3, 4/2
Individual sports	22,50	Athletics	4,50	3, 4/2
		Cycling	4,50	This elective is not offered in the academic year 25/26
		Gymnastics	4,50	3, 4/2
		Swimming	4,50	4/2
		Triathlon	4,50	3, 4/2
Direction and Management of Gyms and Sports Centers	4,50	Gym and Sports Centre Management and Administration	4,50	This elective is not offered in the academic year 25/26
Idiom	9,00	Inglés Avanzado para Ciencias Actividad Física y Deporte	4,50	3, 4/2
		Inglés Intermedio para Ciencias Actividad Física y Deporte	4,50	3, 4/2
Sports facilities	4,50	Sports Facilities	4,50	This elective is not offered in the academic year 25/26
Research Methods and Techniques	4,50	Applied Research Methods and Techniques in Sport Sciences	4,50	4/2
Nutrition	4,50	Nutrition	4,50	3, 4/2
Professional Itinerary Electives	27,00	Fitness and Physical Conditioning	6,00	4/1



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Professional Itinerary Electives	Pedagogy in Educational Values in Sports and Physical Activity	6,00	4/1
	Skills, Entrepreneurship and Employment	3,00	4/2
	Sports Management of Human and Economic Resources	6,00	4/1
	Theory and Practice of Training for High Performance in Sports	6,00	4/1
Trends in sports practices	4,50	Trends in Sports Practices	4,50
			This elective is not offered in the academic year 25/26
Social Skills and Group Dynamics	4,50	Social Skills and Group Dynamics	4,50
			This elective is not offered in the academic year 25/26

## 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 Design, develop, evaluate and adapt the planning and programming processes of Fitness activities, taking into account diversity.
- R2 Autonomously design and apply group and individual exercise programs for different populations and Fitness goals and differentiate the appropriate use of training media.
- R3 Analyze, qualitatively and quantitatively, the results of Fitness activity programs applied in different populations and contexts.
- R4 Correctly handle different technologies to manage the Fitness control process.
- R5 Design, evaluate and promote Fitness programs, events and activities based on their evolution and context.



## Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R1, R3	20,00%	Written and/or practical tests.
R1, R2, R3, R4, R5	60,00%	Individual or Group Work / Project.
R1, R2, R3, R4, R5	20,00%	Exercises and Practices in the Classroom.

### Observations

This subject is NOT eligible for a single assessment request in accordance with the provisions of Article 10.3 of the GENERAL REGULATIONS FOR THE ASSESSMENT AND GRADING OF OFFICIAL COURSES AND UCV DEGREE PROGRAMS.

It is necessary to obtain 50% in all assessment instruments to pass the subject.

Attendance at all the practical sessions indicated in the timetable is compulsory. Additionally for this subject, in the case of not attending 80% of these, the student will fail the two sessions of the course, having to make them up in the following enrolment.

If any of these criteria is not met, the student will be graded with a maximum of 4.5.

### SPECIFICATIONS OF THE EVALUATION INSTRUMENT

#### **Written and/or practical tests**

There will be a single exam at the end of the course in the scheduled dates according to the academic calendar.

This will consist of 2 parts:

- One part with 20 multiple-choice questions with a weighting of 10% of the final grade. Each question will have 4 alternative answers where only 1 is correct. The standard penalty system will be 1 wrong subtract 33%.
- Another part with 2 development questions to answer with a weighting of 10% of the final grade.
- It is necessary to obtain 50% in each part of the exam to pass the subject.

#### **Individual or Group Work / Project**

A project related to the contents of the subject may be carried out: elaboration of proposals for monitoring workloads and physical condition assessment systems, according to the type of fitness centre.

#### **Classroom Exercises and Practicals**

Participation in the different tasks carried out in class or through the UCVnet platform



*The detailed explanation (procedure for the assignments) as well as the evaluation tools (worksheets or rubrics) for each section will be posted on each group's platform and will be available to the student.*





## Use of Artificial Intelligence Tools in the CAFD Degree Program

Use of Artificial Intelligence tools in the CAFD degree program In the Bachelor's Degree in Physical Activity and Sports Sciences (CAFD), the use of Artificial Intelligence (AI) tools is permitted in a complementary and responsible manner, as long as it contributes to active learning, the development of critical thinking, and the improvement of students' professional skills. Under no circumstances should AI replace personal effort, direct practice, or independent reflection, which are fundamental pillars of this degree program.

### Permitted Uses of AI:

- Obtaining alternative explanations of theoretical or methodological concepts.
- Generating outlines, concept maps, or summaries to support study.
- Simulating interviews, questionnaires, or training sessions as part of methodological or research practices.
- Receiving feedback on report writing, provided that the original content is the student's own.
- Supporting the search for bibliography or scientific references, always contrasting with reliable and real academic sources, and respecting the CAFD regulations for the presentation of university work.

### Prohibited Uses of AI:

- Writing complete sections of academic papers, classroom exercises and practices, internship reports, journals, or portfolios, as well as the Final Degree Project.
- Formulating hypotheses, objectives, or conclusions for academic work.
- Replacing qualitative or quantitative data analysis with automated tools without human validation.
- Creating videos, presentations, or avatars with AI as a substitute for the student's oral or practical presentation.
- Obtaining automatic answers to tests, rubrics, or assessable activities through the use of AI.

### Citation and Attribution Guidelines:

- Any use of AI tools must be explicitly acknowledged in the submitted document (e.g., in a footnote or appendix).
- The name of the tool, the purpose of use (e.g., grammatical review, organization of ideas, interview simulation), and where it was used in the work must be indicated.
- Responsible use of AI will be evaluated within the framework of originality, academic honesty, and digital competence.

### Additional recommendations:

Students are encouraged to combine the use of AI with traditional methods (manual problem solving, practical session design, direct observation, etc.) to ensure the comprehensive development of their skills.



If there are any doubts about the permitted use of AI in a specific activity, students should consult the faculty responsible for the course.

## Learning activities

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

- M1 Attendance at practices.
- M2 Resolution of problems and cases.
- M3 Discussion in small groups.
- M4 Practical laboratories.
- M5 Presentation of content by the teacher.
- M6 Practical lesson.
- M7 Group dynamics and activities.



### 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. M3, M5, M7	R1, R2, R3	16,00	0,64
PRACTICAL CLASS / SEMINAR: Group dynamics and activities. Resolution of problems and cases. Practical laboratories. Data search, computer classroom, library, etc. Meaningful construction of knowledge through student interaction and activity. M2, M3, M5, M6, M7	R1, R2, R3, R4, R5	38,00	1,52
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, M7	R1, R3	4,00	0,16
TUTORING: Supervision of learning, evolution. Discussion in small groups. Resolution of problems and cases. Presentation of results before the teacher. Presentation of diagrams and indexes of the proposed works. M3	R1, R2, R3, R4, R5	2,00	0,08
<b>TOTAL</b>		<b>60,00</b>	<b>2,40</b>



## LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
GROUP WORK: Problem solving. Preparation of exercises, memoirs, to present or deliver in classes and/or in tutoring. M2, M3, M7	R1, R2, R3, R4, R5	20,00	0,80
SELF-EMPLOYED WORK: Study, Individual preparation of exercises, assignments, reports, to present or deliver in classes and/or in tutoring. Activities in platform or other virtual spaces. M2	R1, R2, R3	70,00	2,80
<b>TOTAL</b>		<b>90,00</b>	<b>3,60</b>



## Description of the contents

Description of the necessary contents to acquire the learning outcomes.

### Theoretical contents:

Content block	Contents
1. Concept of Fitness, evolution and typologies.	Concept of Fitness, evolution and typologies.
2. Fitness level according to individual characteristics.	Fitness level according to individual characteristics.
3. Fitness training methods. Moderate and vigorous intensity.	Fitness training methods. Moderate and vigorous intensity.
4. Structure and design of exercises for the improvement of cardiorespiratory fitness.	Structure and design of exercises for the improvement of cardiorespiratory fitness.
5. Structure and design of exercises for the improvement of muscular fitness.	Structure and design of exercises for the improvement of muscular fitness.
6. Structure and design of exercises for the improvement of Joint Fitness (ADM).	Structure and design of exercises for the improvement of Joint Fitness (ADM).
7. Evaluation and control of fitness activities in sports centres. Technological fitness.	Evaluation and control of fitness activities in sports centres. Technological fitness.



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Temporary organization of learning:

Block of content	Number of sessions	Hours
1. Concept of Fitness, evolution and typologies.	5,00	10,00
2. Fitness level according to individual characteristics.	5,00	10,00
3. Fitness training methods. Moderate and vigorous intensity.	4,00	8,00
4. Structure and design of exercises for the improvement of cardiorespiratory fitness.	4,00	8,00
5. Structure and design of exercises for the improvement of muscular fitness.	4,00	8,00
6. Structure and design of exercises for the improvement of Joint Fitness (ADM).	4,00	8,00
7. Evaluation and control of fitness activities in sports centres. Technological fitness.	4,00	8,00



## References

### BASIC BIBLIOGRAPHY:

ACSM. (2019). Manual ACSM para la valoración y prescripción del ejercicio. Paidotribo.

Alemán, J. A., de Baranda Andujar, P. S., & Ortín, E. J. O. (2014). Guía para la prescripción de ejercicio físico en pacientes con riesgo cardiovascular. Seh-Lelha.

Barbalho, S. M., Prado Neto, E. V., De Alvares Goulart, R., Bechara, M. D., Baisi Chagas, E. F., Audi, M., Guissoni Campos, L. M., Landgraf Guiger, E., Buchaim, R. L., Buchaim, D. V., & Cressoni Araujo, A. (2020). Myokines: a descriptive review. *The Journal of sports medicine and physical fitness*, 60(12), 1583–1590. <https://doi.org/10.23736/S0022-4707.20.10884-3>

Bay, M. L., & Pedersen, B. K. (2020). Muscle-Organ Crosstalk: Focus on Immunometabolism. *Frontiers in physiology*, 11, 567881. <https://doi.org/10.3389/fphys.2020.567881>

Behm, D. G., & Chaouachi, A. (2011). A review of the acute effects of static and dynamic stretching on performance. *European journal of applied physiology*, 111(11), 2633–2651. <https://doi.org/10.1007/s00421-011-1879-2>

Behm, D. G., Blazevich, A. J., Kay, A. D., & McHugh, M. (2016). Acute effects of muscle stretching on physical performance, range of motion, and injury incidence in healthy active individuals: a systematic review. *Applied physiology, nutrition, and metabolism = Physiologie appliquée, nutrition et metabolisme*, 41(1), 1–11. <https://doi.org/10.1139/apnm-2015-0235>

Blazevich, A. J., & Babault, N. (2019). Post-activation Potentiation Versus Post-activation Performance Enhancement in Humans: Historical Perspective, Underlying Mechanisms, and Current Issues. *Frontiers in physiology*, 10, 1359. <https://doi.org/10.3389/fphys.2019.01359>

Boullosa, D., Del Rosso, S., Behm, D. G., & Foster, C. (2018). Post-activation potentiation (PAP) in endurance sports: A review. *European journal of sport science*, 18(5), 595–610. <https://doi.org/10.1080/17461391.2018.1438519>

Da Silva-Grigoletto, M. E., Pereira-Monteiro, M. R., Aragão-Santos, J. C., Vasconcelos, A. B. S., Marcos-Pardo, P. J., & Fortes, L. S. (2024). Brain functional training: a perspective article. *Frontiers in aging*, 5, 1368878. <https://doi.org/10.3389/fragi.2024.1368878>

de Resende-Neto, A. G., Aragão-Santos, J. C., Oliveira-Andrade, B. C., Silva Vasconcelos, A. B., De Sá, C. A., Aidar, F. J., DeSantana, J. M., Cadore, E. L., & Da Silva-Grigoletto, M. E. (2019). The Efficacy of Functional and Traditional Exercise on the Body Composition and Determinants of Physical Fitness of Older Women: A Randomized Crossover Trial. *Journal of aging research*, 2019, 5315376. <https://doi.org/10.1155/2019/5315376>

Garber, C. E., Blissmer, B., Deschenes, M. R., Franklin, B. A., Lamonte, M. J., Lee, I. M., Nieman, D. C., Swain, D. P., & American College of Sports Medicine (2011). American College of Sports Medicine position stand. Quantity and quality of exercise for developing and maintaining cardiorespiratory, musculoskeletal, and neuromotor fitness in apparently healthy adults: guidance for prescribing exercise. *Medicine and science in sports and exercise*, 43(7), 1334–1359. <https://doi.org/10.1249/MSS.0b013e318213fefb>

Hodgson, M., Docherty, D., & Robbins, D. (2005). Post-activation potentiation: underlying physiology and implications for motor performance. *Sports medicine (Auckland, N.Z.)*, 35(7),



585–595. <https://doi.org/10.2165/00007256-200535070-00004>

La Scala Teixeira, C. V., Evangelista, A. L., Novaes, J. S., Da Silva Grigoletto, M. E., & Behm, D. G. (2017). "You're Only as Strong as Your Weakest Link": A Current Opinion about the Concepts and Characteristics of Functional Training. *Frontiers in physiology*, 8, 643.

<https://doi.org/10.3389/fphys.2017.00643>

Leal, L. G., Lopes, M. A., & Batista, M. L., Jr (2018). Physical Exercise-Induced Myokines and Muscle-Adipose Tissue Crosstalk: A Review of Current Knowledge and the Implications for Health and Metabolic Diseases. *Frontiers in physiology*, 9, 1307.

<https://doi.org/10.3389/fphys.2018.01307>

Li, L.; Mo, L.; Liu, Y.; Mei, T. The Impact of Different Velocity Losses on Post-Activation Performance Enhancement (PAPE) Effects in Sprint Athletes: A Pilot Randomized Controlled Study. *Sports* 2024, 12, 157. <https://doi.org/10.3390/sports12060157>

Liu, C. J., Shiroy, D. M., Jones, L. Y., & Clark, D. O. (2014). Systematic review of functional training on muscle strength, physical functioning, and activities of daily living in older adults. *European review of aging and physical activity*, 11, 95–106.

López Chicharro, J. y Fernández Vaquero, A. (2022). *Fisiología del ejercicio*. Médica Panamericana

Marques, A., Henriques-Neto, D., Peralta, M., Martins, J., Gomes, F., Popovic, S., Masanovic, B., Demetriou, Y., Schlund, A., & Ihle, A. (2021). Field-Based Health-Related Physical Fitness Tests in Children and Adolescents: A Systematic Review. *Frontiers in pediatrics*, 9, 640028.

<https://doi.org/10.3389/fped.2021.640028>

McGowan, C. J., Pyne, D. B., Thompson, K. G., & Rattray, B. (2015). Warm-Up Strategies for Sport and Exercise: Mechanisms and Applications. *Sports medicine* (Auckland, N.Z.), 45(11), 1523–1546. <https://doi.org/10.1007/s40279-015-0376-x>

Monteiro MRP, Cardoso AP, de Resende-Neto AG, Vasconcelos ABS, Camargo EA, Gobbo LA, Maté-Muñoz JL, Heredia-Elvar JR, Behm DG and Da Silva-Grigoletto ME (2023) Is functional training an efficient approach to improve body composition in older people? A systematic review. *Front. Physiol.* 14:1156088. doi: 10.3389/fphys.2023.1156088

Norton, K.I., Norton, L., & Sadgrove, D. (2010). Position statement on physical activity and exercise intensity terminology. *Journal of science and medicine in sport*, 13 5, 496-502 .

Pareja-Blanco, F., Sánchez-Medina, L., Suárez-Arrones, L., & González-Badillo, J. J. (2017). Effects of Velocity Loss During Resistance Training on Performance in Professional Soccer Players. *International journal of sports physiology and performance*, 12(4), 512–519.

<https://doi.org/10.1123/ijsspp.2016-0170>

Pedersen, B. K., & Saltin, B. (2015). Exercise as medicine - evidence for prescribing exercise as therapy in 26 different chronic diseases. *Scandinavian journal of medicine & science in sports*, 25 Suppl 3, 1–72. <https://doi.org/10.1111/sms.12581>

Pollock, M. L., Feigenbaum, M. S., & Brechue, W. F. (1995). Exercise Prescription for Physical Fitness. *Quest*, 47(3), 320–337. <https://doi.org/10.1080/00336297.1995.10484161>

Prieske, O., Behrens, M., Chaabene, H., Granacher, U., & Maffiuletti, N. A. (2020). Time to Differentiate Postactivation "Potentiation" from "Performance Enhancement" in the Strength and Conditioning Community. *Sports medicine* (Auckland, N.Z.), 50(9), 1559–1565.



<https://doi.org/10.1007/s40279-020-01300-0>

Scherr, J., Wolfarth, B., Christle, J. W., Pressler, A., Wagenpfeil, S., & Halle, M. (2013). Associations between Borg's rating of perceived exertion and physiological measures of exercise intensity. *European journal of applied physiology*, 113(1), 147–155.

<https://doi.org/10.1007/s00421-012-2421-x>

So, B., Kim, H. J., Kim, J., & Song, W. (2014). Exercise-induced myokines in health and metabolic diseases. *Integrative medicine research*, 3(4), 172–179.

<https://doi.org/10.1016/j.imr.2014.09.007>

Stenger, L. (2018). What is functional/neuromotor fitness?. *ACSM's Health & Fitness Journal*, 22(6), 35-43.

Weakley, J., Mann, B., Banyard, H., McLaren, S., Scott, T., Garcia-Ramos, A. (2021)

Velocity-Based Training: From Theory to Application. *Strength and Conditioning Journal* 43(2), 31-49. | DOI: 10.1519/SSC.0000000000000560