

Psychometrics

Code: 102569
ECTS Credits: 6

Degree	Type	Year	Semester
2502443 Psychology	OB	3	1

Contact

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Use of Languages

Principal working language: catalan (cat)
Some groups entirely in English: Yes
Some groups entirely in Catalan: Yes
Some groups entirely in Spanish: Yes

Other comments on languages

Classes in Catalan groups 1, 211-213, 215-216, 311-312, 314-315; Spanish groups 214, 313, 316; English group 5. Questions in the assessments are in part in Catalan and in part in English. Materials are in its original language: Catalan, Spanish or English.

Teachers

Eduardo Doval Dieguez
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Prerequisites

It will be very useful to acquire the competencies of previous methodology subjects: Research Methods, Design and Techniques, Data Analysis, and Statistical and Psychometric Models. Therefore, students must be able to understand and apply the methodology used in research in psychology, and particularly the concepts of sampling and design with selective methodology. With regard to data analysis, students must know how to use basic descriptive and inferential analysis techniques and in particular techniques for data reduction and reliability analysis. Other competences previously acquired and especially necessary to study this subject are the application of the APA regulations as regards the writing of texts and references as well as the application of the ethical principles of psychological assessment.

Objectives and Contextualisation

The subject Psychometry is part of the broader subject Methods of research and psychometrics. It is taught in the first semester of the third year of the Degree in Psychology. It is the last subject to be studied in the subject

Methods of research and psychometrics. The three previous subjects offer the basics of research methodology and univariable and multivariable data analysis.

The formative objectives of the subject are:

1. Know the normative texts on the use and valuation of the instruments of measure in Psychology
2. Analyze the psychometric properties of the psychological measures
3. Calculate and interpret scores obtained with measurement instruments in psychology

It is expected that at the end of the subject the student will be able to:

1. Learn relevant strategies to evaluate the validity and reliability of test scores
2. Know the characteristics of the tests that determine and affect the validity and reliability of their own scores
3. Correctly interpret the scores offered by the tests
4. Apply the criteria to select the tests and the guidelines to use and adapt them
5. Understand scientific reports on the psychometric properties of the scores, with the objective to select tests for their correct use
6. Use psychometric vocabulary correctly.

This subject, with Project-Based Learning (PBL) teaching methodology, has a link of Learning Service (ApS) with the Psychological Assessment Instruments Loan Service of the Faculty of Psychology and with the General Council of Psychology of Spain. The ApS is a social commitment of the university and at the same time an educational proposal through which the student can be trained by participating in a teaching project aimed at solving a real need in a given community (for more information <http://pagines.uab.cat/aps>, <https://eoslhe.eu>)).

Competences

- Act with ethical responsibility and respect for fundamental rights and duties, diversity and democratic values.
- Maintain a favourable attitude towards the permanent updating through critical evaluation of scientific documentation, taking into account its origin, situating it in an epistemological framework and identifying and contrasting its contributions in relation to the available disciplinary knowledge.
- Make changes to methods and processes in the area of knowledge in order to provide innovative responses to society's needs and demands.
- Recognise and evaluate the procedures and techniques applied to the construction and adaptation of the instruments of evaluation in psychology.
- Students must be capable of applying their knowledge to their work or vocation in a professional way and they should have building arguments and problem resolution skills within their area of study.
- Students must be capable of collecting and interpreting relevant data (usually within their area of study) in order to make statements that reflect social, scientific or ethical relevant issues.
- Take sex- or gender-based inequalities into consideration when operating within one's own area of knowledge.
- Use different ICTs for different purposes.

Learning Outcomes

1. Analyse a situation and identify its points for improvement.
2. Communicate in an inclusive manner avoiding the use of sexist or discriminatory language.
3. Draw reasoned conclusions on the results obtained with respect to each of the types of evidence for the quality of psychological assessment instruments.
4. Evaluate the scoring and interpretation criteria for scores designed to draw conclusions about the characteristics of the people evaluated.
5. Explain the explicit or implicit deontological code in your area of knowledge.
6. Identify research methods and data analysis techniques suitable for providing each of the required quality indicators in psychological assessment instruments.
7. Maintain a favourable attitude towards the permanent updating through critical evaluation of scientific documentation, taking into account its origin, situating it in an epistemological framework and identifying and contrasting its contributions in relation to the available disciplinary knowledge.
8. Make conclusions about statistical indicators of reliability and validity based on test theory.
9. Select the most appropriate instrument psychological evaluation to solve specific practical problems, taking into account quality requirements.

10. Students must be capable of applying their knowledge to their work or vocation in a professional way and they should have building arguments and problem resolution skills within their area of study.
11. Students must be capable of collecting and interpreting relevant data (usually within their area of study) in order to make statements that reflect social, scientific or ethical relevant issues.
12. Use different ICTs for different purposes.

Content

Thematic block 1: Introduction

1. What is a test and what is it for?
2. Documentation
3. Selection criteria for tests

Thematic block 2: Interpretation of test scores

1. How to interpret the scores of a test?
2. Transformations of the scores
3. Communication of the scores of the people in the tests

Thematic block 3: Validity

1. Definition of validity
2. Content of the tests
3. Response processes
4. Internal structure of the tests
5. Relationship with other variables
6. Consequences of the evaluation
7. Aspects to consider for the assessment of validity

Thematic block 4: Reliability

1. Definition of reliability
2. Psychometric theories for the study of reliability
3. Designs for the assessment of reliability
4. Estimation of true scores
5. Aspects to consider for the assessment of reliability

Thematic block 5: Equity

1. Definition of equity
2. Methods to check the equity of the tests

Methodology

In this course we propose different activities in active learning methodologies focused on students. Teaching techniques are based on Project Based Learning (PBL) that encourage meaningful and cooperative learning.

N.B. The proposed teaching and assessment methodologies may experience some modifications as a result of the restrictions imposed by the authorities. The teaching staff will use the Moodle classroom or the usual communication channel to specify whether the different directed and assessment activities are to be carried out on site or online, as instructed by the Faculty.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
ABP seminars: approach and resolution of different practical cases of a psychometric nature and tutored work on the project of assessment of a test that is carried out	26	1.04	3, 6, 7, 10, 11, 9

throughout the course (seminar type classrooms and/or equipped with computers)

Type: Supervised			
In-person and virtual tutors	15	0.6	3, 6, 9
Type: Autonomous			
Cooperative learning activities	10.5	0.42	3, 6
Critical reading of psychometric material	30	1.2	3, 6, 11, 9
Participation in virtual debate forums	7.5	0.3	6
Reflective study and integration of matter	36	1.44	3, 6, 7, 11
Selection of psychometric material to prepare theoretical thematic blocks	7.5	0.3	9, 12
Solving the pautated problems	15	0.6	3, 6

Assessment

This subject has continuous evaluation with a clear formative function. Thus, second-chance examination is included in the development of the regular course and no recovery evaluation is contemplated at the end of it.

Learning evidence should allow to assess three groups of learning outcomes:

- 1) Knowledge, use of scoring criteria and interpretation of test scores, the ability to identify appropriate methods and techniques to assess the quality of measures, and the ability to identify the main models and techniques of psychometric analysis. Moreover, students who complete this course will be able to properly interpret the results obtained, and the critical application of the acquired knowledge.
- 2) Appropriate selection of psychological assessment instruments, drawing of conclusions, correct interpretation of the results obtained from the application of presented psychometric tests and the elaboration of reasoned conclusions based on the obtained results after applying the methods and psychometric techniques to answer a research hypothesis.
- 3) Maintain a favorable attitude towards permanent updating, and towards knowledge and application of code of ethics.

Learning evidence by continuous assessment

The evaluation is structured in two blocks. The first block evaluates the knowledge of the theoretical part (up to 5 points) and the second block evaluates a project that consists in development task (up to 1.5 points) and the oral and written presentation of a report (up to 4 points). The maximum mark in the transcript will be 10 points. The evaluation of the theoretical part is done with face-to-face tests of closed or short answers. The project consists of a critical evaluation of a test manual.

The first block (TEST) consists in answering several tests reasoning the responses to demonstrate the psychometric knowledge acquired. There are two face-to face tests (TEST1 and TEST2). In TEST2 there is a second-chance evaluation of TEST1 knowledge. In this block up to 5 points can be obtained with the following:

TEST1. Performance of a knowledge test that includes all the subject matter of the course. It is taken individually and on site in the practical classes (expected in week 12). It consists of a test with true/false choice questions and a justification of the answer. It is graded on 5 points recoverable in TEST2.

TEST2. Performance of the test that includes the material of all the subjects of the course. It is done individually and on site during the second assessment period. It consists of a long test with true/false choice questions without justification of the answer. It is graded out of 5 points.

The marks for the TEST block are described at the end of this section.

The second block starts with the PROJECT DEVELOPMENT that aims to consolidate the psychometric knowledge that has been acquired applying it to the assessment of a test manual. During the in-person classes the teacher will propose exercises on the test manual that the student will have to solve and deliver in the same session. These exercises are delivered individually. This PROJECT DEVELOPMENT will account for the evaluation of the first course topics (0.75 points each one - 1.5 in total). This is a non-recovery evaluation.

This second block is completed with the PRESENTATION OF THE PROJECT REPORT, which consists in delivering and orally defending a standard document (COTAN) assessing a manual test to demonstrate the psychometric knowledge acquired during the course. Two writing tasks are presented (PROJECT1, PROJECT2), and in the second task an individual oral defense is also made. The second task is presented as a second-chance evaluation of the knowledge acquired in task1, and the marks can be different for each student. A total of 4 points can be obtained in this block.

PROJECT1. Presentation of the draft of the project report, which includes the assessment of the COTAN that matches the contents of the first part of the subject. It is done as a group project and is presented in written in moodle (P1 is expected in week 8). The team receives feedback in their draft document and a mark of maximum 4 points that is recoverable in PROJECT2.

PROJECT2. Oral defense and presentation of the final project report. The degree of knowledge of both the manual of the test and the evidence of interpretation of scores, validity and reliability that support it are assessed. The student makes an individual oral presentation in response to the teacher's questions and the final report is presented in writing after completing all the sections and incorporating all suggestions received. The presentation and oral defense (P2i) are done on site in the practical classes (expected in week 15). The presentation of the written text (P2g) is done collectively by each group through moodle (expected in week 16). In this evidence, the previous 4 points (PROJECT1) are recoverable as follows: 50% of the points correspond to the individual defense and the other 50% account for the final group report. If only one of the two is presented, the maximum possible grade is 1.9 for the total block PROJECT.

These evidences, PROJECT1 and PROJECT2, are evaluated by the teachers responsible for each project. The reports best evaluated in this part go through a phase of corrections in order to be included in the database of psychological instruments of the Faculty and to be sent to the publisher of the test manual if interested.

The criterion for calculating the grade for each block (TEST and PROJECT) is as follows: Within each block, if the grade obtained in the second evidence exceeds the grade of the first, the grade of the block is equal to the grade of the second evidence. On the other hand, if the grade of the second piece of evidence does not exceed that of the first, the grade of the block is calculated with the average of both.

The results of the evidence will be discussed collectively in face-to-face sessions and may be reviewed in person in the tutoring sessions with the teacher responsible for the seminar group.

Definition of passed course

To pass the course you must meet two requirements within the same academic year: a) To have presented at least the evidence TEST2 and PROJECT2, and b) to have accumulated a total of at least 5 points throughout the course, with a minimum of 2.0 points in the PRESENTATION OF THE PROJECT REPORT block (of the 4 possible) and a minimum of 2.0 points in the TEST block (of the 5 possible). If these requirements are not met, the maximum mark to be recorded in the academic transcript will be 4.5 points.

Resit is ongoing and no final resit system is foreseen.

The management of incidents with learning evidence and, especially, in the cases of students that despite the foreseen recovery along the course do not reach the required threshold, is done through personal interview with the teacher responsible for the seminar group.

Definition of non-evaluable students

A student who has submitted evidence of learning with a weight equal to or greater than 4 points will be listed as "assessable". Otherwise, they will be non-evaluable.

Second or subsequent enrollment students

From the second enrollment, students have the same options as the rest. It is necessary to develop a new project and take the face-to-face tests. No synthesis test is planned.

Co de EV	Denomination	Weight	Format	Authorship	Presentation route
D	PROJECT DEVELOPMENT. Classroom exercises on the content of the textbook	1.5	Written	Individual	In person
P1	PROJECT1. Presentation of the draft report (some sections)	4b	Written	Group	Virtual (Moodle)
T1	TEST1. Knowledge test, with reasoned answer (all the subjects content)	5b	Written	Individual	In person
P2	PROJECT2. Final presentation of the report orally and in writing (all sections and incorporation of all the above suggestions)	4a	Written/Oral	Group/ Individual	Virtual/In person
T2	TEST2. Knowledge test, with closed options and no arguments (all the subjects content)	5a	Written	Individual	In person

Note. (A) requirement to pass the subject; (b) reassessable

Link to Faculty assessments criteria: <https://www.uab.cat/web/estudiar/graus/graus/avaluacions-1345722525858>

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
0 DEVELOPMENT OF THE PROJECT. Exercises in the classroom on the contents of the manual	Maximum of 1,5 points	0	0	3, 6, 7
1 PROJECT1. Report (some sections)	The PROJECT evidences are cumulative and carry a maximum of 4 points.	0	0	8, 3, 10, 11, 9, 4
2 TEST1. Knowledge test that includes all the subject content	The TEST evidences are cumulative and carry a maximum of 5 points.	1	0.04	6

3 PROJECT2. Report (all sections) and oral defence	The PROJECT evidences are cumulative and carry a maximum of 4 points.	0	0	1, 2, 8, 3, 5, 7, 10, 11, 9, 12, 4
4 TEST2. Knowledge test that includes all the subject content	The TEST evidences are cumulative and carry a maximum of 5 points.	1.5	0.06	6

Bibliography

Reference books

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Software

Not relevant.