. – Methods and Techniques of Tests (with Workshop)

## Prof. Francesco De Ambrogi

COURSE AIMS AND INTENDED LEARNING OUTCOMES

The course aims to provide students with a basic knowledge, both theoretical and applicative, of psychological tests. The course aims to examine the theoretical and methodological assumptions on which the construction, validation and use of tests as measurement tools in psychology are based.

The course also aims to introduce some particularly representative mental reactants, providing the main information and skills for a correct use of psychological tests in the diagnostic and application field.

Intended learning outcomes

At the end of the course, students will be able to:

Knowledge and understanding

* know the fundamental psychometric properties of psychological tests;
* know the basics for building and standardising a test, calculating its scores, and interpreting the result;
* know the main characteristics of the tests so as to choose the most suitable test in each situation, with specific attention to the ethical aspects and context of application (research, intervention).

Applying knowledge and understanding:

* Administer and score some representative tests of maximum performance (WISC-IV; Raven's Progressive Matrices, MMSE) and of typical performance (MMPI-2, BFQ-2, 16 PF-5).
* Know the basics for reading and interpreting cases, starting from the scoring of points (WISC-IV, MMPI-2) to writing a comment on the results.

COURSE CONTENT

The course aims to examine the main psychometric properties of a test as well as the steps necessary for its construction. Furthermore, some specific and representative tests will be presented as examples of maximum and typical performance tests. More specifically, the course will be divided into the following units:

Unit 1 - Introduction to psychological tests

* Definition and use of psychological tests
* Ethical principles in the use of tests
* The historical origins of psychological tests
* Test classification
* Maximum performance tests
* Typical performance tests

Unit 2 - Constructing a test

* Psychometry
* Construct, operationalisation, measurement
* Writing the items
* Refining the item pool
* Validity of content
* Pre-administration of a test

Unit 3 - Reliability and validity of the test

* Classical test theory
* Systematic error and random error
* Test reliability
* Construct validity
* Criterion validity

Unit 4 - Factor analysis

* Definition
* Purpose, types and principles
* Exploratory factor analysis

Unit 5 – Item analysis

* Item analysis
* Interpretation of an item analysis and factor analysis output

Unit 6 - Calibration and standardisation

* Statistical norms of a test
* Non-linear standardisation
* Linear standardisation

Unit 7 - Reliability of the score

* Standard error of measurement
* Standard error of difference

Unit 8 - Administration and analysis of a test

* Choice of items
* Participant selection
* Analysis of administration contexts (individual/collective; in-person/online; evaluation by others or self-assessment)
* Manual or software scoring

Unit 9 – Use of tests and tests in scientific research

* Psychometric models
* How to choose a test
* Test and culture
* Interpretation and communication

Unit 10 – Maximum performance test: WISC-IV (workshop)

* Test origins
* Features of the test
* Scoring and interpretation
* Analysis and comment on a case

Unit 11 – Typical performance test: Minnesota Multiphasic Personality Inventory-2 (workshop)

* Test origins
* Features of the test
* Scoring and interpretation
* Analysis and comment on a case

Unit 12 – Testing in contexts (workshop)

* Presentation of several tests specific to the chosen context
* Criteria for the choice of tests
* Scoring and interpretation

READING LIST

The slides and materials presented in class and made available on the Blackboard platform.

L. Picone-L. Pezzuti-F. Ribaudo, *Teorie e tecniche dei test,* Carocci, Rome, 2017 (Chapters 1-9).

Handout “*Materiali per il corso di Metodi e Tecniche dei Test*” EDUCATT, 2021.

TEACHING METHOD

Alternating frontal lectures by lecturers and workshop practical exercises.

ASSESSMENT METHOD AND CRITERIA

The exam will be in written form. The exam comprises two sections, both compulsory for all students:

1. One section consisting of 20 multiple-choice questions aimed at assessing the student's knowledge of the basic theoretical notions of psychological tests. More specifically, 12 questions will cover the theoretical and methodological assumptions (Units 1-9) and 8 questions the theoretical knowledge of specific mental reactants (Units 10-12). Each correct answer is worth 0.5 marks, for a possible total of 10/30 maximum marks. A pass is set at 7 marks.
2. A part consisting of a test in which students will have to demonstrate the skills for critically analysing the psychometric characteristics of a test and make the most appropriate calculations for the correct interpretation of the scores. In this test, students will have to demonstrate their ability to make reasoned choices and correct calculations not only from a mathematical perspective but, above all, by using the correct procedure. The maximum number of marks for this part is 11, with a pass set at 7.
3. Three written analyses of a case relating to Units 10, 11 and 12 (Workshops). For Unit 10, the test will consist of commenting on a protocol related to the administration of the WISC-IV test; for Unit 11, commenting on a protocol related to the administration of the MMPI-2 test; for Unit 12, commenting on the aspects related to the specific administration and scoring of the tests presented during the workshop. Both the operational and interpretative capabilities in protocol management will be assessed. Each paper is given a mark from 0 to 3 marks (pass = 2 marks), with a maximum of 9 marks obtainable. The mark will be assigned according to these criteria: a) the ability to convert raw scores into standardised points; b) the ability to evaluate the validity scales by providing correct indications on the validity and interpretability of the protocol; c) the ability to evaluate and comment correctly on clinical scales by integrating them with appropriate anamnestic data; d) the use of appropriate technical language; e) the ability to provide considerations and hypotheses on therapy compliance; f) the ability to correctly comment on correlated indices, favouring precision in reporting information; g) the ability to follow a logical and coherent order and to provide considerations on the protocol in light of all the information.

The student must achieve a pass mark in each of the exam sections. The final mark is based on the sum of the marks obtained in the three sections. Those students who achieve full marks in all sections will earn a distinction.

NOTES AND PREREQUISITES

Prerequisites

Students must have achieved the minimum intended learning outcomes of the first and second year methodological courses.

Further information can be found on the lecturer's webpage at http://docenti.unicatt.it/web/searchByName.do?language=ENG, or on the Faculty notice board.