

## 31225 - Psychometrics

### Syllabus Information

**Academic Year:** 2022/23

**Subject:** 31225 - Psychometrics

**Faculty / School:** 301 - Facultad de Ciencias Sociales y Humanas

**Degree:** 613 - Degree in Psychology

**ECTS:** 6.0

**Year:** 3

**Semester:** Second semester

**Subject Type:** Compulsory

**Module:**

## 1. General information

### 1.1. Aims of the course

The main objective of this course is to provide the student with a first approach to the theories, methods and techniques of measurement applied to Psychology.

These approaches and objectives are aligned with some of the Sustainable Development Goals, SDG, of the 2030 Agenda (<https://www.un.org/sustainabledevelopment/es/>) and certain specific goals, in such a way that the acquisition of the Learning outcomes of the subject provides training and competence to the student to contribute to a certain extent to their achievement:

Goal 4: Ensure inclusive, equitable and quality education and promote lifelong learning opportunities for all

4.4 By 2030, significantly increase the number of young people and adults who have the necessary skills, including technical and professional skills, to access employment, decent work and entrepreneurship

Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

8.6 By 2030, significantly reduce the proportion of young people who are not employed and not in education or training

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending

### 1.2. Context and importance of this course in the degree

The subject "Psychometry" is the last subject taught in the area of "Methodology of Behavioral Research" of the Degree in Psychology. While in the subjects "Data Analysis I" and "Data Analysis II" the fundamentals of descriptive and inferential statistics were explained, in the subject "Psychometry" the statistical techniques that allow the development of reliable instruments for the measurement of psychological aspects are presented.

### **1.3. Recommendations to take this course**

It is recommended to have well assimilated the knowledge of descriptive and inferential statistics taught in the subjects "Data Analysis I" and "Data Analysis II". However, this is not a prerequisite for enrollment in this course.

## **2. Learning goals**

### **2.1. Competences**

#### **General competencies**

CG05 - Demonstrate critical ability to make relevant decisions.

CB1 - That students have demonstrated to possess and understand knowledge in an area of study that starts from the base of general secondary education, and is usually found at a level that, while relying on advanced textbooks, also includes some aspects that involve knowledge from the forefront of their field of study.

CB2 - That students know how to apply their knowledge to their work or vocation in a professional manner and possess the skills that are usually demonstrated through the development and defense of arguments and problem solving within their field of study.

CB3 - That students have the ability to gather and interpret relevant data (usually within their area of study) to make judgments that include a reflection on relevant social, scientific or ethical issues.

CB4 - That students can transmit information, ideas, problems and solutions to both specialized and non-specialized audiences.

CB5 - That students have developed those learning skills necessary to undertake further studies with a high degree of autonomy.

#### **Specific competences**

CE03 - Apply the techniques of information collection, obtain relevant data for the evaluation of psychological programs and/or interventions.

SC09 - Manage, analyze and interpret data within the frameworks of disciplinary knowledge specific to the different fields of psychology.

SC10 - Make critical decisions on the choice, application and interpretation of the results derived from the different methods of psychological research.

CE11 - Disseminate the knowledge derived from theoretical reviews and the results of psychological research.

#### **Transversal competences**

CT04 - Acquire essential notions of scientific thought.

### **2.2. Learning goals**

The student will know to correctly evaluate the psychometric properties of a test to make an informed choice of the most appropriate tests in their professional practice. In addition, the student will be able to make appropriate inferences from the scores obtained after the application of the test.

The student will learn to construct and/or adapt a test, analyze its metric properties, make decisions to optimize them and interpret the estimated scores.

### **2.3. Importance of learning goals**

Psychometry is the discipline that deals with the set of methods, techniques and theories involved in measuring and quantifying psychological variables. It makes possible the measurement of unobservable constructs (psychological aspects) from observable variables (e.g., answers to questions in a questionnaire, results of a test...). This is so because psychometry allows to discriminate, from among all the observable variables studied, the most appropriate for measuring the construct in question.

Thanks to psychometry, we now have reliable test batteries. These are tests with scaled scores for a reference group that allow us to understand the profile of a particular person and help to choose the best treatment in each case.

### **3. Assessment (1st and 2nd call)**

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

The evaluation of the course will consist of two parts:

##### **Evaluation of the theoretical part (60% of the final grade)**

This evaluation will be focused on evaluating the theoretical knowledge of the subject. It will represent 60% of the final grade.

##### **Evaluation of the practical part (40% of the final grade)**

This evaluation will be aimed at evaluating the practical aspects of the subject. It will represent 40% of the final grade. This evaluation will be obtained based on the evaluation of different activities (e.g., assignments, exercises, exams, etc.) carried out throughout the course. Those students who cannot, or do not want to, take this continuous evaluation, will have to take the evaluation of the practical part on the day of the final exam. Similarly, those who have taken the continuous evaluation and obtained a score of less than 5 out of 10 will also have to take the evaluation of the practical part on the day of the final exam.

##### **Final grade**

The final grade will be obtained by the weighted average of the different parts of the evaluation, as long as the score of both parts is equal or higher than 5 out of 10. Otherwise, the final grade will be the score of the part with the lower score. Consequently, it will only be possible to pass this subject if both parts have been passed.

### **4. Methodology, learning tasks, syllabus and resources**

#### **4.1. Methodological overview**

The course consists of theoretical and practical classes. The theoretical classes are aimed at explaining the theoretical foundation on which psychometry is based. While the practical classes have the objective of working on the theoretical contents learned through various activities in order to reinforce them. In addition to this, in the practical classes you will learn how to carry out statistical analysis of psychometry using statistical software.

## **4.2. Learning tasks**

The main methodology that will be used to teach the theoretical part of the course will be the lecture. While for the practical part of the course a wide variety of activities will be carried out, such as reports, exercises, exams, computer practice, etc.

## **4.3. Syllabus**

Topic 1. Introduction to psychometrics

Topic 2. Item analysis

Topic 3. Test reliability

Topic 4. Validity of tests

Topic 5. Interpretation of scores: transformation and equating.

Topic 6. Initiation to item response theory

## **4.4. Course planning and calendar**

At the beginning of the course, students will be provided with a calendar with all the learning activities to be carried out during the course. As for the schedules and exam dates, they can be consulted on the faculty's website: <http://fcsch.unizar.es/>.

## **4.5. Bibliography and recommended resources**

To consult the bibliography of the subject, click on the following link:  
<http://psfunizar10.unizar.es/br13/egAsignaturas.php?id=12511>