# Information about the course

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

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

**Code:** 281203 **Name:** Kinesiology

**Credits**: 6,00 ECTS **Year:** 2 **Semester:** 1

**Module:** 1) Basic Training Module

**Subject Matter:** Biological and Mechanical Foundations of Human Motor Skills **Type:** Formación Básica

**Branch of knowledge:** Health Sciences

**Department:** Physical Preparation and Conditioning

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

**Language/-s in which it is given:** Spanish

**Teachers:**

| | | |
|---|---|---|
| 1164DT | Alejandro Sanz Bayo **(Profesor responsable)** | alejandro.sanz@ucv.es |
| 282A | Alejandro Sanz Bayo **(Profesor responsable)** | alejandro.sanz@ucv.es |
| 282B | Consuelo Moratal Lull **(Profesor responsable)** | consuelo.moratal@ucv.es |
| 282C | Ignacio Tamarit Grancha **(Profesor responsable)** | ignacio.tamarit@ucv.es |
| 282D | Ignacio Tamarit Grancha **(Profesor responsable)** | ignacio.tamarit@ucv.es |
| 282X | Ignacio Tamarit Grancha **(Profesor responsable)** | ignacio.tamarit@ucv.es |

# Module organization

## 1) Basic Training Module

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

## Learning outcomes

Al finalizar la asignatura, el estudiante deberá demostrar haber adquirido los siguientes resultados de aprendizaje:

### R13 - Explain, identify, and apply theoretical-practical knowledge about different anatomical-physiological systems that enable any physical activity

Learning outcomes of the specified title

**Type of AR:** Habilidades o Destrezas

- Apply the principles derived from the concept of integral ecology in your proposals or actions, whatever the scope and area of knowledge and the contexts in which they are proposed.

- Articulate and deploy procedures, processes, protocols, own analysis, with rigor and scientific attitude on matters of a social, legal, economic, scientific or ethical nature, when necessary and relevant in any professional sector of physical activity and sport (formal education and informal physical-sports; physical and sports training; physical exercise for health; direction of physical activity and sport).

- Design and apply fluidly, naturally, consciously and continuously adequate, efficient, systematic, varied physical exercise and physical condition, based on scientific evidence, for the development of adaptation and improvement or readaptation processes of certain abilities of each person in relation to human movement and its optimization; in order to be able to solve poorly structured, increasingly complex and unpredictable problems and with emphasis on special populations.

- Develop theoretical-practical responses based on the sincere search for the full truth and the integration of all dimensions of the human being when faced with the great questions of life.

- 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 appropriate procedures, strategies, actions, activities and guidelines; to prevent, minimize and/or avoid a health risk in the practice of physical activity and sport in all types of population.

- Know, prepare and know how to apply the ethical-deontological, structural-organizational conditions, professional performance and the regulations of professional practice of Graduates in Physical Activity and Sports Sciences, in any professional sector of physical activity and sport (teaching formal and informal physical-sports; physical and sports training; physical exercise for health; as well as being able to develop multidisciplinary work

- Understand, know how to explain and disseminate the functions, responsibilities and importance of a good professional Graduate in Physical Activity and Sports Sciences as well as analyze , understand, identify and reflect critically and autonomously on their identity, training and professional performance to achieve the purposes and benefits of physical activity and sport in an adequate, safe, healthy and efficient manner in all physical-sports services offered and provided and in any professional sector of physical activity and sport.

**Type of AR:** Conocimientos o contenidos

- Know and understand the bases of the methodology of scientific work.

**Type of AR:** Competencias

- Articulate and deploy with rigor and a scientific attitude the justifications on which to constantly and professionally prepare, support, substantiate and justify all acts, decisions, processes, procedures, actions, activities, tasks, conclusions, reports and professional performance.

- Articulate and display an advanced level of skill in the analysis, design and evaluation of assessment and control tests of physical condition and physical-sports performance.

- Promote education, dissemination, information and constant guidance to people and leaders on the benefits, significance, characteristics and positive effects of the regular practice of physical and sports activity and physical exercise, and the risks and harms of inadequate practice. and 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 its environment in any sector of professional intervention.

## R14 - Evaluate joint range and/or functional capacity to optimize health and physical performance.

Learning outcomes of the specified title

**Type of AR:** Habilidades o Destrezas

- Analyze, identify, diagnose, promote, guide and evaluate strategies, actions and activities that encourage 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 by citizens with the purpose of improving their comprehensive health, well-being and quality of life, and with emphasis on special populations such as: older people (senior citizens), schoolchildren, people with disabilities and people with pathologies, health or assimilated problems (diagnosed and/or prescribed by a doctor) taking into account gender and diversity.

- Apply the principles derived from the concept of integral ecology in your proposals or actions, whatever the scope and area of knowledge and the contexts in which they are proposed.

- Articulate and deploy procedures, processes, protocols, own analysis, with rigor and scientific attitude on matters of a social, legal, economic, scientific or ethical nature, when necessary and relevant in any professional sector of physical activity and sport (formal education and informal physical-sports; physical and sports training; physical exercise for health; direction of physical activity and sport).

- Design and apply fluidly, naturally, consciously and continuously adequate, efficient, systematic, varied physical exercise and physical condition, based on scientific evidence, for the development of adaptation and improvement or readaptation processes of certain abilities of each person in relation to human movement and its optimization; in order to be able to solve poorly structured, increasingly complex and unpredictable problems and with emphasis on special populations.

- Develop theoretical-practical responses based on the sincere search for the full truth and the integration of all dimensions of the human being when faced with the great questions of life.

- 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 appropriate procedures, strategies, actions, activities and guidelines; to prevent, minimize and/or avoid a health risk in the practice of physical activity and sport in all types of population.

- Know, prepare and know how to apply the ethical-deontological, structural-organizational conditions, professional performance and the regulations of professional practice of Graduates in Physical Activity and Sports Sciences, in any professional sector of physical activity and sport (teaching formal and informal physical-sports; physical and sports training; physical exercise for health; as well as being able to develop multidisciplinary work

- Respect and put into practice the ethical principles and action proposals derived from the objectives for sustainable development, transferring them to all academic and professional activities.

- Understand, know how to explain and disseminate the functions, responsibilities and importance of a good professional Graduate in Physical Activity and Sports Sciences as well as analyze , understand, identify and reflect critically and autonomously on their identity, training and professional performance to achieve the purposes and benefits of physical activity and sport in an adequate, safe, healthy and efficient manner in all physical-sports services offered and provided and in any professional sector of physical activity and sport.

**Type of AR:** Conocimientos o contenidos

- Know and understand the bases of the methodology of scientific work.

**Type of AR:** Competencias

- Articulate and deploy with rigor and a scientific attitude the justifications on which to constantly and professionally prepare, support, substantiate and justify all acts, decisions, processes, procedures, actions, activities, tasks, conclusions, reports and professional performance.

- Articulate and display an advanced level of skill in the analysis, design and evaluation of assessment and control tests of physical condition and physical-sports performance.

- Promote education, dissemination, information and constant guidance to people and leaders on the benefits, significance, characteristics and positive effects of the regular practice of physical and sports activity and physical exercise, and the risks and harms of inadequate practice. and 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 its environment in any sector of professional intervention.

## R15 - Design, experiment, and correct the technical execution of tasks/exercises/technical movements, providing appropriate feedback

Learning outcomes of the specified title

**Type of AR:** Habilidades o Destrezas

- Analyze, identify, diagnose, promote, guide and evaluate strategies, actions and activities that encourage 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 by citizens with the purpose of improving their comprehensive health, well-being and quality of life, and with emphasis on special populations such as: older people (senior citizens), schoolchildren, people with disabilities and people with pathologies, health or assimilated problems (diagnosed and/or prescribed by a doctor) taking into account gender and diversity.

- Apply the principles derived from the concept of integral ecology in your proposals or actions, whatever the scope and area of knowledge and the contexts in which they are proposed.

- Articulate and deploy procedures, processes, protocols, own analysis, with rigor and scientific attitude on matters of a social, legal, economic, scientific or ethical nature, when necessary and relevant in any professional sector of physical activity and sport (formal education and informal physical-sports; physical and sports training; physical exercise for health; direction of physical activity and sport).

- Design and apply fluidly, naturally, consciously and continuously adequate, efficient, systematic, varied physical exercise and physical condition, based on scientific evidence, for the development of adaptation and improvement or readaptation processes of certain abilities of each person in relation to human movement and its optimization; in order to be able to solve poorly structured, increasingly complex and unpredictable problems and with emphasis on special populations.

- Develop theoretical-practical responses based on the sincere search for the full truth and the integration of all dimensions of the human being when faced with the great questions of life.

- 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 appropriate procedures, strategies, actions, activities and guidelines; to prevent, minimize and/or avoid a health risk in the practice of physical activity and sport in all types of population.

- Know, prepare and know how to apply the ethical-deontological, structural-organizational conditions, professional performance and the regulations of professional practice of Graduates in Physical Activity and Sports Sciences, in any professional sector of physical activity and sport (teaching formal and informal physical-sports; physical and sports training; physical exercise for health; as well as being able to develop multidisciplinary work

- Respect and put into practice the ethical principles and action proposals derived from the objectives for sustainable development, transferring them to all academic and professional activities.

- Understand, know how to explain and disseminate the functions, responsibilities and importance of a good professional Graduate in Physical Activity and Sports Sciences as well as analyze , understand, identify and reflect critically and autonomously on their identity, training and professional performance to achieve the purposes and benefits of physical activity and sport in an adequate, safe, healthy and efficient manner in all physical-sports services offered and provided and in any professional sector of physical activity and sport.

---

**Type of AR:** Conocimientos o contenidos

- Know and understand the bases of the methodology of scientific work.

---

**Type of AR:** Competencias

- Articulate and deploy with rigor and a scientific attitude the justifications on which to constantly and professionally prepare, support, substantiate and justify all acts, decisions, processes, procedures, actions, activities, tasks, conclusions, reports and professional performance.

- Articulate and display an advanced level of skill in the analysis, design and evaluation of assessment and control tests of physical condition and physical-sports performance.

- Promote education, dissemination, information and constant guidance to people and leaders on the benefits, significance, characteristics and positive effects of the regular practice of physical and sports activity and physical exercise, and the risks and harms of inadequate practice. and 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 its environment in any sector of professional intervention.

## Assessment system

**Modalidad presencial**

| Assessed learning outcomes | Granted percentage | Assessment tool |
|---|---|---|
| R13, R14, R15 | 60,00% | Written and/or practical tests. |
| R13, R14, R15 | 30,00% | Individual or Group Work / Project. |
| R13, R14, R15 | 10,00% | Exercises and Practices in the Classroom. |

**Observations**

This course is NOT eligible for a single assessment request in accordance with Article 10.3 of the GENERAL REGULATIONS FOR THE ASSESSMENT AND GRADING OF OFFICIAL COURSES AND UCV DEGREE PROGRAMS.
Students may keep the assessment instruments passed during the 3 years following the first enrolment.
A grade of **50%** must be obtained in the following assessment instruments in order to pass the course:
·Written and/or practical tests
·Individual or group work/project
A grade of **70%** must be obtained in the following assessment instruments in order to pass the course:
·Classroom exercises and practical work
Additionally, for this course, if students do not attend **100% of the group presentations**, they will fail both exam sessions for the course and will have to retake them in the following enrollment period.
If any of these criteria is not met, the student will be graded with a maximum of 4.5.

**SPECIFICATIONS OF THE EVALUATION INSTRUMEN**

**Individual or Group Work / Project**

To pass this assessment tool, students must achieve at least 50% of the total assigned. This percentage is obtained from the average of the following two activities, both of which are mandatory, meaning that students must pass both parts, as each contributes equally to the achievement of the established criteria:

- ·Analysis of a sports movement (15%)
- ·Development and implementation of a session focused on joint movement (15%).

**Written and/or practical tests**

This assessment consists of a single final test with two parts, which will be held on the official exam dates. To pass, students must achieve at least 50% of the total assigned. It is essential to have obtained a minimum score of 5 points in the multiple-choice test in order to access the practical test. In addition, it is essential to pass both parts (test and practical) for the instrument to be considered passed:

- ·Multiple-choice test (40%):
  - ·40 questions. 3 options: 1 wrong subtracts 50%.
- ·Practical test** (20%):
  - ·2 questions to be examined out of 1.

**Exercises and Classroom Practices**

The tests included in this instrument are as follows:

- ·Assignments and/or practices submitted via the platform.

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

**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.

## Actividades formativas

The methodologies to be used so that the students reach the expected learning outcomes will be the following:

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 TRAINING ACTIVITIES**

| ACTVITY | RELATIONSHIP WITH THE COURSE LEARNING OUTCOMES | METHODOLOGY | HOURS | ECTS |
|---|---|---|---|---|
| THEORETICAL CLASS: Presentation of contents by the teacher. Competency analysis. Demonstration of capabilities, skills and knowledge in the classroom. | R13, R14, R15 | Presentation of content by the teacher. | 22,00 | 0,88 |

| | | | | |
|---|---|---|---|---|
| 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. | R13, R14, R15 | Discussion in small groups.<br>Practical laboratories.<br>Practical lesson.<br>Group dynamics and activities. | 30,00 | 1,20 |
| EVALUATION: Set of oral and/or written tests used in the evaluation of the student, including the oral presentation of the final degree project. | R13, R14, R15 | Resolution of problems and cases.<br>Group dynamics and activities. | 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. | R13, R14, R15 | Presentation of content by the teacher. | 4,00 | 0,16 |
| **TOTAL** | | | **60,00** | **2,40** |

**TRAINING ACTIVITIES OF AUTONOMOUS WORK**

| ACTVITY | RELATIONSHIP WITH THE COURSE LEARNING OUTCOMES | METHODOLOGY | HOURS | ECTS |
|---|---|---|---|---|
| GROUP WORK: Problem solving. Preparation of exercises, memoirs, to present or deliver in classes and/or in tutoring. | R13, R14, R15 | Discussion in small groups. Practical lesson. Group dynamics and activities. | 32,00 | 1,28 |
| 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. | R13, R14, R15 | Resolution of problems and cases. | 58,00 | 2,32 |
| **TOTAL** | | | **90,00** | **3,60** |

## Description of contents

Descripción de contenidos necesarios para la adquisición de los resultados de aprendizaje.

### Theoretical content:

| Block of content | Contents |
|---|---|
| 1. Human Movement: Application of human movement in relation to type of exercise | Human Movement: Application of human movement in relation to type of exercise |
| 2. Exercises in the different body planes and axes | Exercises in different body planes and axes |
| 3. Joint Behaviour: Muscle levers | Joint behaviour: Muscle levers |
| 4. Pulleys: Main uses for muscular exercise | Pulleys: Main uses for muscular exercise |
| 5. Muscle chains | Muscle chains |
| 6. Joint assessment | Joint assessment |
| 7. Muscle assessment | Muscle assessment |

Temporary organization of learning:

| Block of content | Sessions | Hours |
|---|---|---|
| 1. Human Movement: Application of human movement in relation to type of exercise | 4 | 8,00 |
| 2. Exercises in the different body planes and axes | 5 | 10,00 |
| 3. Joint Behaviour: Muscle levers | 5 | 10,00 |
| 4. Pulleys: Main uses for muscular exercise | 4 | 8,00 |
| 5. Muscle chains | 4 | 8,00 |
| 6. Joint assessment | 6 | 12,00 |
| 7. Muscle assessment | 2 | 4,00 |

## References

**BASIC BIBLIOGRAPHY:**

Ahonen, J., Lahtinen, T., & Sandstrom, M. (2001). *Kinesiología y Anatomía aplicada a la actividad física* (2a ed.). Paidotribo.

Bosch, F., & Cook, K. (2015). *Strength training and coordination: an integrative approach*. 2010 Publishers.

Boyle, M. (2017). *El entrenamiento funcional aplicado a los deportes* (1a ed.). Ediciones Tutor, SA.

Busquet, L. (2002). *Las cadenas musculares* (Tomo 1-4. 1a ed.). Paidotribo.

Calais, B. (1991). *Anatomía para el movimiento* (Tomo I. 12a ed.). Los Libros de la Liebre de Marzo.

Calais, B. (1994). *Anatomía para el movimiento* (Tomo II. 12a ed.). Los Libros de la Liebre de Marzo.

Clarkson, H. (2003). *Proceso evaluativo músculo esquelético* (1a ed.). Paidotribo.

Cleather, D. (2021). *Force: The biomechanics of training*. Independently published.

Contreras, B. (2014). *Anatomía del entrenamiento de la fuerza con el propio peso corporal. Guía ilustrada para mejorar la fuerza, la potencia y la definición muscular* (1a ed.). Ediciones Tutor, SA.

Delavier, F. (2001). *Guía de los movimientos de musculación. Descripción anatómica* (4a ed.). Paidotribo.

Enoka, R. (1994). *Neuromechanical Basis of Kinesiology* (2a ed.). Human Kinetics.

Guyard, J. C. (2008). *Manual práctico de cinesiología* (2a ed.). Paidotribo.

Hough, P., & Penn, S. (2017). *Advanced Personal Training*. Routledge.

Kapandji, Y.A. (1982). *Cuadernos de fisiología articular* (Tomo 1, 2, 3. 6a ed.). Masson.

Kendall, F. P. (2007). *Músculos: pruebas funcionales, postura y dolor* (5a ed.). Marban.

Kendall, F.P., & Kendall McCreary, E. (1985). *Músculos, pruebas y funciones* (5a ed.). Jims.

Levangie, P. K., & Norkin, C. C. (2019). *Joint structure and function: A comprehensive analysis* (6th ed.). F.A. Davis Company.

Lloret, M., & Sancha, J.A. (2003). *Anatomía aplicada a la actividad fisiodeportiva* (3a ed.). Paidotribo.

Maniar, N., Zelik, K. E., Saxby, D. J., Cazzola, D., & Gerus, P. (2022). Muscle force contributions to anterior cruciate ligament loading. *Journal of Biomechanics, 141*, 111175.

Milo, J. (2020). *Manual de Fuerza Anatomía y entrenamiento* (1a ed.). Jeronimo Milo.

Neumann, D. A. (2016). *Kinesiology of the musculoskeletal system* (3rd ed.). Mosby.

Neumann, D. A., & Serra Año, P. (2022). *Cinesiología del sistema musculoesquelético: Fundamentos para la rehabilitación* (P. Serra Año, Trad.). Editorial Médica Panamericana S.A.

Plas, F., Viel, E., & Blanc, E. (1984). *La marcha humana: cinesiología dinámica, biomecánica y patomecánica* (1a ed.). Masson.

Rasch, P.J., & Burke, R.K. (1991). *Kinesiología y anatomía aplicada* (2a ed.). El Ateneo.

Rasch, P.J., & Burke, R.K. (1991). *Kinesiología y anatomía aplicada: La ciencia del movimiento humano* (1a ed.). El Ateneo.
Taboadela, C.H. (2007). *Goniometría. Una herramienta para la evaluación de las incapacidades laborales* (2a ed.). Asociart ART.
Thompson, C., & Floyd, R.T. (1996). *Manual de Kinesiología structural* (2a ed.). Paidotribo.
Uchida, T. K., & Delp, S. L. (2021). *Biomechanics of movement: The science of sports, robotics, and rehabilitation*. The MIT Press.
Vigotsky, A. D., Zelik, K. E., Lake, J., & Hinrichs, R. N. (2019). Mechanical misconceptions: Have we lost the “mechanics” in “sports biomechanics”? *Journal of Biomechanics, 93*, 1-5.
Zatsiorsky, V. M., & Prilutsky, B. I. (2012). *Biomechanics of skeletal muscles*. Human Kinetics.