

**COURSE DATA****DATA SUBJECT****Code:** 42390**Name:** Quantitative research**Cycle:** Master's Degree / Doctorate**ECTS Credits:** 10**Academic year:** 2026-27**STUDY (S)**

Degree	Center	Acad. year	Period
2178 - Master's Degree in Research and Intervention in Physical Activity and Sport	Facultat de Ciències de l'Activitat Física i Esports	1	First quarter
3172 - PhD in Physical Activity and Sport	Escola de Doctorat		First quarter
3172 - PhD in Physical Activity and Sport	Escola de Doctorat		First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
2178 - Master's Degree in Research and Intervention in Physical Activity and Sport	Quantitative research	COMPULSORY
3172 - PhD in Physical Activity and Sport		
3172 - PhD in Physical Activity and Sport		

COORDINATION

GONZALEZ MORENO LUIS MILLAN

SUMMARY

The purpose of M2 module is to provide basic knowledge and methodology necessary to conduct quantitative research in Physical Activity and Sport Sciences.

The module covers aspects related to: a) The ethical approach of research, b) the most appropriate research designs depending on the purpose of the study, c) measuring instruments and data processing, d) analysis statistical data based on the study objectives, the type of design and their characteristics, and e) the development of a scientific report.

PREVIOUS KNOWLEDGE**RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE**

There are no specified enrollment restrictions with other subjects of the curriculum.



OTHER REQUIREMENTS

It is not necessary previous knowledge

COMPETENCES / LEARNING OUTCOMES

2092 -

Students should communicate conclusions and underlying knowledge clearly and unambiguously to both specialized and non-specialized audiences.

Students should demonstrate self-directed learning skills for continued academic growth.

To adapt the design and methodology to the subject matter and research characteristics, as well as to interpret the results, discuss and develop clear and consistent conclusions.

To apply knowledge and be able to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related Physical Activity and Sport Sciences.

To be able to integrate knowledge and make complex judgments based on information that remains incomplete or limited, but include social and ethical responsibility reflections linked to the application of their knowledge and judgments, from a gender perspective.

To choose and apply appropriate statistical techniques according to a particular study.

To communicate experimental research results according to the scientific culture of quantitative research.

To conceive, design and develop applied research in one of the social contexts of physical activity and sport.

To design experimental research according to ethical principles of quantitative research.

To detect and identify problems related to physical activity and sport that can be studied from quantitative methodology.

To identify new problems related to physical activity and sport that can be studied through applied research.

To know the measuring instruments in the field of quantitative research.

To prepare a scientific report from a quantitative research.

To understand and analyze the research being done in the context of exercise and health, physical education and sport, and sports performance and management of physical activity and sport.

To understand the complex research environment, limitations and challenges.

DESCRIPTION OF CONTENTS



1. Ethics and experimental research.

- 1.1. Science and technology. The scientific explanation. Objectivity and subjectivity.
- 1.2. Observation and experimentation. The hypothetical-deductive method. Facts, hypotheses, laws, theories, paradigms. Verification and falsification.
- 1.3. The predictive capability. Natural sciences, social sciences, humanities. The limits of scientific knowledge.
- 1.4. The experimental method in the life sciences. Claude Bernard and biological experimentation. The analytical experiment. Science and animal experimental laboratory.
- 1.5. Regulations and experimental ethics committees

2. Research in athletic performance.

- 2.1. Approach to research problems.
- 2.2. Objectives and basic research issues in sports performance.
- 2.3. Literature review websites, journals, and links.

3. Research designs.

- 3.1. Types of designs adapted to the field of research problems
 - 3.1.1. The experimental method: control and validity.
 - 3.1.2. The experimental method: univariate designs.
 - 3.1.3. The experimental method: factorial designs.
 - 3.1.4. The experimental method: single-case designs.
 - 3.1.5. The experimental method: quasi-experimental designs.
 - 3.1.6. The selective method: ex post facto designs and survey methodology
 - 3.1.7. The observational method: research designs.
- 3.2. Relationship between design and statistical techniques applied.
 - 3.2.1. Descriptive Statistics.
 - 3.2.2. Factor Analysis.
 - 3.2.3. Regression analysis and causal models.
 - 3.2.4. Comparison of means.
 - 3.2.5. Analysis of Variance

4. Collection and analysis of data. Preparation of a report.

- 4.1. Statistical Software.
- 4.2. Requirements for data collection.
- 4.3. Treatment of different types of primary variables.
- 4.4. Interpretation of results and conclusions.
- 4.5. Presentation of data. Academic writing and quantitative analysis.

WORKLOAD

**PRESENCIAL ACTIVITIES**

Activity	Hours
Theory	22,00
Computer classroom practice	43,00
Total hours	65,00

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	100,00
Independent study and work	50,00
Preparation of lessons	0,00
Preparation for assessment activities	0,00
Resolution of case studies	0,00
Total hours	150,00

TEACHING METHODOLOGY

Teaching methodologies and tasks for students will depend on the type of activity to develop:

- Expert presentations by teachers (lectures).
- Discussion in small and large groups of students with and without teacher intervention.
- Supervised work individually or in small groups, to perform searches in databases, portals and other sources of information.
- Study (oneself and guided).
- Presentations.
- Mentorship meetings.

EVALUATION

For the evaluation of the module it will be assessed:

The realization of an individual work of review and design of an study, consisting of two parts:

- Review and justification of the study.



-Design and analysis of reliability and validity.

The preparation and performance of seminars and written test.

Plagiarism or the improper use of artificial intelligence tools may be sanctioned in accordance with article 15 of the evaluation and qualification regulations of the University of Valencia. The use of artificial intelligence tools is strictly limited to form review of works and activities submitted for the course. This is expressly prohibited for generating any type of content, unless their use for such purpose is explicitly acknowledged.

REFERENCES

- Alvira, P. (1991) Metodología de la evaluación de programas. Madrid: CIS.
- Anguera, M.T. (1989) Metodología de la observación en las mediciones. Madrid: Cátedra.
- Babbie, E. (1996) Manual para la práctica de la investigación social. Bilbao: Desclée de Brouwer.
- Balluerca, N. (1999). Planificación de la investigación. La validez del diseño. Salamanca: Amarú Ediciones
- Buck, C., Llopis, A., Nájera, E., Terris, M. (eds). El desafío de la epidemiología. Washington, D.C.: Organización Panamericana de la Salud. 1988.
- Caine, D., Caine, C., Lindner, K. (eds.) Epidemiology of Sport Injuries, Champaign, IL: Human Kinetics Books, 1996.
- Campbell, D.T., Stanley, J. (1970) Diseños experimentales y cuasiexperimentales en la investigación social. Buenos Aires: Amorrónu.
- Field A. (2005). Discovering Statistics Using SPSS. London: Sage.
- Fontes et al. (2001). Diseños de investigación en Psicología. Madrid: UNED.
- García Jiménez y Alvarado (Eds.) (2000). Métodos de investigación en Psicología: Experimental, Selectivo y Observacional. Barcelona: EUB.
- García, J.L. (1995) Cómo elaborar un proyecto de investigación. Alicante: Universidad de Alicante.



- Garcia, M., Ibáñez, J., Alvira, F. (2000) El análisis de la realidad social. Métodos y técnicas de investigación. Madrid: Alianza Editorial.
- García, M.V. (2002) Métodos y diseños de investigación científica. Barcelona: EUB.
- Geymonat, L. (1998) Historia de la filosofía y de la ciencia. Barcelona: Crítica.
- Goldberg, M. (1994) La epidemiología sin esfuerzo. Madrid: Ediciones Díaz de Santos, SA.
- Marczyk, G., DeMatteo, D., Festinger, D. (2005). Essentials of Research Design and Methodology. Hoboken: John Wiley & Sons.
- Moreno, Martínez y Chacón (2000). Fundamentos metodológicos en Psicología y Ciencias afines. Madrid: Pirámide.
- Petrie, A., Sabin, C. (2005). Medical Statistics at a Glance. Victoria: Blackwell Publishing
- Primo, E. (1994) Introducción a la investigación científica y tecnológica. Madrid: Alianza Universidad.
- Sallis JF, Owen N (1999) Physical activity and behavioral medicine. London: Sage.
- Sierra R. (2001) Técnicas de investigación social. Madrid: Paraninfo.