

Academic Year/course: 2022/23

60853 - Applied research methodology

Syllabus Information

Academic Year: 2022/23

Subject: 60853 - Applied research methodology

Faculty / School: 229 - Facultad de Ciencias de la Salud y del Deporte

Degree: 549 - Master's in Evaluation and Physical Training for Health

ECTS: 6.0

Year: 1

Semester: First semester

Subject Type: Compulsory

Module:

1. General information

1.1. Aims of the course

- Analyze, evaluate and propose pre-experimental, quasi-experimental and experimental research designs.
- Analyze, evaluate and propose selective methodology research designs (ex-post de facto and survey designs).
- Analyze, evaluate and propose observational methodology research designs.
- Develop attitudes for interdisciplinary collaboration and teamwork.
- Acquire the basic skills for the search, identification and management of the bibliography and the critical analysis of the information obtained.
- These approaches and aims are aligned with the 2030 Agenda for Sustainable Development (<https://www.un.org/sustainabledevelopment/es/>) in order to acquire the following objectives:
 - Goal 3. Good health and well-being
 - 3.4: By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being.
 - Goal 4. Quality education
 - 4.3: By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university.
 - 4.4: By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.
 - Goal 5. Gender equality.
 - Goal 12. Responsible production and consumption.
 - Goal 13. Climate action.

1.2. Context and importance of this course in the degree

Training for the development of the doctoral thesis is one of the fundamental objectives of the master. In order to achieve this objective, this course provides students with the necessary competences to analyze the scientific production related to the research object of their doctoral thesis, and to make appropriate decisions when proposing the most suitable design for their researches.

1.3. Recommendations to take this course

- Attend theory and practice sessions and actively participate in them.
- Be constant in the daily study.
- Carry out and actively engage in the practices of this subject.
- Ask teachers any type of question or interest.

If due to the pandemic produced by COVID 19, theory and practice sessions had to be canceled, they would be taught in an online mode (Google meet).

2. Learning goals

2.1. Competences

- Propose research models in the field of the promotion and prescription of physical activity for health
- Perform a critical analysis of the development and presentation of new and complex ideas in the field of the assessment and recommendation of physical exercise for health.
- Promote the mutual exchange of knowledge with other colleagues in the field of the assessment and recommendation of physical exercise for health.
- Obtain skills that facilitate learning throughout professional development independently, managing the resources present in the different fields of knowledge.
- Critically analyze scientific texts in Spanish and English, as well as generally understand oral presentations in English and French.
- Present research projects which are methodologically appropriate, following the recommendations of the Declaration of Helsinki and subsequent updates of Biomedical Research.
- Control the different methodological alternatives that can be applied within the framework of physical activity oriented towards health.
- Use different research techniques and apply them appropriately to the field of the assessment and prescription of physical exercise for health in different population groups.
- Adequately analyze the information from scientific texts in the framework of Physical Activity Sciences, assessing its possible link to the field of Health.
- Perform optimized bibliographic searches in the field of health-oriented physical activity, strategically selecting the most relevant information for the purpose of the research: purpose of the intervention, population groups, intervention methodology.
- Identify and interpret the most appropriate methodology for assessing body composition and its influence on the health of different population groups.
- Choose the most appropriate statistical treatment for each research design.

2.2. Learning goals

- Critically analyze the scientific literature on the Evaluation and Prescription of Physical Exercise for Health.
- Relate general research methods to the main scientific problems of the Evaluation and Prescription of Physical Exercise for Health.
- Perform primary and secondary documentary searches.
- Perform the bibliographic review in scientific works.
- Know the structure of a research report.
- Properly organize the steps of research projects.
- Write scientific articles with the APA or AMA style standards.
- Present scientific communications orally.
- Apply inter and intragroup, unifactorial, and factorial experimental designs.
- Apply pre-experimental and quasi-experimental designs.
- Apply selective-correlational designs: ex-post facto and survey designs.
- Select the samples according to the types of designs.
- Apply the observational methodology in the field of Sports Science.
- Use qualitative methodology in the field of Sports Science.

2.3. Importance of learning goals

Successful learning in this subject provides the student with the necessary skills as a scientific researcher. This is the necessary condition to face the challenge of the doctoral thesis with guarantees.

3. Assessment (1st and 2nd call)

3.1. Assessment tasks (description of tasks, marking system and assessment criteria)

- Exam: True/false, multiple-choice, and short answer questions.
 - Interview: Verification of the knowledge that the student has from an oral exchange between the students and the teacher or the oral presentation of works or projects.
 - Techniques based on attendance and active participation: Individual or small group work on proposed practical assumptions.
- * If due to the pandemic produced by COVID 19, the in-person exam had to be canceled, it would be performed in an online mode (Moodle).

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The methodology followed in this course is oriented towards the achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as

- Lectures. Presentation of the course syllabus whose purpose is to transmit knowledge and activate the student's cognitive processes.
- Practice sessions. Students find out the right solutions to problems through the application of formulas or algorithms, etc. and the interpretation of the obtained results. Its purpose is exercising, testing, and putting into practice the acquired knowledge.
- Assignments. Practical application tasks or research works.

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4.2. Learning tasks

The course includes the following learning tasks:

- Research process planning.
- Registration and data coding: observation and recording instruments.
- Analysis of qualitative and quantitative data.
- Document search.
- Literature review.
- Scientific writing.
- Oral presentation of scientific communications.
- Project development and report of quantitative and qualitative research.

4.3. Syllabus

The course will address the following topics:

Topic 1. Methodology of scientific research:

- The nature of research.
- Methods and research design.
- Planning the research process.

Topic 2. Experimental methodology in Physical Activity, Sport and Health:

- The experiment. The experimental control.
- Experimental Design: Inter and intra-group, univariate and factorials.

Topic 3. Quasi-experimental methodology in Physical Activity, Sport and Health:

- Pre-pilot and quasi-experimental designs.
- N1 designs.
- Time series designs.

Topic 4. Selective-correlational Methodology in Physical Activity, Sport and Health:

- Sampling and sampling rates.

- Survey design.
- Questionnaires and surveys.

Topic 5. Observational designs applied to research in Physical Activity, Sport and Health:

- Observational Methodology. Basic concepts and Applications.
- Observational Designs.
- Registration and data coding instruments of observation and recording instruments.
- Types of observational data analysis: Sequential Analysis; obtaining t-patterns; technique Polar coordinates.

Topic 6. Qualitative methodology in Physical Activity, Sport and Health:

- Methods in qualitative research.
- Phases of qualitative research.
- Techniques of qualitative research.
- Analysis of qualitative data.
- Quality control in qualitative research.

Topic 7. Epidemiologic Studies:

- Prevalence studies.
- Case-control studies.
- Cohort and follow-up studies.

Topic 8. Documental sources in Physical Activity, Sport and Health:

- Sources
- Information search
- Literature review

Topic 9. Writing scientific texts:

- Characteristics of scientific texts.
- The papers.
- Writing doctoral thesis, oral communication and scientific presentations.

Topic 10. Development of projects and reports in quantitative and qualitative research.

4.4. Course planning and calendar

All classes will take place in the first semester.

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course, will be provided on the first day of class, and the Master's website <https://fccsyd.unizar.es/master-health-related-physical-fitness>.

4.5. Bibliography and recommended resources

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=60853&Identificador=C70175>